

# Bulletin of The University of Minnesota

## THE SCHOOL OF AGRICULTURE

1916-1917



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1916							1917														
<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	
..	..	..	5	6	7	1	..	1	2	3	4	5	6	1	2	3	4	5	6	7	
2	3	4	5	6	7	8	7	8	9	10	11	12	13	8	9	10	11	12	13	14	
9	10	11	12	13	14	15	14	15	16	17	18	19	20	15	16	17	18	19	20	21	
16	17	18	19	20	21	22	21	22	23	24	25	26	27	22	23	24	25	26	27	28	
23	24	25	26	27	28	29	28	29	30	31	..	..	..	29	30	31	..	..	..	..	
30	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
<b>AUGUST</b>							<b>FEBRUARY</b>							<b>AUGUST</b>							
..	..	1	2	3	4	5	..	..	..	..	1	2	3	..	..	..	1	2	3	4	
6	7	8	9	10	11	12	4	5	6	7	8	9	10	5	6	7	8	9	10	11	
13	14	15	16	17	18	19	11	12	13	14	15	16	17	12	13	14	15	16	17	18	
20	21	22	23	24	25	26	18	19	20	21	22	23	24	19	20	21	22	23	24	25	
27	28	29	30	31	..	..	25	26	27	28	..	..	..	26	27	28	29	30	31	..	
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<b>SEPTEMBER</b>							<b>MARCH</b>							<b>SEPTEMBER</b>							
..	..	..	..	..	1	2	..	..	..	..	1	2	3	..	..	..	..	..	..	1	
3	4	5	6	7	8	9	4	5	6	7	8	9	10	2	3	4	5	6	7	8	
10	11	12	13	14	15	16	11	12	13	14	15	16	17	9	10	11	12	13	14	15	
17	18	19	20	21	22	23	18	19	20	21	22	23	24	16	17	18	19	20	21	22	
24	25	26	27	28	29	30	25	26	27	28	29	30	31	23	24	25	26	27	28	29	
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<b>OCTOBER</b>							<b>APRIL</b>							<b>OCTOBER</b>							
1	2	3	4	5	6	7	1	2	3	4	5	6	7	..	1	2	3	4	5	6	
8	9	10	11	12	13	14	8	9	10	11	12	13	14	7	8	9	10	11	12	13	
15	16	17	18	19	20	21	15	16	17	18	19	20	21	14	15	16	17	18	19	20	
22	23	24	25	26	27	28	22	23	24	25	26	27	28	21	22	23	24	25	26	27	
29	30	31	..	..	..	..	29	30	..	..	..	..	..	28	29	30	31	..	..	..	
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<b>NOVEMBER</b>							<b>MAY</b>							<b>NOVEMBER</b>							
..	5	6	7	8	2	3	4	..	..	1	2	3	4	5	..	..	..	..	1	2	3
12	13	14	15	16	17	18	11	6	7	8	9	10	11	12	4	5	6	7	8	9	10
19	20	21	22	23	24	25	18	13	14	15	16	17	18	19	11	12	13	14	15	16	17
26	27	28	29	30	..	..	25	20	21	22	23	24	25	26	18	19	20	21	22	23	24
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	25	26	27	28	29	30	..
<b>DECEMBER</b>							<b>JUNE</b>							<b>DECEMBER</b>							
..	3	4	5	6	7	1	2	..	..	..	..	..	1	2	..	..	..	..	..	..	1
10	11	12	13	14	15	16	9	3	4	5	6	7	8	9	2	3	4	5	6	7	8
17	18	19	20	21	22	23	16	10	11	12	13	14	15	16	9	10	11	12	13	14	15
24	25	26	27	28	29	30	23	17	18	19	20	21	22	23	16	17	18	19	20	21	22
31	..	..	..	..	..	..	..	24	25	26	27	28	29	30	23	24	25	26	27	28	29
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## CALENDAR

### SCHOOL OF AGRICULTURE

1916-17

1916

October	2	Monday	First term begins
November	6	Monday	Dairy School opens
November	7	Tuesday	Election day; a holiday
November	30	Thursday	Thanksgiving day; a holiday
December	2	Saturday	Dairy School closes
December	4-9	Week	Short course for ice-cream makers
December	22	Friday	Christmas vacation begins 9:00 p.m.
December	22	Friday	First term closes

1917

January	1-6	Week	Farmers' and Home Makers' Week
January	9	Tuesday	Second term begins
February	12	Monday	Lincoln's Birthday; a holiday
February	22	Thursday	Washington's Birthday; a holiday
March	24	Saturday	Second term closes
March	27	Tuesday	Alumni day
March	28	Wednesday	Twenty-eighth Annual Commencement

# SCHOOL OF AGRICULTURE

## FACULTY

- GEORGE EDGAR VINCENT, Ph.D., LL.D., President  
1005 5th St. S. E., Minneapolis
- CYRUS NORTHROP, LL.D., President Emeritus  
519 10th Ave. S. E., Minneapolis
- ALBERT F. WOODS, M.A., D.Agr., Dean 1199 Raymond Ave., St. Paul  
EDWARD M. FREEMAN, Ph.D., Assistant Dean 2196 Carter Ave., St. Paul  
DEXTER D. MAYNE, Principal 1403 Cleveland Ave., St. Paul  
RODNEY M. WEST, B.A., Secretary 2141 Doswell Ave., St. Paul  
FANNIE C. BOUTELLE, Preceptress University Farm, St. Paul  
ANNA LAUE, R.N., Head Nurse St. Joseph's Hospital, St. Paul  
HARRIETT W. SEWALL, B.A., Librarian 958 Eustis St., St. Paul
- FREDERICK J. ALWAY, Ph.D., Chief of Division of Soils  
1386 Grantham Ave., St. Paul
- PHILIP A. ANDERSON, B.S., Stock Judging 1206 5th St. S. E., Minneapolis  
ROBERT C. ASHBY, M.S., Animal Husbandry  
1423 Chelmsford St., St. Paul
- LOUIS B. BASSETT, Farm Machinery 2095 Dudley Ave., St. Paul  
ALVA H. BENTON, M.S., Farm Management 2282 Carter Ave., St. Paul  
JOSEPHINE T. BERRY, M.A., Chief of Division of Home Economics  
2176 Scudder Ave., St. Paul
- ANDREW BOSS, Chief of Division of Agronomy and Farm Management  
1443 Raymond Ave., St. Paul
- FANNIE C. BOUTELLE, Social Science, English  
University Farm, St. Paul
- WILFRID G. BRIERLEY, M.S. in Hort., Horticulture  
2128 Knapp St., St. Paul
- CLARA BROWN, B.A., Clothing, House Furnishing  
2120 Como Ave., St. Paul
- LEROY CADY, B.S. in Agr., Horticulture 2121 Doswell Ave., St. Paul  
EDWARD G. CHEYNEY, B.A., Forestry 2163 Carter Ave., St. Paul  
E. B. CLEWORTH, Mechanics Laboratory 1507 Raymond Ave., St. Paul  
ESTELLE COOK, English, Supervisor of Literary Societies  
1315 Raymond Ave., St. Paul
- EUGENE C. CRANE, M.E.M., Concrete 2610 W. 41st St., Minneapolis  
JAMES M. CURRAN, B.S. in Agr., Farm Crops 2089 Carter Ave., St. Paul  
ROBERT C. DAHLBERG, B.S., Seed Testing 2089 Carter Ave., St. Paul  
FRANC DANIELS, B.S., Horticulture 2112 Kenwood Parkway, Minneapolis  
GRACE E. DENNY, B.S., Physical Training, Social Training  
1837 Carroll Ave., St. Paul
- JAMES M. DREW, Practicums 1307 Chelmsford St., St. Paul  
ADDISON L. EWING, M.S., Physics 2334 Langford Ave., St. Paul

- LLOYD V. FRANCE, Bee Culture 2309 Priscilla St., St. Paul  
 EDWARD M. FREEMAN, Ph.D., Chief of Division of Plant Pathology and  
 Botany 2196 Carter Ave., St. Paul  
 GUSTAV W. GEHRAND, Dairy Husbandry 946 15th Ave. S. E., Minneapolis  
 THEOPHILUS L. HAECKER, Chairman of Division of Dairy and Animal  
 Husbandry 1205 Raymond Ave., St. Paul  
 EDWIN O. HANSON, Dairy Husbandry 2081 Buford Ave., St. Paul  
 ELIZABETH HAUSE, B.A., English 2174 Commonwealth Ave., St. Paul  
 ROBERT E. HODGSON, B.S., Farm Crops 1440 Raymond Ave., St. Paul  
 FRANCIS JAGER, Chief of Division of Bee Culture  
 Vendome Hotel, Minneapolis  
 PEDER L. JOHNSRUD, Mathematics 1492 Como Ave. W., St. Paul  
 ALLEN D. JOHNSTON, Blacksmithing 2111 Knapp St., St. Paul  
 DWIGHT J. LANE, Poultry Husbandry R. R. 2, Hopkins  
 ROBERT C. LANSING, M.A., Chief of Section of Rhetoric  
 2237 Knapp St., St. Paul  
 BERNARD LENTZ, First Lieutenant, 21st U. S. Infantry, Military Science  
 and Tactics 721 7th St. S. E., Minneapolis  
 GEORGINA L. LOMMEN, Normal Department  
 2191 Commonwealth Ave., St. Paul  
 OLIVE B. MACCOMBER, Clothing and House Furnishing  
 1393 Cleveland Ave., St. Paul  
 MABEL MCDOWELL, B.S., Foods and Management  
 2638 Bryant Ave. S., Minneapolis  
 ARTHUR J. MCGUIRE, B.Agr., Dairy Stock Judging  
 1366 Raymond Ave., St. Paul  
 SOLVEIG MAGELSEN, M.A., English 725 7th St. S. E., Minneapolis  
 SIMON MARCOVITCH, B.S., Economic Zoology  
 1465 Raymond Ave., St. Paul  
 D. C. MITCHELL, B.Sc. in C.E., Director of Gymnasium  
 1395 Chelmsford St., St. Paul  
 JOSEPH S. MONTGOMERY, B.S. in Agr., Animal Husbandry  
 1403 Chelmsford St., St. Paul  
 MARTHA B. MOORHEAD, M.D., Hygiene 914 2nd Ave. S., Minneapolis  
 AGNES MORTON, B.S., Foods and Management  
 2067 Carter Ave., St. Paul  
 DOROTHY MOTL, R.N., Home Nursing 78 Smith Ave. S., St. Paul  
 JASON L. MOWRY, Mechanics 2342 Bourne Ave., St. Paul  
 GEORGE H. NESOM, Soils 2104 Scudder Ave., St. Paul  
 MARTIN W. NEWELL, Farm Motors 3518 Garfield Ave., Minneapolis  
 PETER J. OLSON, M.S., Farm Crops 2125 Como Ave. W., St. Paul  
 WIELAND L. OSWALD, Agricultural Botany  
 2274 Carter Ave., St. Paul  
 CHARLES C. PALMER, D.V.M., Physiology and Veterinary Science  
 1452 Raymond Ave., St. Paul  
 THOMAS G. PATERSON, B.S. in Agr., Animal Husbandry  
 1343 Cleveland Ave., St. Paul  
 ROLLIN M. PEASE, B.A., Music 210 S. Victoria St., St. Paul

- ABE PEPINSKY, Band and Orchestra 968 Marshall Ave., St. Paul  
 MYRON H. REYNOLDS, M.D., D.V.M., Chairman of Division of Veterinary  
 Science 2145 Knapp St., St. Paul  
 CHARLES J. ROBERTSON, Farm Motors  
 1394 Lake Como and Phalen W., St. Paul  
 ARTHUR G. RUGGLES, M.A., Economic Zoology  
 1465 Raymond Ave., St. Paul  
 ARTHUR C. SATERLIE, B.A., Agricultural Chemistry  
 2512 11th Ave. S., Minneapolis  
 ARTHUR C. SMITH, B.S., Poultry Husbandry  
 2095 Commonwealth Ave., St. Paul  
 JOHN T. STEWART, C.E., Chief of Division of Agricultural Engineering  
 2223 Knapp St., St. Paul  
 ASHLEY V. STORM, M.A., Chief of Division of Agricultural Education  
 1827 4th St. S. E., Minneapolis  
 ROSCOE W. THATCHER, M.A., Chief of Division of Agricultural Chemistry  
 1415 Chelmsford St., St. Paul  
 ARNE G. TOLAAS, M.S., Plant Pathology 2089 Carter Ave., St. Paul  
 JAMES B. TORRANCE, Farm Motors 3744 Portland Ave., Minneapolis  
 OLIVE TUTTLE, B.S., Clothing and House Furnishing  
 2120 Como Ave. W., St. Paul  
 FREDERICK L. WASHBURN, M.A., Chairman of Division of Entomology  
 1112 6th St. S. E., Minneapolis  
 ROBERT M. WASHBURN, B.Agr., M.S.A., Dairy Husbandry  
 2122 Knapp St., St. Paul  
 MILDRED WEIGLEY, Foods and Management 2176 Scudder Ave., St. Paul  
 JOHN P. WENTLING, M.A., Forestry 2160 Carter Ave., St. Paul  
 HALL B. WHITE, B.S. in Agr., Carpentry 1426 Raymond Ave., St. Paul  
 LLOYD R. WHITSON, E.M., Drawing 1721 4th St. S. E., Minneapolis  
 JOHN J. WILLAMAN, M.S., Agricultural Chemistry  
 2091 Buford Ave., St. Paul

#### COMMITTEES, SCHOOL OF AGRICULTURE

- Executive*—The Dean, Secretary, and Chiefs of Divisions  
*Library*—ALWAY, WELLINGTON, STAKMAN, LANSING, SEWALL  
*Curriculum*—CADY, MORTON, DREW, BENDER, WHITE  
*Entertainment*—MAYNE, BOUTELLE, BOSS  
*Sanitation*—REYNOLDS, MAYNE, HOSKINS, C. W. HOWARD  
*Grounds*—BOSS, CADY, STEWART, OSWALD  
*Auditing*—ROE, PECK, LUSK  
*Athletics*—MITCHELL, DENNY, JACOBS, BOYD  
*Students' Work and Eligibility*—BASSETT, WILLAMAN, COOK, WEIGLEY,  
 PALMER, ASHBY  
*Demonstration and Exhibit*—R. M. WASHBURN, C. P. BULL, ALLISON,  
 SMITH, JAGER, TRILLING, MACKINTOSH, F. L. WASHBURN  
*Rules*—R. M. WASHBURN, BENTON, JOHNSRUD  
*Enrollment*—LUSK, MOORE, MORTON, EWING

## GENERAL INFORMATION

### LOCATION

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 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 twenty-five cents is made by the School for transporting trunks at the opening of the school year. A charge of not more than twenty-five 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, October 2 and 3, 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, Soo, 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 car line is about a half mile from the dormitories. 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, October 2, 1916, and close March 28, 1917. The fall term will close at 4:30 p.m., Friday, December 22, and the winter term will begin Tuesday, January 9, 1916.

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; but 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.

All male students are required to have had six months' farm practice before entrance. No student under seventeen years of age will be admitted.

Students who have completed eighth-grade work, or its equivalent, in the common schools, and who are seventeen years of age or older, are admitted without examination. Each applicant for admission should send to the Secretary the certificate of admission which will be found at the back of this catalog, and which when properly filled out by former teacher or superintendent, will be accepted in place of entrance examinations. Diplomas should not be sent.

Applicants whose home schools do not afford complete instruction in the common branches may be admitted with not more than two conditions which must be removed according to instructions given the student upon admission.

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.

Students will be accepted from approved high schools and be given credit toward graduation from the School of Agriculture as follows:

*Boys*—Graduates of a high school, 48 credit hours; graduates presenting four units in Agriculture, 96 credit hours; non-graduates, for each four units presented, 12 credit hours; non-graduates, for each unit in Agriculture, 12 credit hours.

*Girls*—Credits are allowed for high-school work to the extent indicated in parenthesis in each case. English (18), Civics (3), Physiology and Hygiene (5), Household Physics (4), Arithmetic (4), Agricultural Botany (5), History (5), Chemistry (5), Biology (4), Field Agriculture (3), Foods and Cookery (3), and Garment Making (2). Credits are allowed for State Teachers' Training School work as follows: Foods and Cookery (3), Home Management (3), Garment Making (2), Dressmaking (3), Home Nursing (3).

#### COURSE OF STUDY

The course of study offered covers a wide range of subjects and is largely industrial in character; but provision is made for some instruction in English and Mathematics and other academic subjects. The course is briefly outlined on pages 16 to 18. 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. 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 home economics in two groups,—Foods and Management, and Textiles and Clothing. 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.



RULES AND REGULATIONS

1. No student will be allowed to register after the second week of the term, except by permission of the Students' Work Committee.
2. Irregular and special students shall be governed by the same rules and required to carry the same amount of work as the regular students, except when excused by the Students' Work Committee.
3. Students who wish to carry three credit hours more or two subjects less than the required amount of work, must have permission from the Students' Work Committee.
4. The Students' Work Committee may at any time require delinquent students to cancel a portion of their work.
5. An incomplete, not removed by the time of the eight weeks' report of the succeeding term, becomes a failure. Extension of time, for the removal of incompletes may be granted by the Students' Work Committee.
6. No person will be permitted to graduate who has an unremoved incomplete or failure.
7. Any student who has been absent must obtain a pass from the Principal's office before returning to the class.
8. To be classified as a junior a student must have not to exceed twelve credit hours less than the required number of the freshman year, and to be classified as a senior a student must have not to exceed six credit hours less than the required number of the first two years.

The following table shows the number of credits for each class for the school year of 1916-17:

	Boys	GIRLS
Freshman . . . . .	- 37	- 34
Junior . . . . .	38 - 85	35 - 80
Senior . . . . .	85½-139½	81 -127

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 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.

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.

From 8 a.m. to 4:30 p.m. and also after 7 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 11:40 a.m., excepting Monday and Wednesday, 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 by appropriate exercises.

#### 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 144 credit hours for boys (139½ for the class of 1917), and 120 credit hours for girls (127 for the class of 1917).
2. An 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, 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 \$100. This amount does not include the fifteen-dollar deposit made to cover cost of the required military suit for the young men, traveling and personal expense.

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

The cost to the student for board is the actual cost of maintaining the table (including management). This has not exceeded \$3 a week. 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. Students rooming in the dormitories are charged \$7.50 rental per term.

Textbooks are furnished at a rental of \$2.50 a year through the Students' Coöperative Store to students who do not desire to purchase.

A gymnasium fee of \$1 a term is charged each student.

The average cost to students for drawing instruments and material, note-books, and all necessary stationery and supplies is between \$10 and \$12.

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

A competent nurse is kept on the ground to care for the sick. To meet this expense each student pays \$1.50 a 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 and is to room and board at the institution, makes a payment of \$5, entrance fee; \$30, board; \$1.25, book rent; \$1, gymnasium fee; \$1.50, maintaining nurse; \$7.50, room rent; \$5, deposit; \$15, military uniform deposit; total, \$66.25. For a girl the initial payment is \$51.25.

Students who do not room in the dormitories will be required to rent a post-office box in the Main Building in order that notices may reach them promptly. A rental of 20 cents a term is charged.

All male students are required to provide themselves with the prescribed uniform, which consists of cadet gray blouse, trousers, and cap, and is as neat and economical a dress as the student can obtain. A deposit of \$15 is required on first registration to cover the cost of the uniform.

For the boys' gymnasium work a track suit and gymnasium shoes costing \$2.50 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. White tennis shoes are also required. The suit will cost \$2.25, and the shoes may be obtained at the school for \$1. All girls entering the school for the first time are required to take a physical examination in October. 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. Every girl should be provided with a kimono or bath-robe.

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.

#### 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 year, 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.

#### HOSPITAL FUND

The Hospital Fund will be expended under the general direction of the Sanitation Committee.

This fund insures, for those contributing to it, the care of regular nurses and such medicines and materials as the regular nurses may use.

It does not provide medical treatment by physician.

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. They may, if they so desire, purchase hospital service cards for \$1.50 a term which will entitle them to office consultation and treatment by the nurse and, if they live within reasonable distances from the grounds, may have the privileges of nurse calls at 50 cents a call, when nurses can be spared from regular duties on the grounds.

It does not provide for special nurses, if such be required by reason of serious or long-continued illness, except as provided for in the following rule:

"After usual and necessary running expenses connected with the Hospital Fund have been taken care of, any available balance may be used for paying special nurses or other extraordinary expenses. Any balance still due such special nurses shall be paid by students requiring such extra help and pro-rated according to the number of days attendance for each.

"A dispensary fee of 25 cents for each office service by nurses will be collected from those who have not contributed to the hospital fund."

#### STUDENTS' TRUST FUND

The class of 1902 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.

#### LECTURES AND ENTERTAINMENTS

During the school year, evening lectures and entertainments are given in the assembly hall. These entertainments are strictly high grade. They furnish a pleasant relaxation from school work, and serve as a mental stimulus.

#### ORGANIZATIONS AND PUBLICATIONS

*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 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 atmos-

phere 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 semester. 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 so 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 monthly paper owned by the Alumni Association of the School of Agriculture, and published by a committee composed of representatives of the alumni, students, and faculty of the School and the College of Agriculture. The paper is intended to serve as an institutional publication, and as a medium by which former students of both the School and College shall be kept in touch with one another and also with the Department of Agriculture of the University. Through it, also, an endeavor is made to give the farmers of the state information as to the latest progress in experimental work at the various stations.

#### LIBRARY

The agricultural library is well equipped for supplying the needs of both undergraduate and graduate students. It contains over 20,000 volumes of general and technical literature, government reports, and 50,000 unbound pamphlets, bulletins, and reports. The general subject and author card index and the index of publications of the state experiment 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

This is in the third story 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 and a collection of spray pumps and nozzles, showing the various makes on the market. 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

The capital letter A indicates a non-collegiate course. Odd numbers indicate first term courses; even numbers, second term courses. A combination of the two (e.g., A5-6) indicates courses continuing through the year. In the case of courses repeated the second term, the suffix *a* indicates first term, the suffix *b*, second term.

Figures following the descriptive names of courses indicate 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.

### BOYS

#### FRESHMAN YEAR

##### *First Term*

Rhet. A1, Business English, 3  
 Vet. A11, Physiology and Hygiene, 4  
 Agron. A1, Cereal Crops, 4  
 Dy. and An. Husb. A1, Breeds, 5  
 Sch. A11, Arithmetic, 4  
 Gymnasium  
 Military Drill  
 Elective from the following, 4

##### *Second Term*

Rhet. A2, English Classics, 3  
 Pl. Path. A1b, Agricultural Botany, 3  
 Econ. Zool. A1b, Animal Biology, 3  
 Agron. A3b, Corn, 3  
 Agr. Chem. A1b, Chemistry, 5  
 Dy. and An. Husb. A22, Dairy Breeds, 3  
 Gymnasium  
 Military Drill  
 Elective from the following, 4

Agr. Eng. A1a,b, Blacksmithing I, 4  
 Agr. Eng. A21a,b, Carpentry, 4  
 Agr. Eng. A11a,b, Farm Motors I, 4  
 Dy. and An. Husb., A51a,b, Poultry, 3  
 Sch. A1a,b, Spelling and Penmanship, 1  
 §Practicums, 1-3

#### JUNIOR YEAR

##### *First Term*

Rhet. A3, English Grammar, 3  
 Soils A1, Soil Fertility, 4  
 Dy. and An. Husb. A11a, Principles of Feeding, 3  
 Gymnasium  
 Military Drill  
 Elective from the following or from freshman electives, 14  
 Agron. A3, Forage Crops, 4  
 Agron. A15, Farm Practices, 3  
 Hort. A31, Market Gardening, 3  
 Dy. and An. Husb. A3, Stock Judging I, 3

##### *Second Term*

Rhet. A4, Composition I, 3  
 Agr. Eng. A43b, Agricultural Physics, 4  
 \*Hort. A2b, Fruit and Garden Crops, 3  
 Military Drill  
 Elective from the following or from freshman electives, 14  
 Gymnasium  
 Pl. Path. A2, Seed Testing, 2  
 Hort. A52, Plant Propagation, 3  
 Hort. A32, Vegetable Forcing, 3  
 Dy. and An. Husb. A32, Care and Marketing of Milk, 4  
 Sch. A32, Parliamentary Law, 1

\* Those wishing the special horticultural courses in the elective groups may omit this course and elect three additional credits.

§ Summer Work.—For description see special circular on Summer Practicums.



Agr. Eng. A3, Blacksmithing II, 3  
Sch. A21, Vocal Music, 2

Sch. A22, Vocal Music, 2  
§Practicums, 1-3  
Dy. and An. Husb. A26, Dairy Stock Feeding, 3  
Dy. and An. Husb. A12, Feeding Market Stock, 4  
Dy. and An. Husb. A16, Meats I, 2  
Agr. Eng. A16, Mechanics Laboratory, 2

Dy. and An. Husb., A21a,b, Dairy Stock Judging, 2  
Dy. and An. Husb., A24a,b, Dairy Barn Practice, 1-3  
Bee Cult., A1a,b, Beekeeping, 3  
Agr. Eng. A31a,b, Drawing, 3

## SENIOR YEAR

*First Term*

Rhet. A5, Composition II, 2  
Agron. A21, Farm Records and Accounts, 4  
Gymnasium  
Elective from the following or from junior or freshman electives, 18  
Agron. A11, Farm Implements, 4  
Pl. Path. A11, Plant Diseases, 3  
Hort. A3, Orchard Fruits, 3  
Hort. A71, Landscape Gardening, 3  
Vet. A1, Veterinary Medicine, 3  
†Dy. and An. Husb. A13, Live Stock Management, 3  
Dy. and An. Husb. A5, Stock Judging II, 2  
Dy. and An. Husb. A23, Advanced Dairy Stock Judging, 2  
Econ. Zool. A11, Animal Parasites, 3  
Sch. A33, Elementary Economics, 3

Dy. and An. Husb., A25a,b, Advanced Dairy Husbandry, 3  
Agr. Eng. A51a,b, Drainage and Roads, 3

*Second Term*

‡Rhet. A6, Composition II, 2  
Sch. A34, Civics, 3  
Agron. A22, Farm Management, 5  
Elective from the following or from junior or freshman electives, 14  
For. A2, Farm Forestry, 3  
Hort. A4, Small Fruits, 3  
Hort. A50, Floriculture, 3  
Econ. Zool. A16, Insect Pests of Plants, 3  
Dy. and An. Husb. A8, Animal Breeding, 3  
Vet. A2, Veterinary Medicine, 3  
Dy. and An. Husb. A34, Dairy Manufacture, 4  
Dy. and An. Husb. A6, Stock Judging III, 2  
Dy. and An. Husb. A18, Meats II, 2  
Agr. Eng. A12, Farm Motors II, 2  
Agr. Eng. A18, Farm Lighting, Heating and Plumbing, 2  
Rhet. A12, Public Speaking, 3  
Sch. A36, Rural Sociology, 3  
Agr. Eng. A20, Concrete Work, 2  
Dy. and An. Husb. A52, Incubation and Brooding, 3

† Not offered in 1916-17.

‡ Those excused from School courses in rhetoric are still required to write their theses under the supervision of an instructor in rhetoric.

All subjects of the Freshman Year are offered both terms.

One credit per year may be earned by work in Sch. 23-24, Instrumental Music. A special fee will be charged for this course (see under Description of Courses).

The same credit may be earned without fee by membership in the orchestra by those who are competent for the work.

Adults desiring a special course should consult the Enrollment Committee.

## GIRLS

## FRESHMAN YEAR

*First Term*

Rhet. A1, Business English, 3  
 Econ. Zool. A3, Biology, 4  
 Sch. A11, Arithmetic, 4  
 H. E. A21, Foods and Cookery I, 3  
 H. E. A51, Drawing and Design I, 1  
 H. E. A11, Garment Making, 2  
 H. E. A33, Personal Hygiene  
 Physical Training  
 Elective from the following, 3  
 Dy. and An. Husb. A35, Elements of  
 Dairying, 3  
 Sch. A21, Vocal Music, 2

Sch. A1a,b, Spelling and Penmanship, 1  
 Bec. Cult., A1a,b, Beekeeping, 3  
 Dy. and An. Husb., A51a,b, Poultry, 3  
 \*Practicums, 1-3

*Second Term*

Rhet. A2, English Classics, 3  
 Vet. A12, Physiology and Public  
 Health, 5  
 H. E. A22, Foods and Cookery I, 3  
 H. E. A52, Drawing and Design I, 1  
 H. E. A12, Garment Making, 2  
 Social Training  
 Physical Training  
 Elective from the following, 6  
 Pl. Path. A4, Agricultural Botany, 5  
 Agron. A4, Field Agriculture, 3

## JUNIOR YEAR

*First Term*

Rhet. A3, English Grammar, 3  
 H. E. A23, Foods and Cookery II, 3  
 Agr. Chem. A3, Chemistry, 5  
 H. E. A53, Drawing and Design II, 1  
 H. E. A13, Elementary Dressmaking, 2  
 H. E. A31, Home Nursing I, 2  
 Physical Training  
 Elective from the following or from  
 freshman electives, 4  
 H. E. A61, The Family, 3  
 Hort. A71, Landscape Gardening, 3

\*Practicums, 1-3  
 Sch. A35a,b, History, 5

*Second Term*

Rhet. A4, Composition I, 3  
 H. E. A34, House Planning and Fur-  
 nishing, 3  
 Sch. A34, Civics, 3  
 H. E. A14, Dressmaking I, 2  
 H. E. A54, Drawing and Design II, 1  
 Physical Training  
 Elective from the following or from  
 freshman electives, 8  
 Sch. A22, Vocal Music, 2  
 Hort. A36, Home Gardening, 5  
 Sch. A32, Parliamentary Law, 1

## SENIOR YEAR

*First Term*

Rhet. A5, Composition II, 3  
 H. E. A35, Home Management, 3  
 H. E. A1, Textiles and Millinery, 3  
 Agron. A23, Household Accounts, 2  
 Physical Training  
 Elective from the following or from  
 junior and senior electives, 9  
 Agr. Eng. A41a,b, Household Physics, 5

*Second Term*

§Rhet. A6, Composition II, 3  
 H. E. A36, Home Management, 3  
 H. E. A16, Dressmaking II, 3  
 H. E. A32, Home Nursing II, 3  
 Physical Training  
 Elective from the following or from  
 junior and senior electives, 8

\* Summer Work.—For description, see special circular on Summer Practicums.

§ Those excused from School courses in rhetoric are still required to write theses under the supervision of an instructor in rhetoric.

Sch. A33, Elementary Economics, 3  
 Hort. A71, Landscape Gardening, 3  
 Hort. A31, Market Gardening, 3

H. E. A62, Women in the Home and  
 in Industry, 3  
 Hort. A50, Floriculture, 3  
 Rhet. A12, Public Speaking, 3  
 Hort. A4, Small Fruits, 3  
 Sch. A36, Rural Sociology, 3

#### 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 a special teacher, and covers a period of two summer sessions in the State Teachers' Training School held on the campus, and a year of eight months. 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 pre-eminently qualify the students for service in the rural schools of the State.

Seniors in the School are advised to select from the elective list a course in general agriculture suited to the needs of rural school pupils and such other subjects as will seem to suit these needs.

Students preparing to enter the course will pursue the Summer School credit courses in Arithmetic, English, Grammar and the review Penmanship, and the regular program for the department during the training year will be arranged as follows,—opening with the School of Agriculture in October:

##### *First Term*

Teaching Process  
 U. S. History and Civics  
 English  
 Reading—Material and Methods of  
 Teaching  
 Primary Occupations  
 Music  
 Gymnasium  
 Observation and Teaching

##### *Second Term*

Country School Management and Coun-  
 try Life  
 Geography  
 Hygiene  
 English  
 Wood Work  
 Teaching

Provision will be made for general lessons in Drawing, Nature Study, School Luncheons, and Rope Work.

Work in the second summer session will be selected to meet the individual needs of members of the class.

#### ADMISSION TO THE COLLEGE OF AGRICULTURE

The College of Agriculture will admit to the freshman class graduates of the schools of agriculture who can present the following units in addition to the work required in a three-year course of the school:

English, 2 units  
 Elementary Algebra, 1 unit  
 Plane Geometry, 1 unit

Four units selected from groups B, C, D, or E, to make a total of 8 units. No credit will be given for any subject in group F, outside of the work done in the School of Agriculture. (See Bulletin of General Information for explanation of these groups).

The term *unit* means not less than five recitations of forty minutes each per week for a period of thirty-six weeks. In manual subjects and kindred courses, it means the equivalent of ten recitation periods per week for thirty-six weeks.

Completion of the above work must be certified by an accredited high school or covered by examination as specified in the bulletin on General Information.

## DESCRIPTION OF COURSES

The capital letter A indicates non-collegiate course. Odd numbers indicate first term courses; even numbers, second term courses. A combination of the two (e.g., 5-6) indicates courses continuing through the year. In the case of courses repeated the second term, the suffix *a* indicates first term, the suffix *b*, second term.

### AGRICULTURAL CHEMISTRY

ROSCOE W. THATCHER, Chief; ARTHUR C. SATERLIE, JOHN J. WILLAMAN.

#### COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1a,b.	Chemistry .....	5	Fr. boys	None
A3.	Chemistry .....	5	Jr. girls	None

A1a,b. 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. 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.

### AGRICULTURAL ENGINEERING

JOHN T. STEWART, Chief; ERNEST B. CLEWORTH, EUGENE C. CRANE, ADDISON L. EWING, ALLEN D. JOHNSTON, JASON L. MOWRY, MARTIN W. NEWELL, CHARLES J. ROBERTSON, JAMES B. TORRANCE, HALL B. WHITE, LLOYD R. WHITSON.

#### COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1a,b.	Blacksmithing I .....	4	All boys	None
A3.	Blacksmithing II .....	3	Jr., sr. boys	None
A11a,b.	Farm Motors I .....	4	All boys	None
A12.	Farm Motors II .....	2	Sr. boys	A11
A16.	Mechanics Laboratory .....	2	Jr., sr. boys	None
A18.	Farm Lighting, Heating and Plumbing .....	2	Sr. boys	A16, A43
A20.	Concrete .....	2	Sr. boys	None
A21a,b.	Carpentry .....	4	All boys	None
A31a,b.	Drawing .....	3	Jr., sr. boys	None
A41a,b.	Household Physics .....	5	Sr. girls	None
A43a,b.	Agricultural Physics .....	4	Jr. boys	None
A51a,b.	Drainage and Roads .....	3	Sr. boys	None

A1a,b. 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.

- A3. 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.
- A11a,b. FARM MOTORS I. This course offers theory of, and practice in gasoline traction engines and automobiles. Text book required. NEWELL, TORRANCE, ROBERTSON.
- A12. FARM MOTORS II. This course offers theory of and practice in water, wind and electric motors and starters. MOWRY.
- A16. 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. CLEWORTH.
- A18. FARM LIGHTING, HEATING AND PLUMBING. A study of theory installation and care of modern house equipment. MOWRY.
- A20. CONCRETE. Properties of cement, selection of sand and gravel, methods of mixing. Use of concrete on the farm. CRANE.
- A21a,b. 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.
- A31a,b. DRAWING. Prepares the student to make working drawings of broken parts of machinery, to design farm buildings, and to interpret plans and specifications. The latter part of the course is devoted to architectural design. WHITSON.
- A41a,b. 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. EWING.
- A43a,b. 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. EWING.
- A51a,b. DRAINAGE AND ROADS. Kinds and conditions of soils needing drainage; cost; effects on temperature and productiveness; how to secure and maintain a serviceable dirt road, its use as a foundation for a road of more enduring material. EWING.

## AGRONOMY AND FARM MANAGEMENT

ANDREW BOSS, Chief; LOUIS B. BASSETT, ALVA H. BENTON, JAMES M. CURRAN, JAMES M. DREW, ROBERT E. HODGSON, PETER J. OLSON.

## COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1a,b.	Cereal Crops .....	4	Fr. boys	None
A3a,b.	Corn .....	3	Fr. boys	None
A4.	Field Agriculture .....	3	All girls	None
A5.	Forage Crops .....	4	Jr. boys	None
A11.	Farm Implements .....	4	Sr. boys	None
A15.	Farm Practices .....	3	Jr., sr. boys	None
A21.	Farm Records and Accounts .....	4	Sr. boys	None
A22.	Farm Management .....	5	Sr. boys	None
A23.	Household Accounts .....	2	Sr. girls	None

A1a,b. CEREAL CROPS. Studies of the cereal crops, including the history, culture, judging, and use of each. CURRAN, HODGSON.

A3a,b. CORN. A study of the history, culture, judging, and preservation of corn and corn products. OLSON.

A4. FIELD AGRICULTURE. The principles of soil formation and classification. Classes and varieties of the common cereal and forage crops, their history and culture, with emphasis on the use of each in the provision of food and clothing. ....

A5. FORAGE CROPS. A study of the classes and varieties of grass, legume, root, and forage crops: their history, culture, and adaptability. CURRAN, HODGSON.

A11. 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.

A15. FARM PRACTICES. Field, barn and laboratory exercises in the practical everyday work of the farm. Designed especially for those who are deficient in farm experience. DREW.

A21. FARM RECORDS AND ACCOUNTS. Lectures, recitations, and practice in keeping farm records. Junior students will be required to make an inventory of their business on the home farm as a basis for their work in record keeping. BENTON.

A22. 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. BENTON.

A23. HOUSEHOLD ACCOUNTS. Practice in keeping household accounts for both city and country conditions, with lectures, recitations and laboratory work on common business forms, as checks, promissory notes and deeds. BENTON.

## BEE CULTURE

FRANCIS JAGER, Chief; LLOYD V. FRANCE.

## COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1a,b.	Beekeeping .....	3	All	None

A1a,b. BEE KEEPING. Bees and their nature. The reason for keeping bees and how to manage them from a scientific and business point of view. The production of honey by the latest methods with the least labor and expense. JAGER.

## DAIRY AND ANIMAL HUSBANDRY

THEOPHILUS T. HAECCKER, Chairman; PHILIP A. ANDERSON, ROBERT C. ASHBY, GUSTAV W. GEHRAND, EDWIN O. HANSON, DWIGHT J. LANE, ARTHUR J. MCGUIRE, JOSEPH S. MONTGOMERY, CHARLES C. PALMER, THOMAS G. PATERSON, ARTHUR C. SMITH, ROBERT M. WASHBURN.

## COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1a,b.	Breeds .....	5	Fr. boys	None
A3.	Stock Judging I .....	3	Jr., sr. boys	A1
A5.	Stock Judging II .....	2	Sr. boys	A3
A6.	Stock Judging III .....	2	Sr. boys	A3
A8.	Animal Breeding .....	3	Sr. boys	None
A11a,b.	Principles of Feeding .....	3	Jr. boys	None
A12.	Feeding Market Stock .....	4	Jr., sr. boys	None
*A13.	Live Stock Management .....	3	Sr. boys	A12
A16.	Meats I .....	2	Jr., sr. boys	None
A18.	Meats II .....	2	Sr. boys	A16
A21a,b.	Dairy Stock Judging .....	2	Jr., sr. boys	None
A22.	Dairy Breeds .....	3	Fr. boys	None
A23.	Advanced Dairy Stock Judging.	2	Sr. boys	A21
A24a,b.	Dairy Barn Practice .....	1-3	Jr., sr. boys	None
A25a,b.	Advanced Dairy Husbandry ....	3	Sr. boys	None
A26.	Dairy Stock Feeding .....	3	Jr. sr. boys	None
A32.	Care and Marketing of Milk....	4	Jr., sr. boys	None
A34.	Dairy Manufacture .....	4	Sr. boys	None
A35.	Elements of Dairying.....	3	All girls	None
A51a,b.	Poultry .....	3	All	None
A52.	Incubation and Brooding.....	3	Sr. boys	None

\* Not given in 1916-17.

A1a,b. BREEDS. This course is a study of the history of origin and development, breed characteristics and adaptability of the principal breeds of beef cattle, horses, sheep, and swine. HANSON, ANDERSON.

A3. STOCK JUDGING I. Consists of judging beef cattle, sheep and swine from the market standpoint. HANSON, ANDERSON.

A5. STOCK JUDGING II. Consists of judging pure bred sheep and swine from the breeding standpoint. HANSON, ANDERSON



- A6. STOCK JUDGING III. Consists of judging pure bred horses and cattle from the breeding standpoint. HANSON, ANDERSON.
- A8. ANIMAL BREEDING. Principles that govern breeding and influences that affect heredity. Students become familiar with methods of keeping live stock records. PALMER.
- A11a,b. PRINCIPLES OF FEEDING. The relation of plants to animal growth, animal body, digestive organs, metabolism. Food stuffs, roughages and concentrates, and their values in animal growth and production. GEHRAND.
- A12. FEEDING MARKET STOCK. A study of rations and economical methods of feeding hogs, beef cattle and sheep—both growing and fattening; also growing and working horses. Discussion of shelter requirements, feeding equipment and management under practical farm conditions. ASHBY, HANSON.
- A13. LIVE STOCK MANAGEMENT. This course is in the nature of a practicum dealing with the practical handling of beef cattle, horses, sheep and swine. Not given 1916-17. PATERSON, MONTGOMERY, ASHBY.
- A16. MEATS. Lectures and demonstrations on dressing, cutting and curing of meats. PATERSON, ANDERSON.
- A18. MEATS. Practice work in dressing, cutting and curing meats. ANDERSON.
- A21a,b. DAIRY STOCK JUDGING. Study of dairy cattle of different breeds to determine their productive and breeding value. Practical experience in judging and placing the same. Agriculture College herd is used. GEHRAND.
- A22. DAIRY BREEDS. Study of Holstein, Guernsey, Jersey, Ayrshire, and other breeds of cattle kept for dairy purposes, with relation to their chief characteristics, adaptability and production. GEHRAND.
- A23. ADVANCED DAIRY STOCK JUDGING. Study of dairy cattle with relation to type, production, and breeding. This subject includes pedigrees and Advanced Registry of the different breeds. GEHRAND.
- A24a,b. DAIRY BARN PRACTICE. The course will consist of actual practice in the taking care of, and in feeding and handling dairy stock. Only regular and systematic attendance upon practice will be credited. GEHRAND.
- A25a,b. ADVANCED DAIRY HUSBANDRY. Relation of dairying to soil fertility, and the utilization of fodders and by-products. Practical feeding of dairy cow. Relation of feed to production. Feeding, management, and development of the calf intended for the dairy. GEHRAND.
- A26. DAIRY STOCK FEEDING. A study of the dairy cow as to her needs for production; study of dairy stock food stuffs, roughages and concentrates; making rations for cows of various temperaments and production. GEHRAND.

- A32. CARE AND MARKETING OF MILK. Milk, its composition, properties, cleanly production and care. Principles of and practice in milk and cream standardizing, pasteurizing, bottling, separating and testing. Forms and methods of marketing. WASHBURN.
- A34. DAIRY MANUFACTURE. Principles of and practice in cream ripening and butter-making. Calculation of yields and costs. Coöperative manufacture and marketing. Ice-cream making. Testing dairy products. WASHBURN.
- A35. ELEMENTS OF DAIRYING. Composition and properties of milk. How to care for it in the home and the dairy. Principles of and practice in separating, testing, farm butter, cheese, and ice-cream making, and market milk. WASHBURN.
- A51a,b. POULTRY. Principles of general management, house construction, artificial incubation and brooding, feeding for egg production; common ailments and simple treatments. Practice in pen management and keeping accounts is required of all students. LANE.
- A52. INCUBATION AND BROODING. A combination of study and practice 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.

### ECONOMIC ZOOLOGY

FREDERICK L. WASHBURN, Chairman; SIMON MARCOVITCH, ARTHUR G. RUGGLES.

#### COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1a,b.	Animal Biology .....	3	Fr. boys	None
A3.	Biology .....	4	Fr. girls	None
A11.	Animal Parasites .....	3	Sr. boys	None
A16.	Insect Pests of Plants .....	3	Sr. boys	None

A1a,b. ANIMAL BIOLOGY. Study of general principles of animal life such as metabolism, respiration, digestion, growth, and reproduction. MARCOVITCH.

A3. BIOLOGY. A study of the structure and life of animals, the interdependence of organisms, and the relation of man to his environment. MARCOVITCH.

A11. ANIMAL PARASITES. A study of life histories and methods of prevention and control of various external and internal parasites of domestic animals. MARCOVITCH.

A16. INSECT PESTS OF PLANTS. A study of life cycles of insect pests injurious to cultivated plants and methods of combating them. MARCOVITCH.

## FORESTRY

EDWARD G. CHEYNEY, Chief; JOHN P. WENTLING.

## COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A2.	Farm Forestry .....	3	Sr. boys	None

A2. FORESTRY. A study of the place of the wood-lot in farm management; how the tree grows; the use of windbreaks, including species and methods of planting; the preservative treatment of fence posts; wood-lot products. CHEYNEY, WENTLING.

## GYMNASIUM

The gymnasium work has for its object to better health conditions on the campus, and to make the farm boys more agile. The first part of the hour is given over to calisthenics with dumb-bells, wands, bar-bells, Indian clubs, and free arm movement; then light apparatus work on the parallel bars, side horse, buck, and the mats followed by some game or running on the track. Shower baths and a swimming pool are provided.

## HOME ECONOMICS

JOSEPHINE T. BERRY, Chief; FANNIE C. BOUTELLE, CLARA BROWN, OLIVE B. MACCOMBER, MABEL McDOWELL, MARTHA B. MOORHEAD, DOROTHY MOTL, AGNES MORTON, OLIVE TUTTLE, MILDRED WEIGLEY.

## COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1.	Textiles and Millinery .....	3	Sr. girls	None
A11-12.	Garment Making .....	4	Fr. girls	None
A13.	Elementary Dressmaking .....	2	Jr. girls	None
A14.	Dressmaking I .....	3	Jr. girls	None
A16.	Dressmaking II .....	3	Sr. girls	None
A21-22.	Foods and Cookery I .....	6	Fr. girls	None
A23.	Foods and Cookery II .....	3	Jr. girls	None
A31.	Home Nursing I .....	2	Jr. girls	None
A32.	Home Nursing II .....	3	Sr. girls	None
A33.	Personal Hygiene .....	..	Fr. girls	None
A34.	House Planning and Furnishing	3	Jr. girls	None
A35-36.	Home Management .....	6	Sr. girls	None
A51-52.	Drawing and Design I .....	2	Fr. girls	None
A53-54.	Drawing and Design II .....	2	Jr. girls	None
A61.	The Family .....	3	Jr., sr. girls	None
A62.	Women in the Home and in Industry .....	3	Sr. girls	None

A1. TEXTILES and MILLINERY. (a) A study of the standard fabrics, and textile fibres; of tests for pure and adulterated fibres. (b) Study of design and color harmony in hats; alteration of frames; making and trimming of simple hats. BROWN.

A11-12. GARMENT-MAKING. (a) Qualities and prices of standard washable fabrics; construction and care of the sewing machine. (b)

Handwork stitches and machine sewing as applied to simple garments; pattern drafting; commercial patterns; making of undergarments and simple waists. MACCOMBER, TUTTLE.

- A13. **ELEMENTARY DRESSMAKING.** A study of standard cotton, linen and wool fabrics; of design in tailored dresses; of the processes involved in the construction of dresses, of the conditions under which ready-to-wear clothing is manufactured. BROWN, MACCOMBER.
- A14. **DRESSMAKING I.** Designing, cutting, fitting waists and dresses, in cotton and wool materials, following tailor designs. BROWN, MACCOMBER.
- A16. **DRESSMAKING II.** (a) Clothing in relation to health; its care and cost in relation to durability, suitability, and the income; the clothing budget. (b) The use of the model figure; the making of a lingerie dress; decorative needlework. BROWN.
- A21-22. **FOODS AND COOKERY I.** (a) Production, manufacture, and composition of typical foods, and their classification into food principles. (b) A study of fundamental science principles underlying the cookery of the carbohydrate foods, and their application. WEIGLEY, MORTON.
- A23. **FOODS AND COOKERY II.** A continuation of Course A21-22, as applied to the study of proteins and fats; a study of fermentation and its application in bread-making and food preservation. McDOWELL, MORTON.
- A31. **HOME NURSING I.** This course follows the work planned by the American National Red Cross Society. MOORHEAD, MOTL.
- A32. **HOME NURSING II.** (a) Communicable diseases, means of prevention, control, disinfection; hygienic requirements during infancy, childhood, womanhood, maternity. (b) Home nursing equipment and methods practicable in the household. MOORHEAD, MOTL.
- A33. **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.
- A34. **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. WEIGLEY, McDOWELL.
- A35-36. **HOME MANAGEMENT.** Distribution of the family income; purchasing of supplies; planning and serving meals, relation of cost to income; sanitary cleanliness and its application in the care of a house; importance of labor-saving devices. WEIGLEY, McDOWELL.
- A51-52. **DRAWING AND DESIGN I.** The 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. TUTTLE.

A53-54. DRAWING AND DESIGN II. This course teaches the principles developed in Course A51-52 by means of more advanced problems and illustrations. TUTTLE.

A61. THE FAMILY. A brief study of the family as an institution; of its economic relation to industry, property, education, population; the standard of living in relation to the efficient home and family; the relation of the home to the State. BOUTELLE.

A62. WOMEN IN THE HOME AND IN INDUSTRY. A brief survey of the status of the homemaker and of women in industry; their duties and responsibilities in the home and in civic life; the proper conservation of mental, moral, and physical power. BOUTELLE.

## HORTICULTURE

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

### COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A2a,b.	Fruit and Garden Crops* .....	3	Jr. boys	None
A3.	Orchard Fruits .....	3	Sr. boys	None
A4.	Small Fruits .....	3	Sr.	None
A31.	Market Gardening .....	3	Jr., sr.	None
A32.	Vegetable Forcing .....	3	Jr., sr. boys	None
A36.	Home Gardening .....	5	Jr., sr. girls	None
A50.	Floriculture .....	3	Sr.	None
A52.	Plant Propagation .....	3	Jr., sr. boys	None
A71.	Landscape Gardening .....	3	Sr.	None

\* Those wishing the special horticultural courses in the elective groups will not take this course.

A2a,b. FRUIT AND GARDEN CROPS. The principles and methods of vegetable and fruit growing for home use. Location and planning of the orchard and garden. Planting, culture, harvesting and storing of our important fruits and vegetables. Lecture and reference. DANIELS.

A3. ORCHARD FRUITS. The location, establishing and handling of the commercial orchard and the harvesting and marketing of orchard fruits. Text and lectures. Laboratory work in grafting, pruning and packing of apples. DANIELS.

A4. SMALL FRUITS. A study of the history, varieties, planting, culture, harvesting, marketing, and uses of the small fruits and grapes. Lectures and reference work. DANIELS.

A31. MARKET GARDENING. A study of the growing of vegetable crops for market. Location, planting and care of the commercial garden; marketing methods and a brief individual consideration of the important crops. Text and recitation. DANIELS.

- A32. **VEGETABLE FORCING.** Lecture and laboratory study of the various types of glass structures and the production of our most important forcing crops. Laboratory practice in the greenhouse and frequent trips to commercial houses in the Twin Cities. DANIELS.
- A36. **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.
- A50. **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.
- A52. **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.
- A71. **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

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 colleges which are its beneficiaries. For this purpose the United States Government furnishes the Department of Agriculture with the necessary arms and equipment, and details an officer of the regular army to take charge of military science and tactics.

All male students of the freshman and junior classes, not physically unfit, are required to attend Military Drill. For the senior class, drill is an elective.

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.

## PHYSICAL TRAINING

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 new gymnasium swimming pool, cross-country tramps and skating.

## PLANT PATHOLOGY AND BOTANY

EDWARD M. FREEMAN, Chief; ROBERT C. DAHLBERG, WIELAND L. OSWALD, ARNE G. TOLAAS.

## COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1a,b.	Agricultural Botany .....	3	Fr. boys	None
A2.	Seed Testing .....	2	Jr., sr. boys	None
A4.	Agricultural Botany .....	5	All girls	None
A11.	Plant Diseases .....	3	Sr. boys	None

A1a,b. AGRICULTURAL BOTANY. A practical study of the flowering plant is made; weeds, weed seeds, and seed testing are studied. Plant diseases are included in the course and the best preventive methods are discussed. OSWALD.

A2. SEED TESTING. Practical work in making purity and germination tests of crop, grass and vegetable seeds. Students will learn to identify weed seeds commonly found in crop seeds. Seed adulteration will also be studied. DAHLBERG.

A4. AGRICULTURAL BOTANY. The work is pursued according to the following outline: (1) the flowering plant; (2) economic plants; (3) moulds, yeast, mushrooms, and vegetable rots; (4) bacteria in dairy, foods, diseases of man. OSWALD.

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. TOLAAS.

## PRACTICUMS

JAMES M. DREW, in charge, in coöperation with instructors in other divisions.

## COURSES

Credit courses are offered for vacation or class work on a selected project. The work must be selected from a list of approved projects and must be done under the supervision of a practicums instructor or some one appointed by him.

Students electing to do summer work for credit should register for it by outlining definitely the proposed project and giving the name of the county agent or teacher of Agriculture or Home Economics in the near-

est high school who may be asked to help supervise the work. Directions for carrying out any particular project will be furnished upon application. Credit will be given according to the way the work is performed and the required records kept.

## RHETORIC

ROBERT C. LANSING, Chief; FANNIE C. BOUTELLE, ESTELLE COOK, ELIZABETH HAUSE, SOIVIG MAGELSSSEN.

## COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1a,b.	Business English .....	3	Fr.	None
A2a,b.	Classics .....	3	Fr.	None
A3.	English Grammar .....	3	Jr.	None
A4.	Composition I .....	3	Jr.	A3
A5-6.	Composition II .....	*6	Sr.	A4
A12.	Public Speaking .....	3	Sr.	None

\* Only four credits are required of boys.

A1a,b. BUSINESS ENGLISH. Practice in spelling, punctuation, note taking, and letter writing based on Mayne's *Modern Business English*. Oral composition. HAUSE.

A2a,b. ENGLISH CLASSICS. Reading and analysis of the works of Whittier, Scott, Irving, and Tennyson. HAUSE, COOK, MAGELSSSEN.

A3. ENGLISH GRAMMAR. A study of principles and practice in them, with occasional composition. MAGELSSSEN, HAUSE, BOUTELLE.

A4. COMPOSITION I. Narration and description. The analysis of good prose models. Theme writing and speaking. HAUSE, MAGELSSSEN, BOUTELLE.

A5-6. COMPOSITION II. Exposition and argument. Gathering and outlining material. Methods of development and presentation. Debating. Thesis writing. Instruction and guidance in the writing of the senior thesis.\* COOK, MAGELSSSEN, BOUTELLE.

A12. PUBLIC SPEAKING. Drill in voice exercise, platform deportment and memorized selections for expression. Also practice in extemporaneous speaking. COOK.

\* Those excused from School courses in rhetoric are still required to write their theses under the supervision of an instructor in rhetoric.

## SCHOOL (MISCELLANEOUS)

DEXTER D. MAYNE, Principal; PEDER L. JOHNSRUD, ROLLIN M. PEASE, ABE PEPINSKY.

## COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1a,b.	Spelling and Penmanship .....	1	All	None
A11a,b.	Arithmetic .....	4	Fr.	None



A21-22. Vocal Music .....	4	All	None
A23-24. Instrumental Music .....	1	All boys	None
A32. Parliamentary Law .....	1	Jr., sr.	None
A33. Elementary Economics .....	3	Sr.	None
A34. Civics .....	3	Jr., sr.	None
A35a,b. History .....	5	Jr., sr. girls	None
A36. Rural Sociology .....	3	Sr.	None

A1a,b. SPELLING AND PENMANSHIP. The basis for the work in penmanship is the Palmer system. Students whose penmanship is poor should elect this course. A spelling text is used and drills on lists of commonly misspelled words are given. ....

A11a,b. ARITHMETIC. Drill for accuracy, speed in the simple processes of mathematics, and applications of principles to problems where measurements of material, extension, capacity are required. Assists in the mathematics of the technical courses in the School. JOHNSRUD.

A21-22. VOCAL MUSIC. Elementary sight singing, notation, staff, scale, clef, signature, time, rhythm, intervals, solfeggi; followed by elementary rote singing, historical outline, practical community singing. PEASE.

A23-24. INSTRUMENTAL MUSIC. A special fee of \$10 a term is charged for this course (ten, thirty-minute lessons). The same credit is given, without fee, for work in the orchestra. Registration for this course must be approved by the instructor. PEPINSKY.

A32. 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.

A33. 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. MAYNE.

A34. 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.

A35a,b. HISTORY. Meyer's *General History* is used as the text. Daily outlines are required; also a general outline covering each week's work. The histories of Greece and Rome, besides medieval and modern events, are briefly covered. ....

A36. 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. ....

## SOILS

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

## COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1.	Soil Fertility .....	4	Jr. boys	None

A1. SOIL FERTILITY. Minnesota soils, their formation, composition, properties, and characteristics. Causes of sterility in different soil types. Farm manures, green manures and commercial fertilizers. NESOM.

## VETERINARY SCIENCE

MYRON H. REYNOLDS, Chairman; CHARLES C. PALMER.

## COURSES

No.	Title	Credits	Offered to	Prereq. Courses
A1-2.	Veterinary Medicine .....	6	Sr. boys	None
A11a,b.	Physiology and Hygiene .....	4	Fr. boys	None
A12.	Physiology and Public Health...	5	Fr. girls	None

A1a. VETERINARY MEDICINE. Elementary anatomy, pathology, sanitation, and medicine. Clinical cases are provided for practical study. Specimens of diseased organs are demonstrated in classroom to acquaint the student with the various pathological changes. PALMER.

A11a,b. PHYSIOLOGY AND HYGIENE. This course consists of the study of the animal body and its functions. The general principles of personal hygiene are included. PALMER.

A12. PHYSIOLOGY AND PUBLIC HEALTH. This course consists of the study of the human body and its functions. The general principles of public hygiene are included. PALMER.

## DEPARTMENT OF AGRICULTURE

### OTHER SCHOOLS OF AGRICULTURE IN THE STATE

#### NORTHWEST SCHOOL OF AGRICULTURE, CROOKSTON

The Northwest School of Agriculture at Crookston is a branch of the University established especially to serve the northern section of the state in training boys and girls for the life on the farm. During the ten years of its existence, it has been built up extensively to meet a rapidly growing demand for the work it offers, till today its well equipped plant represents an investment of about one third of a million dollars. Besides the regular three year agricultural course for young men and two year home economics course for young women, there is a normal course fitting teachers for work in consolidated and other rural schools. A model school in connection with this department, offers practical training for teachers in managing a typical rural school.

There are also shorter courses of three months for students desiring intensive work in such special lines as dressmaking, home management, gas tractor and farm engineering and live stock and farm husbandry.

The regular course begins in October and closes in March. The teachers' course begins in September and closes about June 1. Short courses begin about January first and close in March.

With a special faculty of experienced school men and women in addition to the regular school faculty, a teachers' training course is given for six weeks each summer beginning in June and closing about August first.

The Junior Short Course, a week for boys and girls from 12 to 18 years of age follows immediately after the close of the regular course.

For further information write addressing Superintendent of Northwest School of Agriculture, Crookston, Minn.

#### WEST CENTRAL SCHOOL OF AGRICULTURE, MORRIS

In 1910 the Morris Indian School was reorganized into the West Central School of Agriculture. Since that time the plant has been almost entirely rebuilt. This rebuilding, together with the necessity of organizing the courses and gathering a student body under very difficult circumstances, have caused a slower development of the institution than otherwise might have been obtained. During the last year or two, however, the school has been coming into its own, and a considerable improvement in the scope of the work is planned for the future.

Long courses in general agriculture, agricultural engineering, home economics, nursing, music, dressmaking and teaching will be offered. Short courses for teachers, mature farmers, boys and girls, and farm women are being built up to meet the local demands.

Teachers' Training Session—Six weeks, June 12-July 21. The work given at this time is primarily for training rural school teachers, with

emphasis upon the professional side of the work. The instruction is given upon a credit basis so that teachers' examinations in properly completed subjects are not required.

**Home Makers' Course**—Six weeks. This course is given at the same time as the Teachers' Training Session. It is primarily for girls who wish to prepare themselves in home management lines.

**Music Work**—Individual instruction in piano and violin is also given during the Summer Session period.

**Farmers' Short Course**—This is the usual Farmers' Week, and is given annually the third week in February.

**Junior Short Course**—This is a short session for boys and girls, giving emphasis to contest work of various kinds. It comes the last week in March or the first week in April.

**Mothers' Week**—This is a rest and recreation period for farm women, usually given in June in connection with the Chautauqua.

## SHORT COURSES

### BOYS' AND GIRLS' WEEK

One week during the last of March or the first of April is Boys' and Girls' Week at University Farm, St. Paul. The mornings are devoted to a study of some of the most interesting and important phases of agriculture. In the afternoon excursions are taken to points of interest in and about the Twin Cities. The cost to each student after arriving is about \$3. Special efforts are made by all at University Farm to crowd this week full of pleasure and profit to the boys and girls. There is no educational requirement for admission. For detailed information, write Extension Division, University Farm, St. Paul.

### SHORT COURSE IN TRACTION ENGINEERING

The growing use of traction engines in general work has made it advisable to offer a special course in the use of power machinery as one of the short courses in the Department of Agriculture of the University of Minnesota.

The course is complete in itself, covering five weeks of study and practice in May and early June. The mornings are devoted to lectures and classroom work, and the afternoons to actual practice in the various departments under the supervision of the instructors of the School.

Such a course offers an opportunity to the young man interested in mechanics, who has had some practical experience in the handling of engines, enabling him to acquire in a short time valuable training in the theory and practice of traction work.

### SUMMER SESSION AND STATE TEACHERS' TRAINING SCHOOL

During six weeks of the summer, beginning immediately after the close of the regular University session in June, two short courses are

offered at University Farm of interest to teachers and others. The regular summer session of the College of Agriculture offers regular college courses in agriculture and home economics, including courses in agronomy, farm management, soils, dairy and animal husbandry, agricultural chemistry, agricultural education, botany and plant pathology, horticulture, veterinary medicine, bees, entomology, and home economics. These courses give regular college credit upon their completion and the fulfilling of entrance requirements. At the same time and place the State Teachers' Training School offers courses in all of the teachers' certificate subjects and also special courses in agriculture, home economics, manual training, music, drawing, school management, and physical education, and similar subjects for teachers.

#### RURAL LIFE CONFERENCE

Immediately following the Summer Session, there is held at University Farm, for one week, a conference of those who are interested in the social welfare of the people in the country. Ministers of country and village churches, Sunday school workers, leaders of farmers' clubs, and any others interested in work along these lines are cordially invited to attend.

A circular giving further particulars will be sent to those who request it.

#### DAIRY SCHOOL

A four weeks' course in creamery butter-making and factory cheese-making is offered each fall, beginning about the 6th of November. The forenoons are spent in classrooms where lectures and talks are given by practical creamery men on all phases of the dairy business. The afternoons are spent in practical work. The only requirement for admission to the course is twelve months' experience in a creamery for the Creamery course, or six months' experience in a cheese factory for the Cheese course. Following the regular dairy school a one-week course in commercial ice-cream-making is offered.

#### FARMERS' AND HOME-MAKERS' WEEK

The week immediately following New Year's is devoted to the farmers and home-makers of the State in their annual conferences at the College of Agriculture, University Farm, St. Paul. Regular class work occupies a portion of each day, at which the most vital and recent agricultural knowledge is presented by the faculty of the College of Agriculture and others. Conferences are held from day to day of those having a special interest in some particular problem of agriculture. Many of the State agricultural associations hold their meetings during this week. An interesting and instructive evening program is furnished for each day. Men of national agricultural reputation from Minnesota and other states participate in the programs. Lectures and demonstrations in farm crops, farm management, soils, dairy and animal husbandry, horticulture, farm

engineering, poultry, bees, veterinary science, and home economics are given daily. There is no educational requirement for admission.

#### SHORT COURSE FOR GRADUATE VETERINARIANS

This course is given late in January and covers about one week. Different phases of veterinary practice are featured each year with the help of prominent specialists of national reputation. Announcements are sent to veterinarians of Minnesota and adjoining states.

#### THE COLLEGE OF AGRICULTURE

The College of Agriculture provides a four-year course parallel with other colleges of the University. It opens in September and closes in June.

#### AGRICULTURE

Two groups of courses of study are offered:

1. General agricultural courses of study, in which students prepare for general agricultural pursuits, as farming, stock-raising, dairying, or teaching agriculture in secondary schools. Specialists who intend to prepare for experiment station or other research work along these lines will find it necessary to pursue graduate work. The following general agricultural courses of study are offered:

Agricultural Education  
 Agricultural Education—Manual Training  
 Agronomy and Farm Management  
 Dairy and Animal Husbandry  
 Horticulture

2. Special agricultural science courses of study, in which students prepare for special purposes, usually scientific research. In all of these courses graduate work is necessary for a thoro preparation. The following special agricultural science courses of study are offered:

Agricultural Chemistry  
 Agricultural Economics  
 Entomology  
 Plant Pathology  
 Soils

#### HOME ECONOMICS

The courses in Home Economics are planned to meet the needs of three groups of young women:

1. Students electing to major in Home Economics as a type of General Arts education for women.
2. Students preparing for teaching in the general field of Home Economics.
3. Students preparing for teaching in the special field of Home Economics, viz., Textiles and Clothing.

Upon the completion of the prescribed courses and the electives provided for in one of the following schedules, in all 132 credit hours, the candidate is recommended for graduation with the degree Bachelor of Science (Home Economics).

### THE COLLEGE OF FORESTRY

The College of Forestry offers a four-year course leading to the degree of Bachelor of Science. In addition to the work given at the University Farm, six months' work is given at Itasca State Park where a well equipped demonstration forest is available as a laboratory. The college also controls a Forest Experiment Station at Cloquet, which offers a good field for graduate students and original research. Provision is made for graduate work in all of the various lines of silviculture and utilization.

### INQUIRIES

Anyone desiring further information in regard to these courses may apply to the Secretary, University Farm, St. Paul, Minnesota.

### MINNESOTA FARMERS' INSTITUTES

Farmers' Institutes in Minnesota are under the direction of a board composed of three members of the Board of Regents, and the presidents of the State Dairymen's Association, Minnesota Horticultural Society, and Minnesota Agricultural Society. The direct supervision of institute work is given to a superintendent, chosen by this board, who has his offices at the School of Agriculture.

Institutes are held in rural schools, town halls, and in cities and villages wherever sufficient interest is shown to warrant. For information regarding institutes, and to secure dates, address the Secretary of the Farmers' Institute, University Farm, St. Paul, Minnesota.

### FARMERS' CLUBS

Farmers' Clubs, as now organized in Minnesota, are local organizations of farmers. Each club usually represents a small territory, as a rural school district or township. Membership in a farmers' club includes all members of the farm family. The Agricultural Extension Division aids in organizing these clubs and in helping them to continue effectively. Extension Bulletin No. 46 describes the work of these clubs and the methods of organization, and Extension Bulletin No. 56 gives a report of progress and suggested programs. Speakers are sent from the Extension Division and Institute force as often as practicable to help with the local program. A list of timely topics is sent by the Division to each club each month, and also blanks on which the clubs may report. Over eight hundred such clubs are organized in the State, and many more are

needed. Students of the School of Agriculture can be very helpful in this work by acting as leaders in their local communities.

#### OFFICE OF PUBLICATIONS

The public receives the benefit of the work of the Department of Agriculture through numerous publications. The research work of the Experiment Station is recorded in a series of bulletins printed in editions of from 3,000 to 20,000 copies. A popular series known as the *Minnesota Farmers' Library* is issued for the Division of Agricultural Extension. Each edition is 75,000. Of this number about 55,000 are mailed at once to farmers and others interested in the distinctly practical phases of agriculture. Arrangements have been made also to supplement these series of the Experiment Station and the Extension Division with "Special" bulletins designed to convey information of practical value to persons likely to be particularly interested. The *University Farm Press News* is issued twenty-four times a year. It is made up of short agricultural articles prepared primarily to be copied by the papers of Minnesota and adjoining states. The edition is 3,800 copies. A list of publications will be sent upon request.

#### THE AGRICULTURAL EXPERIMENT STATION

The Agricultural Experiment Station of the University of Minnesota was established by national and state legislation in 1887. The function of the Experiment Station as set forth in the Hatch Act is "to aid in acquiring and diffusing among the people the useful and practical information on the subjects connected with agriculture, and to promote scientific investigation and experiment respecting the principles and applications of agricultural science." The funds provided by the national government have been supplemented recently by the Adams Act which provides \$15,000 annually, and appropriations for special lines of experimental work have also been made by the state legislature.

The Experiment Station is located at University Farm, St. Paul, and is one of the Divisions of the Department of Agriculture; the officers of the Station are also professors and instructors in the School and College of Agriculture. The chief executive officer of the Station is the Director, who is also Dean of the College of Agriculture. Affiliated with the main station are a score or more of trial stations maintained by the State Horticultural Society. The Experiment Station also carries on coöperative tests and investigations with the United States Department of Agriculture and with farmers in various parts of the State. Experiments are conducted in the following lines of work: Agronomy, Farm Management, Agricultural Chemistry, Soils, Entomology, Horticulture, Veterinary Science, Dairying, Animal Nutrition, Animal Husbandry, Plant Pathology, Agricultural Engineering, and Bee Culture.



## NORTHWEST EXPERIMENT STATION

The Northwest Experiment Station was established at Crookston to give special consideration to local conditions in the northwestern part of the State. In cooperation with the federal government, an efficient system of drainage was installed and thereby its 450 acre tract was changed from the swamp of twenty years ago to the very productive farm of today. Through records thus obtained the station is the authoritative source of information concerning drainage in the Red River Valley. Extensive tests of varieties of grains are carried on and with its excellent equipment of grain cleaning and grain testing machinery the station has become a distributing agent of pure seed especially adapted to this section of the state. Extensive experiments are also conducted with a view of attaining the rotations, fertilizers, fruits, trees and soil management most suitable for this region. A large herd of cattle has been built up and valuable work is done in promoting the live stock industry. Its extensive and well equipped poultry plant supplies farmers with good breeding stock. By distributing circulars, bulletin and building plans and by answering inquiries through correspondence and personal visitation, the station is rendering the farmers valuable assistance in solving their special problems. Through the extension work, too, it is spreading its influence by conducting institutes and working with farmers' clubs.

## NORTH CENTRAL EXPERIMENT STATION

The Legislature of 1895 provided for a second experiment farm to make possible a more thoro study of the agricultural conditions of the north central portions of the State. This farm was located at Grand Rapids, April 6, 1896, and lies two miles east of the village. It contains approximately three hundred and seventy-five acres of land, with the necessary farm equipment consisting of dwelling house, barns, machinery and live stock.

Experiments are under way to determine the best cropping systems and rotations for the various soil types of North Central Minnesota. A good herd of grade Guernsey cows is maintained and experiments and demonstrations in the feeding and management of live stock are conducted.

## WEST CENTRAL EXPERIMENT STATION

The land at Morris has been almost entirely cleared from weeds and a complete drainage system has made possible the use of all of the land. During the last two years, the experimental work has been started and is now in splendid shape. Soil fertility work, variety tests, alfalfa experiments, and forestry plantings are in full progress and organized on a regular project basis. A general system of crop rotation is in operation for the main farm practice.

The farm buildings have been entirely reconstructed, and animal husbandry lines of work are also being put into proper shape.

## SOUTHEAST DEMONSTRATION AND EXPERIMENT FARM

By Legislative Act in 1911, a fund was appropriated for the purchase of a Demonstration and Experiment Farm at Waseca. In 1912 two hundred and forty-six acres were obtained just southeast of the city. The farm is being developed along practical lines as a live stock farm. The value of good management is being demonstrated. The superintendent is coöperating with the farmers in the vicinity in the management of their farms and with the schools and other organized bodies in the development of the agriculture of that section of the State.

## NORTHEAST DEMONSTRATION AND EXPERIMENT FARM

The State Legislature in 1911 authorized an appropriation for the purchase of a Demonstration and Experiment Farm at or near Duluth. Two hundred fifty-two acres have been acquired. Clearing operations were started in March, 1913. Since that time the farm has been developed as a combination dairy, poultry and truck farm with the object of illustrating the methods and farm practices that are best adapted to northeastern Minnesota. Experiments are being carried on to determine the best types and varieties of crops for the region and to discover also the best methods of handling and caring for live stock in the timbered section of the state.

## FRUIT-BREEDING FARM

The Fruit-Breeding Farm is located at Zumbra Heights Station about thirty miles west of Minneapolis on the Minneapolis & St. Louis Railroad. Its purchase was authorized by the Legislature of 1907 for the purpose of breeding and developing fruits adapted to Minnesota. It consists of nearly eighty acres of land in a good fruit district and is equipped with a greenhouse, storage cellar, barn, and two residences. Thousands of apples, plums, strawberries, and raspberries, are fruited each year and selections of desirable seedlings made for propagation and distribution. This farm furnishes excellent material for advanced work in horticultural plant breeding.

## CLOQUET FOREST EXPERIMENT STATION

This Station covers an area of twenty-six hundred and forty acres located four miles southwest of Cloquet, Minnesota, and is used by the College of Forestry as a forest experiment station for the investigation of the fundamental principles of forest growth and management. Among the important studies now being carried on at this station are those covering the effects of the various climatic and physical factors upon forest growth; the best methods of reforesting denuded areas due either to fires or logging; and the determination of the age at which white and Norway pine may be expected to yield the most valuable lumber.

This Station is also coöperating with the United States Forest Service, which is carrying on studies along similar lines in other parts of the country.

## ITASCA STATE PARK

The Legislature of 1907 authorized, with the consent of the Forestry Board, the use of a part of Itasca State Park by the College of Forestry as a demonstration ground and experiment station. Experiments in reforestation are being carried on at this station. The summer headquarters of the College have also been established there.

## DEMONSTRATION FARMS

This phase of agricultural extension work has been organized with the idea of bringing to those communities cooperating in the work some demonstrational features that will exemplify up-to-date truths of agricultural practices and research work. It consists at present of twenty or more cooperating farms that are owned, financed and operated by private parties, and to which the State furnishes supervision through the means of frequent visits of regularly employed representatives of the University. The work with these farms consists in a general reorganization and subsequent management along the lines of practical farm management as adapted to that particular community. This work concerns itself with every phase of the farm work and is intended to effect improvement in all enterprises of the farm. These farms are always open to public inspection and at stated times the general public is invited to visit the farm and attend public demonstrations.

## COUNTY AGRICULTURAL AGENT WORK

The county agricultural agent work in Minnesota, in which the state and federal government and several counties are cooperating, was started September 1, 1912. This work is correlated with the other work of the University by having a practical agriculturist located in each of several counties to assist in general work in farm management and all lines pertaining to agriculture in the county. Each agent reports directly to the State Leader of County Agent Work who represents jointly the United States Department of Agriculture and the Agricultural Extension Division of the University.

The County Agricultural Agent helps in organizing Farmers' Clubs, securing pure seed grains and good live stock; encourages the growing of clover and alfalfa where practical; assists in the planning of farmsteads and farm buildings, orchards, windbreaks, crop rotations, helps in the organization of buying and selling associations, and makes himself generally useful along all lines of agricultural development in his county.

## SUMMARY OF ATTENDANCE

Department of Agriculture, 1915-16.

	Men	Women	Total
College of Agriculture:			
Graduate Students majoring in Agriculture .....	34	1	35
Agricultural Course—			35
Senior Class .....	64	.....	64
Junior Class .....	86	.....	86
Sophomore Class .....	104	.....	104
Freshman Class .....	113	1	114
Unclassed .....	10	.....	10
Total .....	377	1	378
Forestry Course—			378
Senior Class .....	10	.....	10
Junior Class .....	5	.....	5
Sophomore Class .....	10	.....	10
Freshman Class .....	16	.....	16
Unclassed .....	2	.....	2
Total .....	43	.....	43
Home Economics Course—			43
Senior Class .....	.....	50	50
Junior Class .....	.....	72	72
Sophomore Class .....	.....	82	82
Freshman Class .....	.....	90	90
Unclassed .....	.....	17	17
Total .....	.....	311	311
College Summer Session:			311
Total Registration .....	87	52	139
Duplicates registered 1915 16... ..	32	10	42
Net Registration .....	55	42	97
Total in College.....	475	354	829
School of Agriculture:			829
Senior Class .....	99	62	161
Junior Class .....	165	67	232
Freshman Class .....	293	73	366
Unclassed .....	3	.....	3
Total .....	560	202	762
Normal Course .....	.....	19	19
Total in School.....	560	221	781
Short Courses:			781
Dairy School—			
Butter and Cheese Makers Course .....	82	.....	82
Advanced Creamery Course....	12	.....	12
Ice Cream Makers' Course.....	25	.....	25
Total .....	119	.....	119
Duplicates .....	23	.....	23
Net Total .....	96	.....	96
Farmers' Week .....	969	282	1,251
Junior Short Course .....	344	145	489
Traction Engineering Short Course.	23	.....	23
Teachers' Training School .....	124	990	1,114
Rural Life Conference .....	34	4	38
Short Course for Graduate Veterinarians .....	26	.....	26
Total of Short Courses.....	1,616	1,421	3,037
Total at University Farm..	2,685	1,998	4,685
Less Duplicates .....	31	1	32
Net Total .....	2,654	1,996	4,650

SUMMARY OF ATTENDANCE

Northwest School of Agriculture.....	157	50	207	
Farmers' Short Course.....	477	25	502	
Junior Short Course.....	49	31	80	
Teachers' Training School.....	14	207	221	
	<hr/>	<hr/>	<hr/>	
Total at Crookston.....	697	313	1,010	1,010
				<hr/>
West Central School of Agriculture....	70	45	115	
Teachers' Training School.....	9	159	168	
Farmers' Short Course.....	72	1	73	
Junior Short Course.....	36	8	44	
Mothers' Week .....	.....	6	6	
	<hr/>	<hr/>	<hr/>	
Total at Morris.....	187	219	406	406
				<hr/>
Total in Department of Agriculture.....	3,538	2,528	6,066	6,066

# The University of Minnesota

## SCHOOL OF AGRICULTURE

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### 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, have the admission blank which you will find following this page filled out, one side by yourself, the other by your teacher or superintendent, and send it to the Secretary, University Farm, St. Paul. You will find a list of the electives open to freshmen on page 16. In choosing the work you wish to take, you are advised to consult, also, the Descriptions of the Courses, pages 21 to 34. If for any reason you can not have your teacher or superintendent fill out the blank, State Board certificates or school report cards will be accepted. 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 cannot enter the School on the opening day or very soon thereafter should wait until the opening of the second term before coming.

# The University of Minnesota

CERTIFICATE OF ADMISSION

TO

SCHOOL OF AGRICULTURE

TO BE FILLED OUT BY PROSPECTIVE STUDENT

I hereby apply for admission to the School of Agriculture. Date.....

My full name is.....

I live in the township of....., County of....., State of.....

My post-office address is....., State.....

Rural Route or Street and Number....., County of.....

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I was born on the.....day of.....in the year of.....at.....  
(Give place of birth)

Nationality of father..... Mother.....

Parent or guardian—Name..... Address.....

Occupation of parent or guardian.....

Following is my choice of elective subjects in the order in which I prefer them.....

.....

.....

NOTE: Students will be registered for preferred subjects as far as their program of required work permits. A large number of the courses can accommodate only a limited number of students. Students will be given preference in the order in which they register. If no elective work is indicated above the student will be assigned to sections by the Secretary's Office. The electives must be chosen from those in the freshman year (see page 16) unless high school credits are presented.

(OVER)

# The University of Minnesota

CERTIFICATE OF ADMISSION

TO

SCHOOL OF AGRICULTURE

TO BE FILLED OUT AND SIGNED BY TEACHER OR SUPERINTENDENT

Subjects Below Ninth Grade	Standing	Number of Months Studied	Grade in which credit was obtained	High School Subjects	Standing	Number of Weeks	Year in Course
Arithmetic							
Grammar							
English							
Geography							
History							

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This is to certify that.....has received the standings written opposite the subjects given above; that ..he is of good moral character, has been regular and punctual in attendance and is recommended as a desirable student for the School of Agriculture. He has had.....years of actual farm experience.

(Signed).....  
Principal

Date.....

(OVER)

.....School



# Bulletin of The University of Minnesota

DEPARTMENT OF AGRICULTURE

NORTHWEST  
SCHOOL AND STATION  
CROOKSTON, MINNESOTA

1916-1917



VOL. XIX, NO. 17. JUNE 1916

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## SCHOOL CALENDAR

1916-17

September	5	Tuesday	First term opens for nine months and Teachers' Training Courses
October	3	Tuesday	First term opens; organization of classes
November	30	Thursday	Thanksgiving Day
December	23	Saturday	Christmas recess begins. First term closes
January	9	Tuesday	Second term opens; organization of classes
February	5-10	Week	Farm Crops Association meetings
February	12	Monday	Lincoln's Birthday; a holiday
February	22	Thursday	Washington's Birthday; a holiday
March	28	Wednesday	Senior Class Day
March	29	Thursday	Eleventh Annual Commencement. Alumni reunion
March	30	Friday	Second term closes
April	2	Monday	Junior Short Course begins
April	7	Saturday	Junior Short Course closes
June	18	Monday	Teachers' Training School begins
July	4	Wednesday	Independence Day; a holiday
July	28	Saturday	Teachers' Training School closes

# THE NORTHWEST SCHOOL AND STATION

## FACULTY

GEORGE EDGAR VINCENT, Ph.D., LL.D., President  
CYRUS NORTHPROP, LL.D., President, Emeritus  
ALBERT F. WOODS, M.A., D.Agr., Dean  
EDWARD M. FREEMAN, Ph.D., Assistant Dean

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### AT CROOKSTON

CONRAD G. SELVIG, M.A., Superintendent  
JELMER P. BENGTON, Preceptor  
ANNA F. HAIG, B.A., Preceptress  
GEORGE E. GIBB, Registrar  
BERNICE B. SMITH, Librarian

### AGRICULTURAL ENGINEERING

THOMAS R. SEWALL, Engineering and Drawing  
WALTON C. FERRIS, Blacksmithing and Carpentry

### AGRONOMY

FRANK L. KENNARD, B.S.A., Agronomy and Farm Management  
ARTHUR E. ENERSON, B.S.A., Extension in Farm Crops

### ANIMAL HUSBANDRY

WILLIAM DIETRICH, B.S.A., Animal and Dairy Husbandry  
WESLEY A. DICKINSON, Extension in Livestock  
C. EVERARD BROWN, Poultry and Extension in Poultry

### HOME ECONOMICS

MRS. T. R. SEWALL, B.A., Domestic Science and Art  
ANNA S. OLSEN, Domestic Science  
ALICE E. GLISE, Dressmaking

### HORTICULTURE

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

### SCHOOL

JELMER P. BENGTON, Mathematics and Civics  
ANNA F. HAIG, B.A., English and Public Speaking  
ARTHUR H. LARSON, Advanced Subjects and Debating  
BERNICE B. SMITH, Assistant Preceptress and English  
MARTINUS STENSETH, Gymnasium and Military Drill  
GRACE GUNDERSON, Music and Physical Training

## ADVANCED COURSE

GRACE B. SHERWOOD, Normal Training

## OFFICERS OF ADMINISTRATION

NELSON G. MALIN, Field Foreman  
ARTHUR C. McMILLAN, Stock Foreman  
THOMAS R. SEWALL, Superintendent of Buildings  
MIRDY MAXWELL, Matron  
BERTHA BERGHEIM, School Nurse  
CORA PAULSBERG, Accountant  
OLGA NETTUM, Office Clerk

## COMMITTEES

*Catalog.*—The Registrar and Heads of Departments

*Entertainment.*—Superintendent SELVIG, MRS. HAIG, BENGTON, MISS  
SHERWOOD, MRS. SEWALL

*Short Course for Farmers.*—KENNARD, DIETRICH, BROWN, SEWALL

*Athletics.*—McCALL, LARSON, MISS GUNDERSON, MISS SMITH

*Students' Work.*—BENGTON, MRS. HAIG, McCALL, GIBB, MISS SHERWOOD,  
MISS OLSEN

## GENERAL INFORMATION

### TIME OF OPENING

The Northwest School of Agriculture opens October 3, 1916, and closes March 30, 1917. The fall term closes Saturday, December 23, 1916, and the winter term begins Tuesday, January 9, 1917.

Registration at the beginning of the second term will begin Monday, January 8, 1917, and should be completed by Tuesday, January 9, 1917. 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 11 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. Directions for reaching the School are given below. 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 12 to 31. Instruction is given in the work shop, 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 two 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.

A new course for girls covering a period of four years of nine months each will be offered for the first time beginning on September 5 of this year. A synopsis of this course appears on page 14.

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

#### 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 2 and October 3, 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 or spirituous liquors of all kinds 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 certifi-

cates 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, a.—Boys' Three-Year Course. The completion of the prescribed course of study, including all of the required work and enough elective work to make a total of 144 credit hours.

b.—Girls' Two-Year Course. The completion of the prescribed course of study, making a total of 96 credits.

c.—Girls' Four-Year Course. The completion of the prescribed course of study.

2. Honorable standing in deportment.

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 144 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.

#### FEEES AND EXPENSES

The necessary expenses for the year do not exceed \$110. This amount does not include the cost of the required military suit for the young men, 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 four sheets, one pair of blankets, one quilt, 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 twenty-five 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 \$2 for the school year, or \$1 per term.

A competent nurse is kept on the ground to care for 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; \$15.50 to \$16 board and room; \$5 deposit; \$1 reserve fund; \$1 maintaining nurse; 25 cents gymnasium fee; total, \$28.75 to \$29.25.

All the boys are required to provide themselves with the prescribed uniform, which consists of cadet gray blouse, trousers, and cap and is as neat and economical a dress as the student can obtain. The suit com-



plete, to measure, is furnished under special contract for \$15.50. A better quality of cloth costs \$16.50.

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.

Each student in attendance at the School who expects to return the following year and who desires to room in the dormitory will, at the time the assignment of rooms is made before the close of the spring term, 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.

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 \$15.50 to \$16, 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 only. Full information regarding available rooms will be given upon request.

In the case of a former student, the two-dollar deposit for a room will be forfeited if the student does not appear for registration within the first week of the school year, unless he has signified in writing to the Registrar at least ten days before the opening that he does not intend to return.

#### 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 regular nurses and such medicines and materials as the regular nurses 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.

The regular hospital fee is collected from the dining-room help as well as from students, and this help is then entitled to nurse-care on the same basis as the students.

#### 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.

#### 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 afternoon at 3 o'clock. Various pastors and business men address the students at these meetings. The Christian Associations conduct the exercises and secure the speakers.

#### BUILDINGS AND EQUIPMENT

The School has seven brick buildings: the Kiehle Building, containing the offices, library, book store, 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, class rooms, model kitchen and dining-room for serving meals; Owen Building, containing the dairy room, carpentry shop, farm machinery and cement work shop, blacksmith shop, stock judging room, and drawing class rooms; and Hill Building, which gives adequate quarters for the work in Agronomy, Horticulture, Botany, and Agricultural Science departments. The farm building, 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.

## COURSES OF STUDY

Figures preceding the names of courses are number of credit hours granted on completion of the course. One credit hour is equivalent to one recitation period or to two laboratory periods per week for the term.

### BOYS' THREE-YEAR COURSE

#### FIRST YEAR

Required of All

<i>Fall Term</i>	<i>Winter Term</i>
Credit Hours	Credit Hours
6 English A	6 English A
4 Cereal Crops B*	4 Plant Life A*
5 Study Breeds A*	5 Arithmetic A*
1 Personal Hygiene A Gymnasium	1 Personal Hygiene A
8 Elective from the following	2 Corn D Gymnasium
—	6 Elective from the following
24	—
	24

#### ANIMAL HUSBANDRY

2 Poultry A	3 Farm Dairying I
3 Bee Keeping A	

#### GENERAL ELECTIVES

4 Blacksmithing E*	4 Carpentry D*
2 Spelling and Penmanship E	2 Spelling and Penmanship E
4 Farm Motors I C*	1-3 Summer Practicums
1 Music B	1 Music B

Two hours per week of military drill and two hours per week of gymnasium are required of all, but carry no credit.

Students having a mark of Pass Plus on State Board Certificates will be given five hours' credit in Arithmetic and six hours' credit in English for Grammar.

\* Will be offered both terms.

#### SECOND YEAR

Required of All

6 English B	6 English B
4 Physics A	4 Farm Accounts F
3 Stock Feeding B Gymnasium	3 Stock Feeding B
11 Elective from the following	4 Elements of Soils A Gymnasium
—	7 Elective from the following
24	—
	24

## PLANT HUSBANDRY

- |                  |                         |
|------------------|-------------------------|
| 4 Forage Crops C | 3 Vegetable Gardening D |
|                  | 2 Potato Culture E      |

## ANIMAL HUSBANDRY

- |                    |                          |
|--------------------|--------------------------|
| 2 Stock Judging D  | 2 Stock Judging D        |
| 1 Dairy Practice J | 1 Livestock Management C |
| 2 Poultry B        |                          |

## GENERAL ELECTIVES

- |                                  |                        |
|----------------------------------|------------------------|
| 1 Farm Machinery B               | 3 Mechanical Drawing H |
| 1 Music B                        | 1 Parliamentary Law B  |
| 2 Drainage, Rope and Belt Work F | 1 Music B              |
|                                  | 1-3 Summer Practicums  |

Two hours per week of military drill and two hours per week of gymnasium are required of all, but carry no credit.

## THIRD YEAR

Required of All

- |                                |                                |
|--------------------------------|--------------------------------|
| 4 English C                    | 4 English C                    |
| 5 Civics and Farm Law A        | 4 Farm Management G            |
| Gymnasium                      | Gymnasium                      |
| 15 Elective from the following | 16 Elective from the following |
| —                              | —                              |
| 24                             | 24                             |

## PLANT HUSBANDRY

- |                      |                                   |
|----------------------|-----------------------------------|
| 3 Farm Forestry F    | 2 Plant Breeding B                |
| 4 Fruit Growing G    | 1 Weeds and Seed Identification C |
| 1 Farm Practice I    | 2 Floriculture H                  |
| 4 Soils Management E |                                   |

## ANIMAL HUSBANDRY

- |                        |                               |
|------------------------|-------------------------------|
| 4 Animal Hygiene F     | 3 Animal Breeding G           |
| 1 Adv. Stock Judging E | 1 Dressing and Curing Meats H |
| 3 Poultry C            |                               |

## GENERAL ELECTIVES

- |   |                     |
|---|---------------------|
| 2 Farm Motors II C                                      | 1 Conference H      |
| 3 Rural Economics D                                     | 3 Rural Sociology E |
| 3 Farm Heating, Lighting, Plumbing<br>and Cement Work G | 1 Music B           |
| 1 Music B   |                     |

Two hours per week of Gymnasium are required of all, but carry no credit.

## 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 nor 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 offering four units of work in Agriculture shall be allowed 96 credits toward graduation.

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

#### GIRLS' FOUR-YEAR COURSE

##### FIRST YEAR

<i>First Semester</i>	<i>Second Semester</i>
Credits	Credits
5 English F	5 English F
5 Plant Life A	3 Vegetable Gardening D
5 Ancient History C	2 Floriculture H
4 Foods and Cookery A	5 Ancient History C
3 Food Production C	4 Foods and Cookery A
3 El. Garment Making I	3 Home Sanitation and Decoration G
1 Music B	3 El. Garment Making I
Physical Training C	1 Music B
	Physical Training C

##### SECOND YEAR

5 English G	5 English G
5 Algebra B	5 Algebra B
5 Modern History C	5 Modern History C
4 Household Physics M	4 Household Chemistry N
2 El. Dressmaking J	2 El. Dressmaking J
4 Home Nursing & Invalid Cookery H	4 Foods and Cookery B
1 Music B	1 Music B
1 Drawing D	1 Drawing D
Physical Training C	Physical Training C

##### THIRD YEAR

5 English H	5 English H
5 Plane Geometry C	5 Plane Geometry C
3 Rural Economics D	3 Rural Sociology E
3 Home Management E	3 Home Management E
2 Sewing and Needle Work K	2 Home Accounts F
5 Food Study D	2 Millinery, Art and Crafts L
1 Music B	3 Food Study D

- 1 Drawing D
- Physical Training C

- 1 Music B
- 1 Drawing D
- Physical Training C

FOURTH YEAR

- 5 English D or I
- 10 Prof. Reviews A
- 2 Home Economics Methods O
- 5 Pedagogy D
- 5 Special Methods F
- 5 Observation and Teaching G
- 1 Music C
- 1 Manual Training B

- 5 English D or I
- 10 Prof. Reviews A
- 2 Home Economics Methods O
- 5 Rural School Methods and Management E
- 5 Special Methods F
- 5 Observation and Teaching G
- 1 Drawing E
- 1 Elementary Agriculture C

GIRLS' TWO-YEAR COURSE

FIRST YEAR

*Fall Term*

Credit  
Hours

- 6 English A
- 5 Arithmetic A
- 4 Foods and Cookery A
- 3 Food Production C
- 5 El. Garment Making I
- 1 Music
- Physical Training C

*Winter Term*

Credit  
Hours

- 6 English A
- 5 Arithmetic A
- 4 Foods and Cookery A
- 3 Home Sanitation and Decoration G
- 5 El. Garment Making I
- 1 Music
- Physical Training C

SECOND YEAR

- 6 English B
- 4 Foods and Cookery B
- 5 Sewing and Needlework K
- 4 Home Nursing & Invalid Cookery H
- 2 Dairy Practice J
- 2 Poultry D
- 1 Music
- Physical Training C

- 6 English B
- 4 Foods and Cookery B
- 4 El. Dressmaking J
- 3 Home Management E
- 2 Home Accounts F
- 5 Civics and Farm Law A
- 1 Music
- Physical Training C

## 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)

For work of regular school year of nine months, see fourth year of four-year course on page 14.

### 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 nine 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.

#### OUTLINE OF COURSE

(One Year)

<i>First Term</i>	<i>Second Term</i>
Credit Hours	Credit Hours
5 Elementary Algebra B	5 Elementary Algebra B
5 Plane Geometry C	5 Plane Geometry C
5 English D	5 English D
3 Elementary Economics D	3 Rural Sociology E
5 General History C	5 General History C



## DESCRIPTION OF COURSES

### AGRICULTURE

- A. **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. KENNARD.
- B. **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. KENNARD.
- C. **GRASSES AND FORAGE CROPS.** This course is devoted especially to the kinds, methods of storing, methods of handling, uses, value, and adaptability of grasses and forage crops. All field crops will be studied from actual specimens in the laboratory. KENNARD.
- D. **CORN.** This course consists of a detailed study of the corn crop. The different types as well as varieties of each which are adapted to Northwestern Minnesota conditions will be studied in detail in the laboratory. Scoring and judging as well as testing and grading will comprise the major part of the course. Recitations will deal with the growing, cultivating, harvesting, storing and marketing of the crop. KENNARD.
- E. **SOILS MANAGEMENT.** This work consists of a study of geology as related to soil formation; effect of the glaciers on the soils of Minnesota; classification of soils; soil moisture and soil tillage; the classes of field crops as grain, grass, and cultivated crops; the relation of these crops to each other in a systematic rotation and in their relation to soil fertility KENNARD.
- F. **FARM ACCOUNTS.** This is bookkeeping, but for the farmer rather than for the merchant. The principle of debits and credits is the same. This course aims to help the farmer in keeping his records that he may know where his profits and losses come from. BENGTON.
- G. **FARM MANAGEMENT.** This course takes up soil management; adaptation of crops; systems of farming; selection of farms; rotation of crops and the planning of rotations suitable to the students' home farms and to farms operated under different systems. The cost of producing farm crops; marketing farm products; business methods applied to the farm and a statement of the farm business are given. KENNARD.
- H. **CONFERENCE.** This course will consist of a review of bulletins and other publications relating to soils, crops, farm management and other agronomy topics. The student will become acquainted with

the latest successful practices and will learn to use bulletins to his advantage. KENNARD.

- I. FARM PRACTICE. This course will consist of practical work in the laboratory and the seed house in judging, grading, testing, treating, storing, and cleaning seeds of all the common grains and grass crops. KENNARD.

### AGRICULTURAL ENGINEERING

- A. AGRICULTURAL PHYSICS. The questions pertaining to the nature of matter and force in its application to affairs on the farm and in the home are considered. Special stress is laid on matters pertaining 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 of soil. Such matters are studied from the practical side and used as avenues to an appreciation of the far reaching laws of nature. BENGTON.

- B. FARM MACHINERY. This course consists of a study of all common farm machinery. Comparisons are made between different types of seeding, tillage and harvesting machinery. Some time is spent in becoming familiar with replacing of parts which are subjected most to wear. KENNARD.

- C. FARM MOTORS I. The course in Farm Motors includes lectures on handling, construction and repair of gasoline engines, both stationary and traction. Practical work is given in repairing and running gasoline engines of all kinds. Babbiting of boxes and soldering are taught to enable the student to repair worn bearings, leaky gasoline tanks and pipes. SEWALL.

- FARM MOTORS II. A study of steam engines beginning with the construction and care of boilers, boiler fittings, fuel, and including the handling and care of steam engines. Each student is required to pass an examination at the end of the course, similar to one taken in getting an engineer's license. SEWALL.

- D. 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 pointing, estimating and selecting building materials, and farm building construction. FERRIS.

- E. 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 the operations necessary for blacksmith repair work on the farm. FERRIS.

- F. DRAINAGE—ROPE AND BELT WORK. Practice in laying out and taking levels for farm drainage ditches, making of simple leveling instruments and how to use them. Both lectures and field work are given.

The students are taught the lacing and care of belts of all kinds, how to make rope halters, splice and tie ropes. SEWALL.

- G. FARM HEATING, LIGHTING, PLUMBING AND CEMENT WORK. Lectures including the heating and lighting of farm homes, the installation of plumbing and water systems and the use and making of concrete. Practical work is done by the students in pipe fitting and cutting and in the making and placing of concrete. SEWALL.
- H. DRAWING. Students are given instruction in drawing for the purpose of teaching them the use of the tools and the practical value of drawings in designing buildings and machinery. They make drawings of the carpentry exercises and afterwards work from the drawings in the shop, thereby getting direct application. They design dwellings, barns, sheds, and other farm buildings, estimating the quantity of material needed and the cost of the building when completed. SEWALL.

#### DAIRY AND ANIMAL HUSBANDRY

- A. STUDY OF BREEDS. The different breeds of cattle, horses, sheep, and swine are studied as to origin, quality, and general adaptation to conditions in the State. The work is made practical by frequent illustrations with stock kept at the Experiment Farm for that purpose. DIETRICH.
- B. 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 of rations for the different classes of stock, special attention being given to the use of home-grown feeds. Practical lessons in feeding are given at the barns under the direction of an experienced feeder. DIETRICH.
- C. LIVE STOCK MANAGEMENT. Practical work in feeding and handling the various classes of farm livestock. DIETRICH.
- D. STOCK JUDGING. Instruction is given on types and breeds of livestock, attention is called to desirable and undesirable qualities in each. Practice is given in judging animals, the standard score card being used as a guide. DIETRICH.
- E. ADVANCED STOCK JUDGING. A continuation of D. Blank cards for written reasons as to why one animal is given a rating above another are used in place of score cards. Oral discussions follow after cards are handed in. DIETRICH.
- F. ANIMAL HYGIENE. This course is designed to enable the student to diagnose a disease from the outward symptoms and to fit him for the intelligent care of his live stock. The anatomies of the different classes of domestic animals are carefully studied and practice is given in filing the teeth and trimming the hoofs of horses and in treating the common diseases found among the farm stock. DIETRICH.

- G. ANIMAL BREEDING. In this class the boys learn the laws that govern breeding and the principles to be considered in the breeding of horses, cattle, sheep and swine. The importance of the male in the herd and the value of good blood are emphasized. They are taught what a good pedigree means, as well as how to build up a herd from grade stock. They are required to become familiar with methods of keeping livestock records of all kinds. DIETRICH.
- H. DRESSING AND CURING MEATS. Practice in slaughtering is given to the young men, while both young men and women learn the name and value of the different cuts. Both get lessons in simple methods of preserving meats for future use. DIETRICH.
- I. 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, butter making, etc. DIETRICH.
- J. DAIRY PRACTICE. Students receive instruction in the most advanced methods of creaming milk, ripening cream, churning, working, and packing butter, the manufacture of sweet curd cheese, and measuring the value of milk by the Babcock test and lactometer. This practice work begins the third week of the first term. DIETRICH.

## ENGLISH

- A. FRESHMAN ENGLISH. Principles of grammar governing oral and written composition. Students having a pass plus state certificate in grammar are permitted to omit this branch of freshman English. Oral and written composition, sentence structure, punctuation, and spelling. Drills for the purpose of eliminating errors. The reading of a few classics used as models for composition study. SMITH.
- 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. HAIG.
- DEBATING, one hour a week. Principles of argumentation, briefs, debates in class, in public programs, and in debating societies. LARSON.
- B. JUNIOR ENGLISH. Good literature studied as a basis for composition work, and as a means of increasing the student's vocabulary. The three forms of discourse—narration, description, exposition—developed in oral and written composition work. Practical business English based upon the text book, Mayne.
- PUBLIC SPEAKING. Extemporaneous talks, longer discussions, and a little dramatic work. HAIG.
- DEBATING. A development and a continuation of the first year. LARSON.
- C. SENIOR ENGLISH. A study of the best English writers with a view to increasing the student's appreciation of good literature. Oral and

written composition illustrative of the forms of discourse and principles of English previously learned.

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

**DEBATING.** A continuation of the work of the previous years, with emphasis upon extemporaneous speeches. LARSON.

**D. ADVANCED ENGLISH.** English literature based on text book, Long. A review of punctuation, capitalization, sentence structure. Drills to correct bad habits of speech. Unity, coherence and emphasis of the sentence, the paragraph, and the whole composition to develop student's power of expression in both oral and written composition. HAIG.

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

#### FOUR-YEAR COURSE FOR GIRLS

**F. FRESHMAN YEAR.** Letter writing and the simpler forms of discourse—narration and description. The correct use of words, punctuation and sentence structure. Literature as a basis for composition work. HAIG.

**G. SOPHOMORE YEAR.** Exposition, argument, the development of the paragraph and of the whole composition. Literature selected from English classics, illustrating the rhetoric studied, and also the development of the novel.

**H. JUNIOR YEAR.** A review of the principles of rhetoric and composition previously learned, and a study of the forms of poetry. English literature through the Classical Age of the 18th century.

**I. SENIOR YEAR.** First term: English literature from the Romantic Age to the 20th century; second term: American literature.

Courses G, H, and I not offered during 1916-1917.

#### HISTORY AND CIVICS

**A. CIVICS AND FARM LAW.** The legislative, judicial, and executive departments and the functions of each. The school district, the township, the county, and the state government are given special attention. The national government is also considered, but not so extensively. One hour per week is devoted to the essentials of law relating to the farm. BENGTSON.

**B. PARLIAMENTARY LAW.** The essentials of parliamentary practice as necessary in conducting public meetings effectively. LARSON.

- C. ANCIENT AND MODERN HISTORY. A survey of the world's history with particular emphasis placed on the development of institutions, states, industries and organizations that have influenced to the greatest degree the progress of civilization. LARSON.
- D. ELEMENTARY ECONOMICS. Special emphasis will be placed on rural economics. SELVIG.
- E. RURAL SOCIOLOGY. The problems of rural communities, of rural health and sanitation, and of rural social institutions will receive attention. SELVIG.

## HOME ECONOMICS

### FOODS AND HOUSEHOLD MANAGEMENT

- A. FOODS AND COOKERY. The preparation and serving of vegetables, cereals, fruits, and legumes; doughs and batters; egg, milk and cheese dishes; beverages, desserts; salads; entrees; meats, fish and poultry; special emphasis on bread making and principles of fermentation as applied to canning and preserving vegetables, fruits and meats; serving of a simple breakfast, luncheon and dinner by groups. MRS. SEWALL.
- 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. MRS. SEWALL.
- C. FOOD PRODUCTION. The study of foods by classes, their production, distribution, cost, manufacture and marketing. MRS. SEWALL.
- D. FOOD STUDY. Review of structure of human body, digestion, absorption and metabolism of foods, their function in nutrition, fundamental principles of human nutrition, balanced rations and formulation of dietaries for people in various occupations. The menus are all worked out in dietary form and balanced before they are served. Each girl does one week of practical cooking. She plans the meals, cooks and serves them, does all her own ordering and keeps her accounts for a week; twenty-one meals are served to a group of six people, at a given cost. MRS. SEWALL.
- E. HOME MANAGEMENT. Planning of daily work; and household records; the use and economic importance of labor-saving devices; planning of meals with reference to cost; duties and responsibilities of women to the home, and the home to the state. Discussion of topics such as methods of buying, how to judge quality, cost, etc. Mail order buying, coöperative buying, economics of fashion; the standard of living as related to the efficiency of the home. MRS. SEWALL.
- F. 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 household, and business forms. BENGTON.

- G. HOME SANITATION AND DECORATION. Location, construction, planning of farm homes; heating, lighting, ventilating, and equipment of the house; artistic and economical furnishing with work on cost and schemes of furniture, floor and wall coverings, curtains and pictures for each room. MRS. SEWALL.
- H. HOME NURSING AND INVALID COOKERY. 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. MRS. SEWALL.

#### CLOTHING

- I. ELEMENTARY GARMENT MAKING. Hand stitches as applied to simple garments and household articles; drafting of patterns for and making of undergarments. Study of standard cotton and linen fabrics, the fibers from which these are made, and simple tests for adulteration; the construction and care of sewing machines. GLISE.
- J. ELEMENTARY DRESS MAKING. Making of wash dress; lingerie or tailored waist; cotton or wool dress skirt; silk or woollen dress using commercial patterns. Study of silk and woollen fabrics, fibers, and tests for adulteration and substitution. GLISE.
- K. SEWING AND NEEDLE WORK. Decorative needlework applied to undergarments, linen or lingerie dresses, and household linens. GLISE.
- L. ARTS AND CRAFTS AND MILLINERY. A study of design and color harmony in its relation to the home. Designing of curtains, table and pillow covers; lamp shades; basketry, pottery, and leather work. Designing, making, and trimming of hats with a view to developing originality, skill and artistic taste. ....
- M. HOUSEHOLD PHYSICS is taken up applying the principles of statics, dynamics, heat, sound, light and electricity to various household processes. ....
- N. HOUSEHOLD CHEMISTRY includes a study of air, water, and food. Special emphasis on analysis of milk, detection of adulterations in foods, analysis of water and chemistry of cleaning. ....
- O. METHODS OF TEACHING HOME ECONOMICS. This course is designed to prepare for the teaching of sewing and cooking in the one room rural and consolidated schools. Special attention is given to the cooking and serving of hot noon lunches; to the serving of luncheons for school entertainments and other gatherings; to the state contest work as carried on through the Girls' Club Movement. MRS. SEWALL.

#### MATHEMATICS

- A. ARITHMETIC. Drill for speed and accuracy in simple processes of

mathematics. The work is made especially practical by the application of principles to the common every-day problems which come up on the farm, such as measurements of material, extension, capacity; the marketing of grain, stock, and other farm products; the purchase of machinery and other supplies; and cash accounts, business forms and interest. BENGTON.

- B. ALGEBRA. This work covers "First Course in Algebra," by Hawkes-Lubby-Touton, or equivalent text, omitting Ratio and Proportion, Graphical Representation, and Imaginaries. BENGTON.
- C. GEOMETRY. The course in Geometry covers Wentworth and Smith's Geometry, from Book I to VIII, or equivalent texts, 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. STENSETH.

### MUSIC AND DRAWING

- A. PIANO AND VOCAL. PIANO.—The instruction of each student is adapted to his capacity or needs. The course of study includes technical exercises for the development and control of the fingers, hands, and arms. Studies and compositions by the best composers are given. A special fee is charged for this work.

Voice.—This course embraces the following work: exercises in breathing, tone placing, for relaxing the throat, for the formation of vowels and consonants, and for sight reading. Songs by American and foreign composers are studied. This work also requires a special fee.

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. GUNDERSON.

- B. MUSIC. In the regular course of study, there is offered one hour per week in music each year, consisting of work in ear training; vocal de-



velopment; sight reading and chorus; and appreciation of music. GUNDERSON.

- C. MUSIC METHODS. Music suitable for rural schools will be given. The course will include methods for training the ear and voice, sight, reading, teaching songs by note, and rote songs for use in the school room. Student teachers will have opportunity to take special voice work. GUNDERSON.
- D. FREEHAND DRAWING. Drawing of plant forms and landscape in pencil, charcoal, and water color, the study of perspective and still life, and design, with the view of developing an appreciation of the beautiful in nature and art. Application is made to home decoration.
- E. DRAWING METHODS. The object of this course is to develop an appreciation of the beautiful in nature and art. Suggestions will be given which will aid the student teacher in developing this appreciation in their class rooms. A course of study suitable for rural schools will be suggested and methods for teaching it will be given.

### PHYSICAL TRAINING

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

#### MEN

- A. PERSONAL HYGIENE. An effort is made to show the student the importance of a proper care of the human body. Special attention is given to foods, water, air, narcotics, cleanliness, clothing, exercise, first aid to injured, care of sick, and the care of the special organs of the body. BENGTON.
- B. GYMNASIUM. Required of all young men not excused on account of physical disability. Aims to inspire each pupil with a desire to reach and maintain highest possible physical efficiency. First part of the hour is given over to calisthenics with dumb-bells, wands, Indian clubs, and free arm movement. Then light apparatus work is followed by some game or running. STENSETH.

#### WOMEN

- C. PHYSICAL TRAINING. The following lectures on Hygiene will be given by the head of the Home Economics Department; all young women are required to attend. General view on health problem; diet; dress; first aid to injured; care of the sick; special lectures. MRS. SEWALL.
- Free hand gymnastics, aiming to produce correct posture and to correct faults of posture: athletic movements aiming at grace; folk games. GUNDERSON.

## PLANT LIFE AND HORTICULTURE

- A. **PLANT LIFE.** This subject is taught with special reference to plants that are of interest to the Minnesota farmer. Plant specimens are collected from the greenhouse and field and are examined, mounted and classified. McCALL.
- B. **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 the crossing of plants is given in the Experiment Station greenhouse. McCALL.
- C. **WEEDS AND SEED IDENTIFICATION.** The seeds and plants of the common weeds are studied, classified and identified. A study of weed and seed laws also occupies a prominent place in the course. McCALL.
- D. **VEGETABLE GARDENING.** The value of the home vegetable garden, the preparation of the ground and the selection of plants and seeds are given attention. Includes tillage, rotation, transplanting, preparation, and care of hotbeds, and insects dangerous to the garden. McCALL.
- E. **POTATO CULTURE.** The importance of the potato as a crop for Minnesota is recognized in this course. Includes the study of potato soils, seed selection, growing the crop, harvesting, storing, marketing, diseases and their control. McCALL.
- F. **FARM FORESTRY.** Why, how, when, and where to plant windbreaks and wood-lots are taught; also characteristics and adaptability of the more common trees; methods of propagation, and the conservation of planted and natural forests. McCALL.
- G. **FRUIT GROWING.** The importance of the farm orchard and small fruit garden is emphasized in this course. The work consists of a study of orchard soils, planting and cultural methods, propagation, pruning, spraying, harvesting, marketing and selection of varieties of native and hardy fruits. McCALL.
- H. **FLORICULTURE.** A study of flowers, with special reference to the planting, growing and propagation of the native and hardy forms of ornamental flowering plants. Considerable time is spent on the grouping and planting of the ornamental flowers and shrubs and in making landscape planting plans. The station greenhouses supplies material for laboratory work. McCALL.

## BEE CULTURE

- A. **BEE KEEPING.** The importance of bee keeping as an adjunct to the general farm of northern Minnesota is emphasized in this course. The species, life histories and habits of bees are studied. Local apiaries furnish excellent material for the practical handling of hives and swarms. Exercises are given in the making of bee keeping equipment. McCALL.

## POULTRY

- A. FARM POULTRY. The study of breeds; planning and arrangement of poultry houses; feeds and feeding; killing and dressing fowls. BROWN.
- B. YOUNG POULTRY. Management of incubators and brooders and of natural incubation and brooding. The care and feeding of young stock. BROWN.
- C. POULTRY FARM MANAGEMENT. Practice in judging fowls for exhibits and utility, judging eggs for market, caponizing and dressing fowls for market and table use. BROWN.
- D. POULTRY FOR GIRLS. The care and management of fowls, the construction of poultry houses and equipment, natural and artificial incubation and brooding, feeds and feeding, judging fowls, dressing and drawing fowls for table use, boning fowls and carving table poultry. BROWN.

## 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, if possible, inspect the work at least once during the summer. Suggestions regarding the work will be given and the progress being 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.

## TEACHERS' COURSES

- A. REVIEWS. The aim of this course is to make the student teacher perfectly familiar with the subject matter in the various branches to be taught in the rural schools. It includes a review of the 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. SEWALL.

- 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. KENNARD, McCALL.
- D. **PEDAGOGY.** This is a course dealing 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.** This course will include school law; study of the public school system of Minnesota; rural school organization and management; school hygiene and health; rural community problems and other topics that will aid the student teacher to do efficient work in the school room and community. SHERWOOD.
- F. **SPECIAL METHODS.** This period will be devoted to discussing general methods for teaching the various subjects from the rural school standpoint. Student teachers will be given opportunity to see the plans and methods here developed put into actual practice in the demonstration school, and later to learn to test their ability to apply these methods in their practice teaching.
- Penmanship will be taught with a dual purpose; to improve the hand writing of the teacher and to develop methods of teaching it to children.
- A course in Physical Training is given for the benefit of the teacher herself, and also for training in games, drills, and physical exercises for use in the school room.
- The construction work will consist of basket and rug weaving, paper cutting, folding and tearing, modeling and all industrial work suitable for rural schools. SHERWOOD.
- G. **OBSERVATION AND TEACHING.** In connection with this course an ungraded demonstration school is maintained. The aim of the course is to give student teachers the opportunity to become familiar with the actual experiences of a school room, and the details of its management and control; to make practical application of the principles studied in the methods classes, and to give them training in teaching the various subjects in the several grades.
- After a period of carefully planned observation under the supervision of the training teacher, the student teachers are put in charge of classes and are held responsible for the work. Later they take charge of the ungraded demonstration school. All of the teaching is under the direct supervision of the training teacher. SHERWOOD.

## SHORT COURSES

### FARMERS' SHORT COURSE

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 home. The exhibit of farm crops in connection with the course of that year was the origin of the Annual Farm Crops Show held at Crookston usually during the second week in February. A six-day meeting at this time with strong programs for both men and women serves the purpose of the original short course.

### JUNIOR SHORT COURSES

The Fifth Annual Junior Short Course will follow the regular school course, April 2 to April 7, 1917. It is open to boys and girls from 12 to 18 years of age. With the exception of \$2 for board, there is no expense connected with the course. The course aims to deepen boys' and girls' interest in life on the farm. It aims to interest and instruct them in corn and potato growing, pig and chicken raising, care of cattle and horses, cooking and sewing, and in club work and in industrial contests. Illustrated lectures, moving pictures of educational value, social games singing and excursions to places of interest in Crookston and vicinity will add interest and pleasure to the course. The students during the week will room in the commodious dormitories on the campus, in charge of the preceptor and preceptress of the regular faculty. A special bulletin on this course will be ready for distribution in January of 1917.

### SUMMER TRAINING SCHOOL FOR TEACHERS

A State Teachers' Training School will be held at the Northwest School of Agriculture from June 18 to July 29, 1917.

The School has been organized by the authority of the Department of Education and will be conducted under its supervision. The buildings, apparatus, and library of the School are available for the use of the teachers of northwestern Minnesota.

The general aim of the School is not only to offer a review of the elementary and high-school subjects that are required for the first- and second-grade state teachers' certificates, but to give practical courses in professional training. Particular attention will be paid to the organization and conduct of rural schools. Besides the instructors provided by the state department, the members of the agricultural school faculty conduct some of the classes affording particular opportunities for the study of industrial work.

A circular describing this course may be obtained by addressing the Superintendent, Northwest School of Agriculture, Crookston, Minnesota.

## SPECIAL COURSES

### I. TRADE DRESSMAKING

The aim of this course is to give girls who do not wish to take the regular Home Economics Course, an opportunity to acquire skill in the designing, planning, cutting, fitting and finishing of garments, with a view to becoming dressmakers. Each student drafts, cuts, bastes, fits, and finishes woolen and cotton dresses, silk, woolen, and lingerie waists, tailored skirts and suits, and any problems that may be brought to the school. Lectures are given on costume design—study of lines and harmony; fabrics, suitability, and utility; kinds and uses of trimmings. This course in dressmaking takes three months for completion—a new course begins October first and January first. Two subjects in regular school curriculum may be studied at the same time, if desired.

### II. STUDENTS' SHORT COURSE

The Students' Short Course begins after the holidays to meet the demand for this work by young men who could not take the entire three years' course.

*Subjects Offered:* Gasoline engine work, including the problems that a person meets in operating a tractor, a smaller engine, or an automobile; Agriculture, including farm crops, rotations, soil study, clovers, alfalfa, and other related topics; Study of Farm Animals, including a study of the different breeds, their feeding, care, and management, and breeding. Blacksmithing, giving a thoro practice in iron work; Carpentry, including farm buildings; English, including letter writing; Farm Bookkeeping and accounts. In addition students may take any of the subjects offered in the regular courses.

*School and Station Equipment.* The school has excellent facilities for thoroly interesting and practical work in all of these lines. There are over two hundred head of horses, cattle, sheep, and hogs there. These animals furnish practical work for all the classes in feeding, care and management, as well as specimens for judging work. The station has a gas tractor, several gasoline engines, modern farm machinery, in addition to several gas tractors loaned by implement manufacturers, all of which give the students practical farm advantages. The blacksmithing and carpentry shops are well equipped.

*Credits Offered.* Credits will be given to all who do satisfactory work which will be accepted in the regular school course.

*Expenses.* Total expenses for one term amount to about \$60. Board and room in the school dormitories are furnished at an average price of \$15.75 per month. The rooms are steam heated, electric lighted, with

modern bath room on each floor. Fees for three months including book rent, entrance fee, etc., total \$8.25, plus a \$5 deposit which is returned at the close of the term. Bedding is furnished by students themselves.

Special circulars will be sent on application describing such courses as:

- Gasoline and Farm Engineering
- Potato Growing and Weed Eradication
- Opportunities in Music
- Farm Husbandry
- Practical Cooking and Household Problems
- Dressmaking
- Livestock

## NORTHWEST EXPERIMENT STATION

Substation, Department of Agriculture, University of Minnesota

### STATION CORPS

C. G. SELVIG, M.A., Superintendent  
GEORGE E. GIBB, Secretary  
N. G. MALIN, Field Foreman  
WILLIAM DIETRICH, Animal and Dairy Husbandry  
F. L. KENNARD, Agronomy and Farm Management  
T. R. SEWALL, Farm Buildings  
C. E. BROWN, Poultry  
T. M. McCALL, Horticulture  
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. Up to the present time funds have not been provided to enable the Station corps to do a great deal of investigational work. The Station is taking on more and more work each year, and results of great value are being secured.

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. With aid from the U. S. Office of Experiment Stations the Station is taking an active part in testing surface and tile drainage for the Red River Valley region. Much valuable data upon the subject of farm drainage is being secured.

The Station has well-equipped barns and yards. From a small beginning the Station 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. Beef cattle, sheep, and horse-breeding work is gradually being brought to the point where the Station can do more along these projects than heretofore. Various feeding experiments are conducted.

With the aid of the Federal Department of Agriculture, the Minnesota Experiment Station, St. Paul, and in cooperation 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 distributed 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.



Experiments with various systems of crop rotations, methods of tillage, alfalfa, disease-resistant plants, methods of growing grasses, the eradication of weeds, fiber flax (in coöperation with the U. S. Department of Agriculture), winter wheat, rate of sowing grains, and with various fertilizers have been begun and are yielding valuable results.

Extensive projects embracing horticultural and vegetable gardening work have been started. Many varieties of small fruits are being tested as to their adaptability to this climate.

The Poultry Department has maintained its work of investigating the housing, feeding, and breeding of chickens. Valuable results have been secured and since the publication of the first bulletin other important investigations now under way are showing valuable results.

The Northwest School of Agriculture is maintained in connection with the farm with Station men as instructors.

#### BULLETINS OF THE NORTHWEST EXPERIMENT STATION

Bulletin 110. Installation of an Experimental Drainage System at Crookston.

Bulletin 119. Poultry.

Report of Northwest Experiment Station for 1911 and 1912. Published February, 1913.

Extension Bulletin 41. Two Types of Silos at Northwest Experiment Station.

## SUMMARY OF ATTENDANCE

1915-1916

Regular School Course	Men	Women	Total
Advanced Course .....	7	5	12
Seniors .....	29	14	43
Juniors .....	19	3	22
Freshmen .....	101	30	131
	<hr/>	<hr/>	<hr/>
Total, Regular School Course....	156	52	208
Summer Session, 1915.....	12	212	224
Junior Short Course, 1916.....	49	32	81
Farmers' Short Course and Farm Crops Show, 1916 .....	587	178	765
	<hr/>	<hr/>	<hr/>
Total .....			1,278

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

DEPARTMENT OF AGRICULTURE

**WEST CENTRAL**  
**SCHOOL AND STATION**

**MORRIS, MINNESOTA**

**1916-1917**



**VOL. XIX. NO. 18 JUNE 1916**

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## SCHOOL CALENDAR

1916-17

October	2	Monday	First term opens: Registration
October	3	Tuesday	Organization of classes
November	4	Saturday	Field Day
November	30	Thursday	Thanksgiving Day
December	9	Saturday	Inter-society Debate
December	23	Saturday	First term closes
January	8	Monday	Second term opens: Registration
January	9	Tuesday	Organization of classes
February	12	Monday	Lincoln's Birthday
February	19	Monday	Farmers' Short Course opens
February	22	Thursday	Washington's Birthday
February	24	Saturday	Farmers' Short Course closes
March	19	Monday	Morris-Crookston Debate
March	29	Thursday	Junior-Senior-Alumni Banquet
March	30	Friday	Commencement Day
April	3	Tuesday	Junior Short Course opens
April	7	Saturday	Junior Short Course closes

# THE WEST CENTRAL SCHOOL AND STATION

## FACULTY

GEORGE EDGAR VINCENT, Ph.D., LL.D., President  
CYRUS NORTHROP, LL.D., President Emeritus  
ALBERT F. WOODS, M.A., D.Agr., Dean  
EDWARD M. FREEMAN, Ph.D., Assistant Dean  
EDGAR C. HIGBIE, M.A., Superintendent

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O. O. BYE, Carpentry, Farm Structures, and Superintendent of Buildings  
JOYCE E. FIERO, B.A., English  
IRMA HATHORN, B.A., Animal Husbandry and Dairying  
MYRTLE G. JOHNSON, Piano and Gymnasium  
PHILIP JORDAN, B.S., Animal Husbandry and Dairying  
MARY E. KING, B.A., Librarian and English  
HENRY E. MEYER, Piano  
PAUL E. MILLER, B.S., Farm Grains and Farm Management  
PHILIP SCHWEICKHARD, Preceptor and Social Science  
MARTIN J. SORFLATEN, Violin and Band Instruments  
JUNE VAN WINKLE, Mathematics  
SUSAN WILDER, B.A., B.S., Home Economics  
ARTHUR WOODMAN, B.S., Agricultural Engineering  
LOUISE FITZGERALD, B.S., Assistant in Home Economics

## GENERAL INFORMATION

### PURPOSE

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

### ADMISSION

At present the rural schools are unable to do much advanced work. It is hoped that they will improve their courses through consolidation and association and ultimately make it possible for the School of Agriculture to set higher standards of admission, but, until such is the case, the School must accept any mature young man or woman even though he or she might find it hard to pass entrance tests. Students above sixteen years of age will be welcomed even though they may not be able to show graduation from the usual eighth-grade work. Whenever possible, prospective students should present county or high school certificates in the common branches. These will admit to the regular work without conditions. In certain lines of work advance credit for high school subjects will be accepted.

### LOCATION

The School is admirably situated to serve about seventeen counties of the west central part of the State. The Great Northern Railway through connections with the Chicago, Milwaukee, and St. Paul Railway gives good service to the southeast, southwest, west, and northwest. The Northern Pacific Railway, through connections with the Soo Line and other roads, gives very satisfactory service to the portion of the State lying north and northeast of Morris.

The School itself adjoins the city of Morris and is situated upon a natural rise of ground overlooking the Pomme de Terre Valley. When the present plans are carried into effect, the campus will be a very beautiful place indeed with its fifteen or twenty buildings and pleasant drives.

### TIME OF OPENING

The School of Agriculture will open Monday, October 2, and close Saturday, December 23, for the fall term. It will reopen Monday, Janu-

ary 8 and close Friday, March 30, for the winter term. This gives six months of school work at a time when the students can best be spared from home.

#### SPECIAL INFORMATION

Old or new students planning to attend the School of Agriculture should write early to the Registrar asking him to reserve a room. Rooms will be reserved free of charge until Tuesday evening, October 3 at 7:30 o'clock. In order to hold a room after this date, the regular monthly room charge must be paid in advance. Each dormitory room is furnished with two single beds, dresser, table, chairs, curtains, sheets, bed spreads, pillows and pillow cases. Each student should bring with him quilts or blankets for one single bed, towels, comb, brushes, and other toilet articles.

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

Students more than two weeks late in entering may not be able to complete all of the term's work without conditions. If a student can not enter before the middle of November, he should wait until January 8 for the new term and new classes to start.

All trains will be met by special committees Monday, October 2. If possible, be on hand the first day.

#### HOLIDAYS

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

#### DORMITORIES

Two new dormitories, one for young men and one for young women, are now in use. Each is in charge of one of the members of the Faculty. These buildings are modern, three-story structures, splendidly equipped and heated by a central heating plant. They will accommodate about one hundred and fifty students.

#### HOME LIFE ON THE CAMPUS

The life of the students while attending the School of Agriculture is subject to supervision. Everything is done to promote a healthful, moral atmosphere. The use of tobacco and spirituous liquors of all kinds is strictly forbidden. Anyone not in accord with these restrictions and not willing to lend a hand toward strong, moral growth should not come to the School of Agriculture.

#### EXPENSES

The expenses at the institution are made as moderate as feasible. They include the following items which are payable in advance:

Incidental fee (per year) .....	\$5.00
Board (per week) .....	2.50
Room, light, heat and flat laundry (per month)..	5.00
Laboratory fees for woodwork, forge, sewing, cooking, chemistry, corn studies, or dairying (per term)	\$1.00 to 3.00
Purchase of textbooks (per term) .....	3.00 to 5.00
Deposit (per year) .....	5.00
Hospital fee (per term) .....	1.00

The five-dollar deposit is required as a protection against breakage, etc., and unless deductions are made it will be returned in full at the end of the year. The buildings are lighted by electric lights and warmed by steam. No deduction in board is made for any absence of less than seven days. No deduction in room is made while the room is held. A charge of twenty-five cents per meal will be made for guests. Guests' meal tickets should be purchased in advance. The price of board is put at \$2.50 per week. This rate may be varied if advisable.

Students will buy their own stationery, drawing material, etc.

#### STUDENT ORGANIZATIONS

Students are urged to unite with a literary society. These societies offer the students 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 Intersociety Debate cup for the promotion of interest in civic and political questions has been offered by the superintendent.

The Vincent Literary Society, having won this cup three successive times, now have permanent possession of it.

Both the Young Men's and the Young Women's Christian Associations have organizations. Sunday morning and Sunday evening services are conducted each week under the direction of these two associations.

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

Band and orchestra organizations have been perfected during the past year. It is hoped to be able to give credit for membership and regular attendance at practices and entertainments.

#### LIBRARY

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

#### LECTURE COURSE

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

#### 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 ten dollars per term for the lessons and two dollars and a half 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.

#### TEACHERS' TRAINING SCHOOL

The fourth annual session for rural school teachers will open June 12 and continue six weeks. The technical work will be offered by members of the regular faculty and the usual summer school courses will be in charge of a corps of ten instructors furnished by the Department of Education. The proper completion of any course will command certificate credit without the usual examinations.

#### SUMMER DRESSMAKERS' COURSE

A course in commercial dressmaking is offered in the Summer Session. Instruction is given in plain sewing, dress trimming, tailoring, and the study of standard dress materials and their manufacture. The aim of the course is to teach dressmaking as a trade.

#### SUMMER HOME MAKERS' COURSE

The purpose of the Home Makers' Course is to afford a chance for those who desire it to obtain training in organizing and running a home. Everything offered is given with an idea of making a person an efficient home maker. This course is given during the Summer Session.

#### A SHORT VACATION FOR FARM WOMEN

The third annual short vacation for farm women will be held during the Chautauqua week, making it possible for the ladies enrolled to have the opportunity of attending the splendid lectures and entertainments offered during the Chautauqua season. Besides this, there will be the usual talks and periods of visiting. The training school will also be in session and faculty members will help make the time pleasant and profitable. The fee for the course will be \$4. This will pay for the board and all other local expenses, including the Chautauqua tickets. This course is offered June 25 to 28, 1916.

## TYPES OF COURSES

### LONG COURSES

The regular courses cover a period of three or four years 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 of 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, etc. Either young men or 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 four years of work.

### SHORT COURSES

The short courses include the six weeks' terms and the one week sessions. The first are given during the six weeks following June 12th and include instruction in Teacher Training, dressmaking, home making, music and academic subjects. The one week sessions are three in number as follows: The Farmers' Short Course, regularly held the third week in February; the Junior Short Course given immediately after the close of the long courses in March; and the Short Vacation for Farm Women, which is planned for Chautauqua week in June.

### ADVANCED COURSES

Three years of six months each complete the regular long course work. However, it is found that this period is very short in which to give all of the work that should be included in a satisfactory course. Therefore a fourth year is offered, during which time students may elect one major subject in almost any line they wish and complete the remaining credits by taking the subjects in the elective lists that they could not obtain during their first three sessions. The major lines of work suggested for boys include dairying, beef production, engineering, carpentry, advanced farm management and academic subjects. The major lines for girls cover work in dressmaking, advanced home management, nursing, music and normal training.

### REQUIREMENTS FOR GRADUATION

For graduation it is required that a student complete the prescribed three-year course of study with an honorable standing in department. It is essential that the student should do some work of a practical nature during the vacation following the first and second school years respec-

tively. If a student has had no farm experience, it is required that he spend these two seasons upon a farm, and that special reports from both himself and his employer be given regarding his work. The nature of the report must be made clear to the student before the actual work is begun.

#### EXPERIMENT STATION

During the first three or four years, few if any actual experiments were carried on because of the general conditions of the farm. Weed eradication, building up of the soil fertility, drainage projects, together with a careful survey and layout were necessary before much work of an experimental nature could be begun. Last year, however, some excellent projects were laid out and real progress was made. These are being continued for 1916-17, and other projects are being added.

# COURSES OF STUDY REQUIRED FOR GRADUATION

(Provisional)

BOYS

## FIRST YEAR

	<i>Second Term</i>
<i>First Term</i>	
Cr. Hrs.	Cr. Hrs.
5 English A	5 English B
5 Corn A	5 Grain B
5 Farm Accounts A	5 Anatomy-Hygiene A
5 Types and Breeds A	5 Social Science A
2 Carpentry A or Blacksmithing B	2 Carpentry A or Blacksmithing B
1 Milk Testing B	1 Stock Judging C
1 Spelling C	1 Penmanship D
1 Gymnasium	1 Gymnasium

## SECOND YEAR

*Fall Term*

### REQUIRED SUBJECTS

	5 English E			
	5 Chemistry C			
	1 Gymnasium			
AGRONOMY	or	ANIMAL HUSBANDRY	or	AGRL. ENGINEERING
2 Grain Judging C	1	1 Stock Judging D	5	5 Drainage E
3 Garden & Orchard J	2	2 Grain Judging C	3	3 Mech. Drawing D
9 Elective	11	11 Elective	6	6 Elective

*Winter Term*

### REQUIRED SUBJECTS

	5 Social Science B			
	5 Physics D			
	1 Gymnasium			
4 Forage Crops D	5	5 Feeds & Feeding E	3	3 Farm Structures G
5 Feeds & Feeding E	4	4 Forage Crops D	2	2 Rural Sanitation H
5 Elective	1	1 Stock Judging F	9	9 Elective
	4	4 Elective		

## THIRD YEAR

*Fall Term*

### REQUIRED SUBJECTS

	5 English F			
	1 Gymnasium			
5 Farm Management G	3	3 Animal Breeding G	3	3 Gas Engines L
14 Elective	1	1 Stock Judging H	3	3 Farm Structures I
	15	15 Elective	13	13 Elective

*Winter Term*

## REQUIRED SUBJECTS

	5 English G		
	1 Gymnasium		
2 Farm Management H	3 Animal Diseases I	5 Farm Mechanics M	
5 Soils F	16 Elective	14 Elective	
12 Elective			

NOTE: In the second and third years, students choosing one group may elect from either of the other two groups, or from the following general list until a total of 50 hours is filled.

## GENERAL ELECTIVE LIST

1 to 3 Music	2 Public Speaking I
2 Public Speaking H	3 Poultry K
1 Advanced Shop Work C	3 Building Materials K
5 Algebra C	1 to 3 Music
3 Beef Production J	5 Algebra D
5 Rural Sociology C	3 Dairy Production L
2 Commercial Seed Production E	2 Traction Engineering L
1 Penmanship	3 Mechanical Drawing J
1 Spelling	1 Penmanship
2 Public Speaking J	2 Public Speaking K
5 Geometry E	3 Botany K
5 History D	2 Business Accounting G
5 Adv. Farm Management I	5 Geometry F
3 Garden and Orchard J	5 History E
5 History F	5 Home Literature L
5 Advanced Carpentry O	5 History G

## FOURTH YEAR

## REQUIRED SUBJECTS

*First Term*

5 Literature A
20 Elective

*Second Term*

5 Literature B
20 Elective

For the elective work in the fourth year, a student should select one major subject, completing a total of 25 credits per term from the elective list above.

Major Lines:—Dairying; Beef Raising; Carpentry; Engineering; Drainage; Academic (Mathematics, History, etc.).

## GIRLS

## FIRST YEAR

*First Term*

Cr.	
Hrs.	
5	English A
5	Home Accounts B
5	Sewing A and Cooking A
1	Spelling C
1	Gymnasium
8	Elective

*Second Term*

Cr.	
Hrs.	
5	English B
5	Social Science A
5	Sewing B and Cooking B
1	Penmanship D
1	Gymnasium
5	Anatomy-Hygiene and Sanitation A
4	Elective

## SECOND YEAR

5	English E	5	Social Science B
5	House Pl. and Decoration G	5	Chemistry C
5	Sewing D and Cooking C	5	Sewing F and Dietetics E
3	Bacteriology B	5	Home Nursing C
1	Gymnasium	1	Gymnasium
6	Elective	4	Elective

## THIRD YEAR

5	English F	5	English G
5	Sewing G and Cooking G	5	Sewing I and Home Management H
1	Gymnasium	1	Gymnasium
14	Elective	14	Elective

## GENERAL ELECTIVE LIST

1 to 5	Music	1 to 5	Music
3	Laundry C	2	Art Needlework J
5	Nature Study B	2	Modeling and Draping K
2	Costume Design E	3	Poultry and Dairying M
5	Household and Food Chemistry D	3	Public Speaking I
5	Textiles H	3	Public Speaking K
2	Public Speaking H	5	Household Physics F
2	Public Speaking J	2	Painting and Drawing F
2	Painting and Drawing E	5	Home Literature L
5	Social Science C	5	Adv. Home Management I
5	Home Nursing E	1	Spelling L
1	Penmanship	5	Home Nursing F
5	Algebra C	5	Algebra D
5	Geometry E	5	Geometry F
5	History D and E	5	History F and G

## FOURTH YEAR

## REQUIRED SUBJECTS

5	Literature A	5	Literature B
20	Elective	20	Elective

For the elective work in the fourth year, a student should select one major subject, completing a total of 25 credits per term from the elective list above.

Major Lines:—Music; Home Management; Normal (1917); Dressmaking; Academic (Algebra, History, etc.).

## DESCRIPTION OF COURSES

### AGRONOMY AND FARM MANAGEMENT

- A. **CORN GROWING.** This course covers a complete 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. MILLER.
- B. **GRAIN GROWING.** A study of the principal cereal crops. Seed selection; soil and cultural requirements; harvesting. Class room work supplemented with laboratory practice. MILLER.
- C. **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. MILLER.
- D. **FORAGE CROPS.** This course covers a study of such leguminous crops as clover and alfalfa; grass crops as timothy and native tame pastural and hay grasses, millet and rape. It deals with their cultural requirements as well as their importance in general farm management. MILLER.
- E. **COMMERCIAL SEED PRODUCTION.** A course treating of the breeding and growing of pure-bred seed corn and grain upon the farm, together with the best methods of marketing the same. MILLER.
- F. **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. MILLER.
- G. **FARM MANAGEMENT I.** A course treating of the management of land, labor and capital in their relation to the farm business. MILLER.
- H. **FARM MANAGEMENT II.** This course consists in a complete study of farm accounts. The student keeps a practical set of books on the entire year's work, from the taking of the inventory to closing the accounts at the end of the year. MILLER.
- I. **ADVANCED STUDIES IN FARM MANAGEMENT.** This course will cover advanced work in some of the more important problems of farm management, including farm labor, cost of production, marketing, and similar subjects. MILLER.
- J. **GARDEN AND ORCHARD.** A course treating of the planning, planting, culture, value, and management of the orchard and garden upon the general farm. MILLER.
- K. **BOTANY.** A course in the principles of elementary Botany. This course will meet the needs of students who may wish to use the credit for college entrance. MILLER.

## ANIMAL AND DAIRY HUSBANDRY

- A. **TYPES AND BREEDS.** This course is devoted to the study of the history, development, characteristics and adaptability of the various breeds of horses, cattle, sheep, and swine. JORDAN.
- B. **MILK TESTING.** Principles of milk testing. The students are given a practical working knowledge of herd testing and record work. JORDAN.
- C. **STOCK JUDGING.** This course is devoted to the study and practice in the use of the score card, showing the relation of body structure to economical production. JORDAN.
- D. **STOCK JUDGING.** This course is devoted to competitive and comparative judging of all classes of live stock. JORDAN.
- E. **FEEDS AND FEEDING.** This course covers a study of the general composition of the animal body; the composition and digestibility of foods; feeding standards; methods of feeding, etc. JORDAN.
- F. **STOCK JUDGING.** A continuation of Course D. JORDAN.
- G. **ANIMAL BREEDING.** A study in the theory and practice of animal breeding, including variation, heredity, selection, effect of pure-bred animals in improving types of stock, and pedigrees. JORDAN.
- H. **STOCK JUDGING.** A continuation of Course F. JORDAN.
- I. **ANIMAL DISEASES.** A study of the causes, prevention and cure of animal diseases, including emergency treatment. JORDAN.
- J. **BEEF PRODUCTION.** This course is devoted entirely to the production of beef cattle, both pure-bred and market stock. It includes feeding and management of the herd, the selection of breeding stock, and the arrangement of buildings and yards, all taken from a practical standpoint. JORDAN.
- K. **POULTRY.** This course aims to give practical instruction in the breeding and care of poultry for general farm use. JORDAN.
- L. **DAIRY PRODUCTION.** This is an advanced course designed to fit a student for the successful management of a dairy herd. JORDAN.
- M. **POULTRY AND DAIRYING.** For girls. A course enabling girls to organize the poultry and dairy work as a part of the general farm operations. JORDAN.

## AGRICULTURAL ENGINEERING

- A. **WOODWORK.** Carpentry; care, use and sharpening tools; laying off work; making of joints and framing. Work designed to be especially helpful in planning, framing and construction of farm buildings. BYE.
- B. **FORGE WORK.** 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.

- C. **ADVANCED SHOP WORK.** Farm blacksmithing and horse shoeing. Instruction is given in plow work; soldering, babbiting and horse shoeing, and in the most approved methods of doing quick repair work.
- D. **MECHANICAL DRAWING I.** Instruction is given in the use of drawing instruments, in lettering and in the making of working drawings. WOODMAN.
- E. **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. WOODMAN.
- F. **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. WOODMAN.
- G. **FARM STRUCTURES I.** The design, location and erection of farm buildings; study of proper pitches; roof trusses; barn frames; estimates of costs, etc. Working models are made in the shop from the plans drawn. BYE.
- H. **RURAL SANITATION.** The lighting, heating and ventilation of farm buildings; a study of lighting systems; plumbing; systems of water supply and sewage disposal. WOODMAN.
- I. **FARM STRUCTURES II.** A continuation of Course G. Designing of buildings needed on the home farm, and the working out of a general plan that will meet the builder's requirements. BYE.
- J. **MECHANICAL DRAWING II.** A continuation of Course D. Practice in designing in isometric drawing and projection. Drawings are made from parts of such machines as gas engines and cream separators. WOODMAN.
- K. **BUILDING MATERIALS.** A study of the properties of wood, sand, gravel, cement, stone, brick and concrete. Practice in proportioning and mixing concrete; in making concrete blocks, fence posts and in designing foundations. WOODMAN.
- L. **GAS ENGINES.** A study of the 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. WOODMAN.
- M. **FARM MECHANICS.** Farm machinery and farm motors. Instruction in the selection, use and care of tilling, seeding, harvesting, threshing and fertilizing machinery. Work is given in pumping and grinding machinery; transmission of power, grading machinery, etc. WOODMAN.
- N. **TRACTION ENGINES.** Given in connection with Course L. Instructor in stopping and starting the motor, in handling the engine on the

practice field, in lining up, backing into the belt, plowing, etc. WOODMAN.

- O. **ADVANCED CARPENTRY.** Designed for special carpentry preparation, aiming to bring together in an applied way earlier elements of the course, together with such practical topics as designing, estimating, etc. Final credit will be dependent upon eight months of actual work under an approved carpenter. **BYE.**

### ENGLISH

- A. **ENGLISH.** This course consists of reading, spelling, and a brief review of the principles of Grammar. Considerable time is devoted to oral reports. Written work takes the form of short themes. **FIERO.**
- B. **ENGLISH.** The work of the preceding semester is continued. Letter writing is taken up in connection with simple sentence and paragraph structure. Several selections are memorized. **FIERO.**
- C. **SPELLING.** This course supplements Course A with definite work in order to aid in correcting bad spelling habits.
- D. **PENMANSHIP.** This course is to provide special drill for those in need of continued practice.
- E. **ENGLISH.** Letter writing and spelling are continued. Standard books and selections of interest are read. The outline is used extensively in oral and written work. **FIERO.**
- F. **ENGLISH.** Advanced work is given in written composition of a narrative type. An appreciation of good literature is cultivated by extensive reading. **FIERO.**
- G. **ENGLISH.** Reading and advanced composition of descriptive, expository, and argumentative types are continued. Word study takes up the derivation, usage, and meaning of words. Some time is devoted to extemporaneous speaking. **FIERO.**
- H. **PUBLIC SPEAKING.** This course gives training and preparation in organization of material for use in club work. Drill in delivery follows the preparation of the outline.
- I. **PUBLIC SPEAKING.** A continuation of Course H.
- J. **PUBLIC SPEAKING.** This course is designed especially for those interested in giving selections from the various authors.
- K. **PUBLIC SPEAKING.** A continuation of Course J.
- L. **HOME LITERATURE.** This course familiarizes students with home literature, beginning with nursery rhymes, and selecting material best adapted to the various stages of child development.

## HOME ECONOMICS

## DOMESTIC ART

- A. SEWING. A gymnasium suit, consisting of bloomers and blouse, a cooking outfit, and a kimono are made in the first semester. WILDER.
- B. SEWING. The laboratory work consists in the making of a four-piece suit of underwear. The various kinds of material and their wearing qualities; simple decoration and trimmings and the cost of the finished garments are discussed. WILDER.
- C. LAUNDRY. The work in this course deals with the best methods of preparing water, soap and starch for laundering purposes. Directions for ironing and folding of garments, reviving colors, removing stains, washing delicate fabrics, and dry cleaning are given. WILDER.
- D. SEWING. Each girl makes for herself a snug-fitting waist and skirt which is placed on a dress form and padded out. This form is used throughout the rest of the course. A shirt waist and wool dress are made during the term. WILDER.
- E. COSTUME DESIGN. This is an intensive, elective course, for those girls who are anxious for more ability in designing dresses.
- F. SEWING. The work of this semester has to do with the making of summer dresses. A house dress and a light summer dress are made. The suitability of material and design, and cost, color and lines of the garments are discussed.
- G. SEWING. A wool suit is made in this semester. Special attention is given to standard materials, color, lines, and cost of outside garments. Materials are purchased under direction of the instructor. WILDER.
- H. TEXTILES. This course includes such subjects as the manufacture of cloth from wool, cotton, silk and flax fiber; adulterations of cloth and the methods of detecting such adulterations; relation of clothing to health; clothes budgets, etc. WILDER.
- I. SEWING. Continuation of the work in Course G, making an inexpensive graduation dress. WILDER.

## DOMESTIC SCIENCE

- A. COOKING. The laboratory work consists in practice in cooking cereals, soups, vegetables, fruits, and some simple desserts. The lecture work deals with the source of food products, the digestibility of foods, and the theory of cooking. FITZGERALD.
- B. COOKING. The laboratory work includes the making of pancakes, muffins, biscuit, bread, cakes, cookies, etc., and the cooking of meats and eggs. The lecture work is a continuation of that of the first semester. FITZGERALD.

- C. **COOKING.** The laboratory work consists largely in canning, pickling, preserving and jelly making. The lecture work includes the study of cold storage, injurious preservatives, curing of meats, preserving eggs, etc. FITZGERALD.
- D. **FOOD AND HOUSEHOLD CHEMISTRY.** This course continues the work of General Course B, applying the general principles of chemistry to food in all of its uses. FITZGERALD.
- E. **DIETETICS.** The time is given to invalid cookery, and includes the preparation of custards, gelatins, ice creams and beverages. The lecture work is designed to give an understanding of the proper diet for different disease conditions. FITZGERALD.
- F. **HOUSEHOLD PHYSICS.** The mechanics of solids, liquids and gases is studied, and a direct application made of them to the home. One half of the work is devoted to heat in its relation to the household. WILDER.
- G. **CHEMISTRY.** Identical with Miscellaneous Course C. FITZGERALD.
- H. **HOME MANAGEMENT.** This is a summary of the previous work offered. Plans and devices for saving of labor, money and time are discussed. Each girl is offered two weeks' practice in actual preparation and serving of meals. FITZGERALD.
- I. **ADVANCED HOME MANAGEMENT.** This is a continuation of Course H. FITZGERALD.

#### HOME NURSING

- A. **ANATOMY-HYGIENE AND SANITATION.** (For girls.) This course includes a study of the structure and functions of the human body; the hygiene of hair, teeth, skin, nose, throat, eye, ear, lungs; digestion and nervous system; rest, recreation, sleep, work, together with fundamental principles of good sanitation. HULETT.
- B. **BACTERIOLOGY.** This course includes a study of molds, yeasts and bacteria, and the conditions under which they grow and thrive. The work is closely connected with the preservation of foods and the care of the sick. HULETT.
- C. **HOME NURSING I.** A course in the proper care of the sick and the use of simple remedies. HULETT.
- D. **DIETETICS.** Identical with Course E in Domestic Science. FITZGERALD.
- E. **HOME NURSING II.** A study of simple medicines in relation to disease, with especial attention to warning against the use of undesirable patent medicines. HULETT.
- F. **HOME NURSING III.** A study of the common diseases, methods of prevention, first aid, etc. HULETT.

## MATHEMATICS

- A. FARM ACCOUNTS. For boys. This course introduces the regular ledger account forms. Much drill is given in rapid calculation and accuracy, and application of the work to farm operations. VAN WINKLE.
- B. HOME ACCOUNTS. For girls. This course covers the same work as Course A except that the application is made to home instead of farm work. VAN WINKLE.
- C. ALGEBRA. Courses C and D are designed to cover the usual first year academic credit work. HATHORN.
- D. ALGEBRA. Completion of Course C. HATHORN.
- E. PLANE GEOMETRY. Courses E and F are planned to complete the academic requirements in mathematics.
- F. PLANE GEOMETRY. Completion of Course E.
- G. BUSINESS ACCOUNTING. A course in business mathematics for those specializing in Engineering, Carpentry, etc.

## MUSIC

## PIANO MUSIC

- A. PIANO PLAYING. Exercises for hand position and rhythm; two, three and five-finger exercises; major scales; Studies; Gurlitt Technique and Melody; Tapper, First Piano Book, or Graded Studies, Grade I. Solos: Tapper, Sartorio, etc. JOHNSON.
- B. PIANO PLAYING. Exercises for hand and arm control; thumb exercises, major scales, transposition of five-finger exercises, two and three-finger exercises. Studies: Streabog's Twelve Very Easy Studies, Czerny Anthology Vol. I. Solos: Graded Pieces, Grade II. JOHNSON.
- C. PIANO PLAYING. Scales with different rhythms, one and two notes, 80 mm.; broken chords. Studies: Concone Twenty-four Melodious Studies; Tapper's Graded Studies, Grade III; Czerny Anthology, Vol. II. Solos: Beethoven, Heller, etc. JOHNSON.
- D. PIANO PLAYING. Scales with different touches, one, two, three and four notes, 80 mm.; Herz exercises; simple arpeggios; block chords with pressure and drop arm. Studies: Foote, First Year Bach; Czerny; Wrist and Forearm Studies. Solos: Graded Pieces, Grade III; Mozart; Sonatinas. JOHNSON.
- E. PIANO PLAYING. Studies: Lynnes Key Circle Exercises, Book I; Heller, Opus 47; First Year Bach. Solos: Easy sonatas by Haydn and Mozart. Graded Pieces, Grades III and IV, Tapper, Graded Pieces III. Classes in Musical History and Music Theory. MEYER.
- F. PIANO PLAYING. Studies: Schmitt finger exercises; the major and minor scales, hands separate, legato and staccato in varied rhythms:

octave studies. Solos: Pieces by Schumann, Mendelssohn, Jensen, etc. Easier Beethoven works. Classes in Musical History and Music Theory. MEYER.

- G. TEACHERS' COURSE. Studies: Stamaty, Rhythmic Training for the fingers; Heller, Opus 45; Smith, Octave Studies; selected Cramer studies. Solos: Bach, Two Part Inventions; Mendelssohn, Songs Without Words; Schumann, Scenes from Childhood. Chaminade, Godard, Raff, MacDowell, etc. MEYER.

#### 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.

#### MISCELLANEOUS

- A. ANATOMY-HYGIENE. (For boys.) This course covers a study of comparative anatomy and human hygiene. It is both an introduction to the later Animal Husbandry course and a preparation for the care of the health. SCHWEICKHARD.
- B. NATURE STUDY. The course is designed to interest girls in the natural environment of rural life. Birds, flowers, trees, bees, and other interesting things of the country are studied. Some time is given to the study of nature literature. VAN WINKLE.
- C. CHEMISTRY. A general introductory course preparatory for later work in Agronomy, Animal Husbandry and Home Economics. FITZGERALD.
- D. PHYSICS. Identical with Course F in Engineering. WOODMAN.
- E. PAINTING AND DRAWING. A course given to develop appreciation of pictures and expression of the art instinct for those who have especial artistic ability. (1917.)
- F. PAINTING AND DRAWING. A continuation of Course E. (1917.)

#### SOCIAL SCIENCE

- A. INDUSTRIAL GEOGRAPHY AND HISTORY. This is a lecture and library reading course designed to show the relationship of farming to other occupations, and give the farmer of the future a realization of his place in the social organization. HIGBIE.

- B. GOVERNMENT AND LAW. This course aims to give the student a working understanding of local, state and national governmental forms and practices. It includes also a brief study of common contracts, deeds, mortgages, line fences, etc.
- C. RURAL SOCIOLOGY. This is a study of rural life. Churches, schools, clubs, home life and community coöperation are a few of the topics considered. HIGBIE.
- D. ANCIENT HISTORY. This is a regular academic credit which, together with Course E, covers the world's history to 800 A. D..
- E. ANCIENT HISTORY. Completion of Course D.
- F. MODERN HISTORY. This work, together with Course G, completes the second year of academic history instruction alternating with Courses D and E.
- G. MODERN HISTORY. Completion of Course F.

## STUDENT ROLL

### STUDENTS IN ATTENDANCE AT WEST CENTRAL SCHOOL AND STATION

MORRIS, MINNESOTA, 1915-1916

Aanerud, Magna, Elbow Lake	Kirkwold, Alice, Glenwood
Anderson, Amanda, Wadena	Kirkwold, Blanche, Starbuck
Anderson, Harry, Alexandria	Koehntopp, John, Bellingham
Anderson, Hilda, Gibbon	Lang, William Reed, Appleton
Anderson, Nellie, Ortonville	Larson, Arthur, Rothsay
Anderson, Stina, Belgrade	Larson, Julia, Lowry
Beisterfeld, Martin, Hancock	Larson, Mamie, Rothsay
Bennett, Robert, Lowry	Keeler, Herbert, Chokio
Bjorge, Julius, Brooten	Larson, Phillip, Murdock
Bolstad, Clara, Dawson	Lee, Clara, Brooten
Bowen, Harold, Appleton	Lien, James, Hoffman
Brevig, Agnes, Starbuck	Lilienthal, Hazel, Glenwood
Brevig, Caroline, Starbuck	Magnuson, Harry, Wheaton
Brisbane, Gladys, Morris	Mahoney, Francis, Correll
Chapman, Hazel, Donnelly	Mallery, Stanley, Albert Lea
Christianson, Harold, Ortonville	Martinson, Henry, Clinton
Christofferson, Thomas, Morris	McArthur, Charlotte, Hancock
Cook, Aura, Westport	Monson, Clarence, Doran
Cooper, Henry, Carlos	Nelson, Earl, Dawson
DeCamp, Clifford, Chokio	Nelson, Irma, Brooten
Dehne, Henry, Holloway	Ness, Ben, Cyrus
Dehne, Reuben, Holloway	Niemackl, Bertha, Herman
Dosen, Clifford, Starbuck	Olds, Pearl, Hancock
Dosen, Karen, Starbuck	Olson, Selma, Ortonville
Dyer, Glenn, McGregor	Olson, Thea, Starbuck
Dyrstad, Agnes, Glenwood	Pearson, Clarence, Hoffman
Erickson, Afreda, Donnelly	Pearson, Olga, Hoffman
Erickson, Esther, Donnelly	Pearson, Victor, Grove City
Erickson, George, Osakis	Pehl, Ralph, Campbell
Estenson, Lawrence, Hancock	Peterson, Albert, Fairmont
Eystad, George, Alberta	Pilkey, Robert, Minneapolis
Ferrell, Herbert, Morris	Quitney, Gerard, Lowry
Field, Frank, Spicer	Quam, Andrew, Morris-Glyndon
Field, Hoyt, Spicer	Reisrud, Clara, Starbuck
Hanson, Amanda, Ortonville	Roiland, Tollman, Louisburg
Hanson, Silas, Harmony	Rolen, Carl, Clinton
Hegge, Emil, Ortonville	Rolen, Harold, Clinton
Hendrickson, Walter, Kensington	Sather, Clifford, Morris
Henricks, Margaret, Donnelly	Sather, Lawrence, Morris
Hilleren, Bertine, Benson	Selleseth, Inga, Norcross
Huizinga, Flora, Ortonville	Simonson, Cornell, Starbuck
Irgens, Ferdinand, Farwell	Sinclair, Wayne, La Moille
Iverson, Sophy, Norcross	Smith, George, Cyrus
Jensen, Christ, Morris	Solvie, Alice, Cyrus
Jensen, Jens, Morris	Solvie, Elmer, Cyrus
Johnson, Berger, Appleton	Solvie, Eilert, Cyrus
Johnson, Frank, Ortonville	Solvie, Otto, Hancock
Johnson, John A., Correll	Spalinger, Mary, Clinton
Kargleder, Frank, Big Stone, S. D.	Stegner, Wesley, Beardslay



*STUDENT ROLL*

23

Steinbring, Henry, Morris  
Stock, Carl, Kensington  
Stotesbury, Lydia, Barry  
Strandness, Jacob, Glenwood  
Sugden, Pearl, Herman  
Swenson, Otto, Chicago  
Sylvester, Clarence, Starbuck  
Thimmesch, Mary, Osakis

Thompson, Magnus, Starbuck  
Ulvestad, Johanna, Chokio  
Vaala, Horace, Madison  
Warner, Sadie, Hancock  
Webber, Henry, Wahpeton, N. D.  
Westrud, Agnes, Brooten  
Westbury, Ethel, Kensington  
Wilson, Emma, Donnelly

Wilson, Alice, Donnelly

**Bulletin of  
The University of Minnesota**

**THE SCHOOL FOR NURSES**

**1916-1917**



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MINNEAPOLIS, MINN.

1916							1917													
<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	..	1	2	3	4	5	6	1	2	3	4	5	6	7
2	3	4	5	6	7	8	7	8	9	10	11	12	13	8	9	10	11	12	13	14
9	10	11	12	13	14	15	14	15	16	17	18	19	20	15	16	17	18	19	20	21
16	17	18	19	20	21	22	21	22	23	24	25	26	27	22	23	24	25	26	27	28
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30	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>AUGUST</b>							<b>FEBRUARY</b>							<b>AUGUST</b>						
..	..	1	2	3	4	5	..	..	..	..	1	2	3	..	..	..	1	2	3	4
6	7	8	9	10	11	12	4	5	6	7	8	9	10	5	6	7	8	9	10	11
13	14	15	16	17	18	19	11	12	13	14	15	16	17	12	13	14	15	16	17	18
20	21	22	23	24	25	26	18	19	20	21	22	23	24	19	20	21	22	23	24	25
27	28	29	30	31	..	..	25	26	27	28	..	..	..	26	27	28	29	30	31	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>SEPTEMBER</b>							<b>MARCH</b>							<b>SEPTEMBER</b>						
..	..	..	..	..	1	2	..	..	..	..	1	2	3	..	..	..	..	..	..	1
3	4	5	6	7	8	9	4	5	6	7	8	9	10	2	3	4	5	6	7	8
10	11	12	13	14	15	16	11	12	13	14	15	16	17	9	10	11	12	13	14	15
17	18	19	20	21	22	23	18	19	20	21	22	23	24	16	17	18	19	20	21	22
24	25	26	27	28	29	30	25	26	27	28	29	30	31	23	24	25	26	27	28	29
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<b>OCTOBER</b>							<b>APRIL</b>							<b>OCTOBER</b>						
1	2	3	4	5	6	7	1	2	3	4	5	6	7	..	1	2	3	4	5	6
8	9	10	11	12	13	14	8	9	10	11	12	13	14	7	8	9	10	11	12	13
15	16	17	18	19	20	21	15	16	17	18	19	20	21	14	15	16	17	18	19	20
22	23	24	25	26	27	28	22	23	24	25	26	27	28	21	22	23	24	25	26	27
29	30	31	..	..	..	..	29	30	..	..	..	..	..	28	29	30	31	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>NOVEMBER</b>							<b>MAY</b>							<b>NOVEMBER</b>						
..	..	1	2	3	4	..	..	..	1	2	3	4	5	..	..	..	..	1	2	3
5	6	7	8	9	10	11	6	7	8	9	10	11	12	4	5	6	7	8	9	10
12	13	14	15	16	17	18	13	14	15	16	17	18	19	11	12	13	14	15	16	17
19	20	21	22	23	24	25	20	21	22	23	24	25	26	18	19	20	21	22	23	24
26	27	28	29	30	..	..	27	28	29	30	31	..	..	25	26	27	28	29	30	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>DECEMBER</b>							<b>JUNE</b>							<b>DECEMBER</b>						
..	..	..	..	1	2	3	..	..	..	..	..	1	2	..	..	..	..	..	..	1
3	4	5	6	7	8	9	3	4	5	6	7	8	9	2	3	4	5	6	7	8
10	11	12	13	14	15	16	10	11	12	13	14	15	16	9	10	11	12	13	14	15
17	18	19	20	21	22	23	17	18	19	20	21	22	23	16	17	18	19	20	21	22
24	25	26	27	28	29	30	24	25	26	27	28	29	30	23	24	25	26	27	28	29
31	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..

# UNIVERSITY CALENDAR

1916-1917

The University year covers a period of thirty-eight weeks. Commencement Day is always the second Thursday in June.

1916			
September	13	Wednesday	Registration closes except for new students
September	13-20	Week	Fees payable except for new students
September	19-26	Week	Examinations for the removal of conditions (except Colleges of Agriculture and Forestry), entrance examinations, registration of new students, and payment of fees.
September	27	Wednesday	First semester begins
October	2	Monday	Agricultural College, farm experience examinations
October	2	Monday	School of Agriculture, first term begins
October	5	Thursday	Senate meeting, 4:00 p.m.
November	6	Monday	Dairy School closes
November	7	Tuesday	Election day; a holiday
November	22	Wednesday	Medical School second quarter begins
November	29	Wednesday	Thanksgiving recess begins 9:00 p.m.
December	2	Saturday	Dairy School closes
December	4	Monday	Thanksgiving recess ends 8:00 a.m.
December	4-9	Week	Second semester condition examinations, Colleges of Agriculture and Forestry
December	4-9	Week	Short course for ice-cream makers
December	7	Thursday	Senate meeting, 4:00 p.m.
December	22	Friday	Christmas vacation begins 9:00 p.m.
December	22	Friday	School of Agriculture, first term closes
1917			
January	1-6	Week	Farmers' Short Course
January	3	Wednesday	Christmas vacation ends 8:00 a.m.
January	3	Wednesday	School of Embalming begins, eight weeks' session
January	9	Tuesday	School of Agriculture, second term begins
January	24	Wednesday	Second semester registration closes, except for new students
January	29	Monday	Final examinations begin
January	31	Wednesday	Payment of fees for second semester closes, except for new students
February	1	Thursday	Senate meeting, 4:00 p.m.
February	5-6	Monday-Tues.	Registration and payment of fees for new students

## SCHOOL FOR NURSES

February	7	Wednesday	Second semester begins
February	12	Monday	Lincoln's Birthday; a holiday
February	22	Thursday	Washington's Birthday; a holiday
March	28	Wednesday	School of Agriculture closes
April	2-7	Week	Junior Short Course
April	5	Thursday	Easter recess begins 9:00 p.m.
April	11	Wednesday	Easter recess ends 8:00 a.m.
April	11	Wednesday	Medical School fourth quarter begins
April	16-21	Week	Condition examinations in certain colleges
May	1	Tuesday	Traction Engineering Course begins
May	3	Thursday	Senate meeting, 4:00 p.m.
May	30	Wednesday	Memorial Day; a holiday
June	1	Friday	Final examinations begin 2:00 p.m.
June	7-14	Week	Military Encampment, Fort Snelling
June	9	Saturday	Second semester closes
June	10	Sunday	Baccalaureate service
June	11	Monday	Senior Class Day exercises
June	13	Wednesday	Alumni Day
June	14	Thursday	Forty-fourth Annual Commencement
June	15	Friday	Summer vacation begins
June	18	Monday	Summer Session begins

The University year for 1917-1918 will begin Tuesday, September 18.

## THE SCHOOL FOR NURSES

LOUISE M. POWELL, R.N., Superintendent

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

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

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

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

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

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

## THE MEDICAL SCHOOL

### THE ADMINISTRATIVE BOARD

- GEORGE EDGAR VINCENT, Ph.D., LL.D., President  
ELIAS P. LYON, Ph.D., M.D., Dean and Director of the Department of  
Physiology  
RICHARD OLDING BEARD, M.D., Assistant Dean and Secretary of the Med-  
ical School  
LOUIS B. BALDWIN, M.D., Superintendent of the University Hospitals  
LEONARD G. ROWNTREE, M.D., Chief of the Department of Medicine  
JAMES E. MOORE, M.D., Chief of the Department of Surgery  
CLARENCE MARTIN JACKSON, M.S., M.D., Director of the Department of  
Anatomy  
JENNINGS C. LITZENBERG, B.S., M.D., Chief of the Department of Ob-  
stetrics  
ARTHUR D. HIRSCHFELDER, B.S., M.D., Director of the Department of  
Pharmacology  
HAROLD E. ROBERTSON, B.A., M.D., Acting Director of the Department  
of Pathology, Bacteriology, and Public Health  
JULIUS PARKER SEDGWICK, B.S., M.D., Chief of the Department of  
Pediatrics  
FRANK C. TODD, M.D., Chief of the Department of Diseases of the Eye,  
Ear, Nose, and Throat  
FRED L. ADAIR, B.S., M.D., Member-elect Representing the Faculty  
ROBERT A. HALL, Ph.D., Member-Elect Representing the Faculty

### THE SCHOOL FOR NURSES

#### CORPS OF OFFICERS AND INSTRUCTORS

- LOUISE M. POWELL, R.N., Superintendent of the School  
ELIZABETH PIERCE, R.N., Instructor of Nurses  
GERTRUDE THOMAS, Dietitian
- 
- F. L. ADAIR, B.S., M.D., Associate Professor of Obstetrics  
820 Donaldson Bldg.  
RICHARD OLDING BEARD, M.D., Assistant Dean, Secretary of the Medical  
School, and Associate Professor of Physiology  
University of Minnesota  
J. FRANK CORBETT, M.D., Associate Professor of Experimental Surgery  
4401 E. Lake Harriet Blvd.  
CHARLES A. ERDMANN, M.D., Associate Professor of Applied Anatomy  
612 9th Ave. S. E.  
GEORGE B. FRANKFORTER, Ph.D., Dean of The School of Chemistry  
525 E. River Rd.  
ROBERT A. HALL, Ph.D., Assistant Professor of Pharmacology  
323 6th Ave. S. E.

- A. S. HAMILTON, B.S., M.D., Professor of Nervous and Mental Diseases  
513 Pillsbury Bldg.
- ARTHUR D. HIRSCHFELDER, B.S., M.D., Professor of Pharmacology and  
Director of the Department 629 5th St. S. E.
- CLARENCE MARTIN JACKSON, M.S., M.D., Professor of Anatomy and Di-  
rector of the Department 428 Walnut St. S. E.
- WILLIAM H. KIRCHNER, B.S., Professor of Drawing and Descriptive  
Geometry 722 10th Ave. S. E.
- ARTHUR A. LAW, M.D., Associate Professor of Surgery  
420 Syndicate Bldg.
- JENNINGS C. LITZENBERG, B.S., M.D., Professor of Obstetrics and Chief  
of the Department 910 Donaldson Bldg.
- ELIAS P. LYON, Ph.D., M.D., Dean, Professor of Physiology and Director  
of the Department 421 Union St. S. E.
- JOHN S. MACNIE, B.A., M.D., Assistant Professor of Diseases of the Eye,  
Ear, Nose, and Throat 506 Donaldson Bldg.
- JAMES E. MOORE, M.D., Professor of Surgery and Chief of the Depart-  
ment University of Minnesota
- WILLIAM R. MURRAY, Ph.B., M.D., Associate Professor of Diseases of  
the Eye, Ear, Nose, and Throat 621 Syndicate Bldg.
- J. ANNA NORRIS, M.D., Director of Physical Culture  
1005 University Ave. S. E.
- WALTER R. RAMSEY, M.D., Assistant Professor of Pediatrics  
Lowry Bldg., St. Paul
- HAROLD E. ROBERTSON, B.A., M.D., Professor of Pathology and Acting  
Director of the Department University of Minnesota
- HARRY P. RITCHIE, Ph.B., M.D., Assistant Professor of Surgery  
914 Lowry Bldg., St. Paul
- ARTHUR C. STRACHAUER, M.D., Assistant Professor of Surgery  
Syndicate Bldg.
- FREDERICK H. SCOTT, Ph.D., M.B., D.Sc., Associate Professor of Physi-  
ology 1307 6th St. S. E.
- JULIUS PARKER SEDGWICK, B.S., M.D., Professor of Pediatrics  
614 Syndicate Bldg.
- FREDERIC W. SCHLUTZ, B.A., M.D., Assistant Professor of Pediatrics  
820 Donaldson Bldg.
- FRANK C. TODD, M.D., Professor of Diseases of the Eye, Ear, Nose, and  
Throat 506 Donaldson Bldg.
- HENRY L. ULRICH, B.S., M.D., Assistant Professor of Medicine  
420 Syndicate Bldg.
- S. MARX WHITE, B.S., M.D., Professor of Medicine 910 Donaldson Bldg.
- 
- FRANK S. BISSELL, M.D., Roentgenologist and Instructor in Roentgenology  
4412 Lake Harriet Blvd.
- ERNEST M. HAMMES, M.D., Instructor in Nervous and Mental Diseases  
Lowry Bldg., St. Paul



- C. J. V. PETTIBONE, Ph.D., Instructor in Physiologic Chemistry  
112 Church St. S. E.
- FRED J. PRATT, M.D., Instructor in Diseases of the Eye, Ear, Nose, and  
Throat  
328 Central Ave.
- CHARLES A. REED, B.S., M.D., Instructor in Orthopedic Surgery  
420 Syndicate Bldg.
- ERNEST T. F. RICHARDS, M.D., C.M., Instructor in Medicine  
914 Lowry Bldg., St. Paul
- ROBERT I. RIZER, M.D., Instructor in Medicine  
203 Donaldson Bldg.
- JOHN P. SCHNEIDER, M.D., Instructor in Medicine  
414 Syndicate Bldg.
- MARGARET WARWICK, B.S., M.D., Instructor in Pathology and Bacteriology  
1516 7th St. S. E.

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### THE UNIVERSITY HOSPITALS

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

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

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

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

A new service building has been completed and in its accommodations for kitchens, laundries, dining-rooms, etc., adds greatly to the convenience of the hospital system.

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

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

## UNIVERSITY RELATIONS

The Elliot Memorial Building stands upon the bank of the river and commands a beautiful prospect. This building, which was provided by a gift, amounting, with interest, to \$120,000, from the estate of Dr. and Mrs. A. F. Elliot, by an additional appropriation of \$40,000 from the Legislature, and by the subscription of some \$42,000 for a building site, is the first of the permanent hospital group and provides 192 beds. The service building, recently completed, connects with the west wing of the Elliot Memorial. An emergency building, with a capacity of 24 beds, is maintained in the immediate neighborhood for the temporary care of contagious cases.

Of the Medical School buildings, Millard Hall, which houses the Deans' and Secretary's offices, and the Departments of Physiology, Pharmacology, Medicine, and Surgery, and the Institute of Anatomy, which provides for the Departments of Anatomy and of Obstetrics, are situated on the new campus; while upon the old campus still remains the Institute of Public Health and Pathology.

## THE OUT-PATIENT DEPARTMENT SERVICE

The Dispensary is the out-patient department of the University Hospitals and is directed by the Superintendent, Dr. L. B. Baldwin. It is manned by members of the Faculty and clinical assistants, under a chief of staff. Its patients are assigned to medical, surgical, gynecological, obstetrical, children's, eye and ear, nose and throat, skin, genito-urinary, nervous and mental, and orthopedic clinics. 13,360 new patients have been entered and 49,124 visits have been recorded in the past year.

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

## THE LIBRARIES

The medical libraries of the University contain 14,477 bound volumes, 32,859 unbound volumes, monographs, reprints, etc., and 185 current periodicals.

The general university library contains some 206,636 bound volumes, 52,250 unbound volumes and pamphlets, and about 1,205 current periodicals. In the library catalogs a number of works selected with reference to the needs of students of the School for Nurses are to be found. Students are welcome to the free use of these libraries.

## THE COURSE OF TRAINING

## REQUIREMENTS FOR ADMISSION

Applicants for admission to the School for Nurses will make application in writing to the Superintendent of the School. All applications

are considered by the committee in charge of the School and applicants must meet the committee in person. A class is entered at the opening of each semester.

Formal application blank, which will be sent upon application, must be filled in and returned to the Superintendent of the School, and at the same time educational credentials must be sent to the Registrar of the University.

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

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

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

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

#### REGISTRATION AND FEES

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

During the preliminary course, students provide their own board and lodging, text-books and stationery.

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

A vacation of two weeks is allotted, in succession, to each nurse in each year, at her own living expense.

Graduates of other Schools for Nurses, in good standing, or matriculants of these schools, having the required entrance qualifications, will be admitted to the preliminary course of instruction upon conditions of

entrance cited above and upon payment of the prescribed fee. Upon successfully passing the examinations in this course, they are granted a certificate of proficiency, which, if they are matriculants of other schools, is submitted to the Superintendent in charge.

#### PLAN OF INSTRUCTION

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

The first half of the first year is devoted to preliminary and pre-occupational courses of instruction. The first four months of study are conducted in the lecture-rooms and laboratories of the Medical School, the student being non-resident during that time. In the succeeding two months, completing the first half year, she is in hospital residence and engaged in general hospital training, but is assigned to no definite hospital service.

In the last half of the first year and the first half of the second year, she is assigned to duty and receives instruction in the men's and women's medical and surgical wards of the hospital. In the second half of the second year and throughout the third year, she is assigned to special duty in the obstetrical, gynecological, orthopedic, and children's wards, in the operating rooms, and in special departments of practice.

The practical work of each year is accompanied by courses of lectures and demonstrations, conducted by the Superintendent of the School for Nurses and by members of the Faculty, upon subjects related to each department of practice. These courses are subject to examination at the close of each semester.

#### AFFILIATED SCHOOLS

Students from affiliated training schools, or from schools of recognized standing and of general requirements equivalent to those of the University of Minnesota, who have completed two years of study and are graduates of such schools, will be admitted to the third year of the School for Nurses as affiliated students. Upon successful completion of the work of the third year, which will be adapted, so far as possible, to their further needs, they will receive a certificate of graduation, upon recommendation of the Faculty, from the Board of Regents.

This affiliated third-year course is planned especially for those students whose training has been had in schools allied to hospitals of exclusively surgical or other special character and will afford to them the opportunity of rounding out to completion their entire course of study and, incidentally, of becoming eligible to state licensure.

# PRELIMINARY COURSES OF INSTRUCTION

## SCIENTIFIC COURSES

### ANATOMY

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

### PHYSIOLOGY

- 3a,b. **ELEMENTARY PHYSIOLOGY.** The functional properties of tissue-cells; the material bases of the body; the nutritive media; the physiology of nerve and muscle; of the nervous system; the vascular mechanism; respiration, digestion, excretion, and metabolism. Five hours a week. LYON, BEARD, SCOTT, PETTIBONE.

### CHEMISTRY

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

### PHARMACOLOGY

- 7a,b. **ELEMENTARY PHARMACOLOGY.** The study of common weights and measures; of methods of administration; the more important physiologic actions of drugs; dosage of important drugs; synthetic remedies, animal extracts, poisons and antidotes. Four hours a week. HALL.

### BACTERIOLOGY AND HYGIENE

- 9a,b. **ELEMENTS OF BACTERIOLOGY, IN RELATION TO NURSING.** The life history of important bacteria and protozoa; the conditions of bacterial and parasitic growths; the fate of pathogenic bacteria outside the body; the general principles of disease transmission; the well individual as a carrier of infection; the conditions of asepsis and immunity in the nurse.
- 11a,b. **THE PRINCIPLES OF INFECTION.** A study of the media and agencies of infection,—air, contact, water, food, milk, vomites, excreta, utensils; insects and vermin as media of infection or hosts of germs; methods of destruction of bacteria; the effects of physical and chemical agents; the practical detail of hospital isolation. Four hours a week. LARSON and Assistants.

## PRACTICAL COURSES

## PHYSICAL CULTURE

- 13a,b. A course of physical exercises for the personal development of the student, especially directed to the training of the nurse in the adaptation of her movements to the best results in her practical work. Two hours a week. NORRIS and KISSOCK.

## LETTERING

- 15a,b. EXERCISES IN LETTERING; for training the nurse in the making of records and the charting of clinical observations; the accurate forming of letters, in plain architectural type, and of special clinical characters. Two hours a week. KIRCHNER.

## PRINCIPLES OF NURSING

- 17a,b. THE PRINCIPLES OF NURSING. A study of the personal and professional needs of the nurse; the essentials of conduct in her professional relations. The history, principles and ethics of nursing. The personal hygiene of the nurse. Three hours a week. POWELL.

## HOSPITAL ECONOMY

- 19a,b. A STUDY OF HOSPITALS. The general principles of hospital and household economy applied to the practice of nursing. A study of types of hospital buildings; construction, heating, lighting, plumbing; equipment and operation of laundry, linen and serving rooms; general and special kitchens; wards and special departments; cost and care of hospital supplies; household chemicals. Two hours a week. POWELL.

## PRACTICAL DIETETICS

- 21a,b. FOOD STUFFS. A course of practical exercises and lectures upon foods; their definition, classes, form; food values; food composition; energy values; caloric index; selection of dietaries; balanced rations; market conditions.
- 23a,b. THE PREPARATION OF FOODS. Methods of cooking; effect on food values; percentages of loss; treatment of various classes of foods, of typical foods; enhancement of food values; mechanical methods of preparation; raw foods.
- 25a,b. THE SERVING OF FOOD. A discussion of the details of food service; the form and adaptation of material to use; tray service; esthetics of service. Four hours a week. THOMAS.

## PRACTICAL NURSING

- 27-43. Courses of lectures, demonstrations and practical exercises. Five hours a week. PIERCE.

- 27a,b. THE ENVIRONMENT OF THE PATIENT; the care of the room or ward; of service room, bath and lavatory; of the serving room; the linen room; the bed and bedding; the detail of bed making.
- 29a,b. THE ADMISSION AND GENERAL CARE OF THE PATIENT; the bed bath and toilet; the preparation of the patient for the night; the prevention of bed-sores, stiffness, and cramping of muscles; care of mouth, teeth and hair; special devices for comfort.
- 31a,b. OBSERVATION OF THE PATIENT; how and what to observe; temperature, pulse, respiration; observation of feces, urine, sputum and vomites.
- 33a,b. THE EXAMINATION OF THE PATIENT; the preparation for routine examinations; method of assisting examiner; the doctor's order book; the value of the bedside record; the detail and technique of record.
- 35a,b. METHODS AND MECHANISMS OF TREATMENT; the preparation of solutions; the application of heat and cold; counter irritants; the use of enemata; the vaginal douche; catheterization; lavage; gavage; expression of stomach contents.
- 37a,b. BATHS FOR THERAPEUTIC PURPOSES; the reduction of temperature; sedative baths; baths and packs to produce sweating; local baths; medicated baths.
- 39a,b. THE PREPARATION OF PATIENTS FOR OPERATION; details of preparation; the ether bed; post-operative care of patient.
- 41a,b. MEDICINES; the medicine case; medicine trays; system of giving medicines; method of preparing and giving hypodermic injections; method of giving inhalations; method of giving drugs by inunction.
- 43a,b. INFECTIOUS DISEASES; precautions of care; details of disinfection; the care of typhoid fever cases; venereal diseases; preparation of rooms for fumigation.

## HOSPITAL TRAINING

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

### UNDERGRADUATE COURSES

#### HYGIENE AND PUBLIC HEALTH

- 45a,b. HOUSEHOLD HYGIENE; the dwelling, its location, site; lighting, plumbing, heating, ventilation; disposal of waste.
- 47a,b. SCHOOL HYGIENE; the sanitation of school buildings; the health inspection of school children; the duties of school nurses.
- 49a,b. THE HYGIENE OF FOODS; the conditions of food supply; the principles of food preparation; the preservation and adulteration of foods; food inspection laws.
- 51a,b. INDUSTRIAL HYGIENE; the sanitary conditions of employment; the study of industrial diseases and of occupational dangers; the principles of industrial betterment.
- 53a,b. THE HYGIENE OF THE COMMUNITY; the regulation of food, drug, and clothing supplies; the disposal of waste materials; the suppression of public nuisances; the control of offensive trades; the prevention and control of communicable diseases. Twenty hours.

#### BACTERIOLOGY

- 55. APPLIED BACTERIOLOGY. The applications of bacteriology to surgery; to infectious diseases; to venereal diseases; to disinfection and sterilization; to antitoxins and vaccines; to diseases of unknown origin. Twelve hours.

#### METHODS OF LABORATORY DIAGNOSIS

- 56. TECHNIQUE OF METHODS; lectures, demonstrations and practical laboratory work in methods of examining urine, blood, sputum, stomach contents and feces.

#### MEDICAL NURSING

- 57a,b. DIAGNOSIS. Case history, physical examination, special examinations of blood, urine, etc.; the pulse, temperature, and respiration, normal and pathologic; observation, interpretation, and method of recording symptoms by the nurse.



- 59a,b. THERAPEUTIC MEASURES; counter-irritation, artificial hyperemia, hemostasis, transfusion; anesthetics, choice of administration, precautions; antiseptics and poisons, use, action, dangers, symptoms, treatment; drugs of selective action on heart, blood-vessels, skin, kidney, gastro-intestinal tract, blood and hematogenous tissues, respiratory system, etc.
- 61a,b. DISEASES OF CIRCULATORY AND RESPIRATORY SYSTEMS. Treatment of emergencies. The heart; blood-vessels; arterio-sclerosis; angina pectoris, apoplexy and aneurism; anemias; hemorrhagic diatheses; the bronchi; bronchitis, bronchial asthma, broncho-pneumonia; the pleurae; pleurisy, empyema; the lungs; pneumonia, hemoptysis.
- 63a,b. DISEASES OF DIGESTIVE SYSTEM. The mouth; pyorrhoea, stomatitis; the stomach; gastritis, gastric ulcer, cancer; the intestines; constipation, diarrhoea, colitis; accessory glands; cholecystitis; abscess of liver; cirrhosis of liver.
- 65a,b. MISCELLANEOUS DISEASES; the kidneys, ureter, bladder. Acute rheumatism; arthritis, etc. Disorders of metabolism; diabetes, etc.
- 67a,b. INFECTIOUS DISEASES; the duties of the nurse to patient, family, public, and herself, in the care of typhoid fever, typhus, cerebro-spinal meningitis, influenza, dysentery, cholera, malaria, yellow fever, rabies. Tuberculosis; prevalence, causation, prevention, treatment. cure. Twenty-two hours.

#### SURGICAL NURSING

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

#### GYNECOLOGY

75. GYNECOLOGICAL NURSING; a study of terms and definitions bearing upon the nursing of pelvic diseases; preparation of gynecological patients for examination and for operation; general care of gynecological cases; special modes of treatment. Twelve hours.

#### OBSTETRICS

77. OBSTETRICAL NURSING; lectures and demonstrations of the anatomy and physiology of the female pelvis; the physiology of pregnancy;

its accidents; the physiology of parturition; the nursing of labor; complications; post-partum hemorrhage, puerperal fever, puerperal convulsions, puerperal insanity. Fourteen hours.

#### NURSING OF INFANTS AND CHILDREN

79. THE NORMAL CHILD; conditions of growth and development; breast feeding; artificial feeding; mixed feeding; preparation of foods in laboratory; general care and nursing.
81. GENERAL DISEASES OF CHILDREN. Stomatitis, marasmus, rachitis, syphilis. Gastro-intestinal disorders; parasitic diseases; disorders of genito-urinary tract. Tuberculosis in children. Rheumatism; tonsillitis; chorea; cardiac complications. Bronchitis; pneumonia; pleurisy; empyema. Surgical conditions in children.
83. CONTAGIOUS DISEASES. Diphtheria; scarlet fever; small pox; chicken pox; whooping cough; measles; mumps; meningitis; polio-myelitis. Thirty-two hours.

#### NERVOUS AND MENTAL DISEASES

84. THE NURSING OF NERVOUS AND MENTAL CONDITIONS. Insanity; its common forms and symptoms; principles of care of insane patients. Epilepsy; its manifestations and care. Neurasthenia, hysteria; their recognition and distinctive features; their nursing; the rest cure. Ten hours.

#### DISEASES OF THE EYE, EAR, NOSE, AND THROAT

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

#### MASSAGE

- 87a,b. TRAINING IN MASSAGE. A course in training in the general manipulation of the body tissues and in those general movements which have the value of passive exercise for the sick or convalescent. Twenty-four hours.

#### DISEASES OF THE SKIN

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

## THE DIETETIC TREATMENT OF DISEASE

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

## SPECIAL THERAPEUTICS

48. SPECIAL METHODS OF TREATMENT; special forms of therapy, requiring the services of the nurse; the X-Ray in the diagnosis and treatment of disease. The use of vaccines and serum. Ten hours.

## INVALID OCCUPATIONS

- 49a,b. OCCUPATIONAL TREATMENT; lectures, demonstrations and practical exercises designed to teach nurses typical methods of occupation for invalids and, especially, for children. Elective in the third year. Twenty-four hours.

## SPECIAL TOPICS

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

# STUDENTS

## GRADUATES

Ames, Margaret (Mrs. Samuel Anderson), Hutchinson	Lemstrom, Bera, R.N., Minneapolis
Anderson, Ruth E., R.N., Houston	Lindquist, Signa, R.N., Minneapolis
Angle, Maude E. F., R.N., Minneapolis	Madsen, Christenia A., R.N., Minneapolis
Babcock, Lana, R.N., Minneapolis	Manger, Caroline A., R.N., McIntosh
Baudin, Jane E., R.N., Duluth	Mark, Mary E., R.N., St. Peter
Bertie, Mildred L., R.N., Minneapolis	Marvin, Mary M., R.N., Zumbrota
Burns, Elizabeth C., R.N., Graceville	Nightingale, Mary M., R.N., Minneapolis
Colberg, Ruth M., R.N., St. Paul	Ofsthun, Olive I., R.N., Glenwood
Cornish, Mary E., R.N., Vernon Center	Schwarg, Carolyn, R.N., Dodge Center
Fleming, Agnes, R.N., Minneapolis	Stewart, Lena B., R.N., Minneapolis
Gosman, Anna, R.N., Minneapolis	Skonnord, Olga B., R.N., Minneapolis
Greenwalt, Dorothy, R.N., Withrow	Thompson, Barbara, R.N., Glenwood
Hulett, Florence G., R.N., Minneapolis	Thompson, Lena, R.N., Enderlin, N. D.
Johnson, Alma D., R.N., Minneapolis	Waters, Vera, Beatrice, Nebraska
	Winter, Clara (Mrs. Arthur Stevens), Minneapolis

## THIRD YEAR

Hollo, Myrtle M., Marshall	Holm, Sara M., Stillwater
Selleseth, Ellen A., Glenwood	Moore, Mabelle H., Austin
Brockway, Mary G., Royalton	Moulton, Myra D., Dawson
Covert, Emily C., Billings, Mont.	Rosenthal, Cecilia A., St. Paul
Curry, Marie M., Minneapolis	Schlutz, Mathilda, New Richland
Hayashi, Fuku, Kyoto, Japan	Swenson, Matilda E., Crookston
Shedd, Lotta, Pasadena, Calif.	

## SECOND YEAR

Bergquist, Olivia E., Minneapolis	Smitka, Ella M., Minneapolis
Dunn, Margaret, Windom	Vollbrecht, Agnes E., Hanover
Hasle, Eva, Park River, N. D.	Vos, Katherine, Minneapolis
Joach, Celia E., New Prague	Watland, Annie M., Jackson
Jorstad, Esther O., Kenyon	Berg, Esther L., Duluth
Knutson, Mabel A., Fertile	Blum, Enna, Chippewa Falls, Wis.
Lyon, Margaret E., Minneapolis	Chaffee, Bessie C., Detroit
Redpath, Mary, La Crosse, Wis.	Harbo, Mathilda, Minneapolis
Price, Katherine A., Minneapolis	Runnerstrom, Elva, Waseca

## PRELIMINARY COURSE

Andreason, Esther, Valley City, N. D.	Hilmen, Amanda, Crookston
Baker, Helen M., Nevada, Iowa	Johnson, Inez, Mayville, N. D.
Baker, Florence I., St. Croix Falls, Wis.	Kurtzman, Mrs. D., Minneapolis
Bjeldanes, Ragnhild, Madison	Larsen, Effie, La Crosse, Wis.
Corliiss, Ione, St. Paul	Maguire, Inalane, Excelsior
Dyer, Grace M., Excelsior	Morell, Hazel, Verndale
Flinn, Irma, Minneapolis	Ostergren, Alice, St. Paul
Fryckman, Hazel, Minneapolis	Robertson, Lois F., Cresco, Iowa
Garry, Lucile, Minneapolis	Rood, Augusta, Minneapolis
Semling, Mabel, Ada	

## SCHOOL FOR NURSES

## ACCREDITED NURSES

Anderson, Ethel, Litchfield Hospital, Litchfield	Hines, Delphine, St. Mary's Hospital, Rochester
Anderson, Inga, Northwood Deaconess Hospital, Northwood, N. D.	Matz, Agnes, St. Mary's Hospital, Rochester
Best, Anna, Hillcrest Surgical Hospital, Minneapolis	Murphy, Nellie, Litchfield Hospital, Litchfield
Clink, Alta B., St. John's Hospital, Red Wing	Pearson, Hannah, St. John's Hospital, Red Wing
Erickson, Charlotte, St. Mary's Hospital, Rochester	Rehwinkel, Angela, St. John's Hospital, Red Wing
Heier, Irene, St. John's Hospital, Red Wing	Schumann, Martha, St. Mary's Hospital, Rochester

# Bulletin of The University of Minnesota

GENERAL EXTENSION DIVISION

## EVENING COURSES

1916-1917



VOL. XIX. No. 20. AUGUST 1916

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## CALENDAR

1916-1917

1916

September	25-30	Registration Week
September	29	Friday, 8:00 p.m. Annual opening of St. Paul Institute and General Extension Courses, Mechanic Arts High School, St. Paul
September	30	Saturday, 8:00 p.m. Annual opening of General Extension Courses, Minneapolis
October	2	Monday. Regular class work begins
November	30	Thursday. Thanksgiving holiday
December	23	Saturday. Christmas recess to January 2,

1917

January	2	Tuesday. Class work resumed
January	22-26	Examination week, first semester
January	29	Second semester begins
May	14-19	Examination week, second semester

# GENERAL EXTENSION DIVISION

## FACULTY

GEORGE EDGAR VINCENT, Ph.D., LL.D., President  
CYRUS NORTHPROP, LL.D., President, Emeritus  
RICHARD R. PRICE, M.A., Director of University Extension

GEORGE B. FRANKFORTER, Ph.D., Dean of the School of Chemistry, Professor of Chemistry

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

FRANCIS C. SHENEHON, C.E., Dean of the College of Engineering and Architecture, Professor of Civil Engineering

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

GISLE 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, M.A., Assistant Professor of German

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

HARDIN CRAIG, Ph.D., Professor of English

CHARLES H. CORBETT, Jr., Lecturer in Salesmanship

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

JAMES DAVIES, Ph.D., Instructor in German

JOHN F. EBERSOLE, M.A., Assistant Professor of Economics

AUSTIN S. EDWARDS, Ph.D., Instructor in Psychology

OLIVER C. EDWARDS, M.E., Instructor in Mechanical Engineering, General Extension Division

JAMES H. FORSYTHE, M.A. in Arch., Instructor in Architecture

ROBERT W. FRENCH, B.S., Instructor in Drawing

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

JOHN T. GEISSENDOERFER, Ph.D., Instructor in German

HALDOR B. GISLASON, B.A., LL.B., Instructor in Rhetoric

JOHN E. GRANRUD, Ph.D., Professor of Latin

HARRY D. HARPER, B.A., Instructor in Accounting

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

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

ROY C. JONES, M.S., Assistant Professor of Architecture

ALFRED E. KOENIG, M.A., Instructor in German

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

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



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

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

GEORGE A. MANEY, B.S., Instructor in Mechanical Engineering

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

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

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

MAC MARTIN, B.A., Professional Lecturer in Advertising, General Extension Division

WALLACE H. MARTIN, M.E., Instructor in Mechanical Engineering

JAMES S. MIKESH, B.A., Instructor in Mathematics

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

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

CHARLES W. NICHOLS, M.A., Assistant Professor of Rhetoric

JAMES W. NORMAN, M.A., Instructor in Education

GEORGE N. NORTHROP, M.A., Assistant Professor of English

SIDNEY F. PATTISON, M.A., Assistant Professor of Rhetoric

RAYMOND V. PHELAN, Ph.D., Instructor in Economics, General Extension Division

CHESSLEY J. POSEY, M.S., Assistant Professor of Geography

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

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

FRANK M. RARIG, M.A., Assistant Professor of Rhetoric

WILLIAM H. RICHARDS, Instructor in Carpentry and Pattern Work

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

FRANK B. ROWLEY, M.E., Assistant Professor of Drawing and Descriptive Geometry

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

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

GEORGE D. SHEPARDSON, D.Sc., Professor of Electrical Engineering

S. CARL SHIPLEY, M.E., Assistant Professor of Machine Construction

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

CHARLES E. SKINNER, M.A., Assistant Professor of Rhetoric

WILLIAM C. SMILEY, LL.B., Instructor in Business Law, General Extension Division

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

STERLING TEMPLE, Ph.D., Instructor in Chemistry

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

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

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

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

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

\*On leave of absence 1916-17

## 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. Law courses.

3. Courses in Business Administration, Accountancy, and Finance.

4. Practical courses in Engineering.

B. Correspondence courses.

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

D. Agricultural extension, including lectures, demonstrations, institutes, and short courses under the direction of the College of Agriculture.

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

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

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

# EVENING COURSES

## GENERAL INFORMATION

### ADMISSION TO COURSES

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

### CREDIT FOR EXTENSION COURSES

Credit toward a degree will be given students who satisfy the entrance requirements of the college in which credit is desired and who successfully complete any of the extension courses of university grade. This applies to all the courses listed under academic or collegiate courses, unless otherwise specified. It also applies to nearly all of the business courses. The courses listed under Engineering do not carry credits. The statement in regard to credit for Law courses will be found on page 41. Such credits will be recorded upon matriculation in the University. Courses requiring one evening (two hours) a week for recitation normally carry two credits. Those requiring more time usually carry correspondingly more credit.

The statement concerning credit for the Certificates in Accountancy, in Finance, and in General Business will be found on pages 21 and 23.

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 qualified to be admitted to the University 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. No credits shall be given to students not properly qualified to be admitted to the University as regular students.

6. 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.

7. 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.

#### *University Students and Correspondence and Extension Work*

1. No university student may enroll for a correspondence or extension course 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.

#### FEES

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

For Business courses, except where otherwise noted, the fees are: For a single course, \$7.50 a semester; for two courses taken simultaneously, \$12 a semester; for three courses taken simultaneously, \$15 a semester; for four courses taken simultaneously, \$20 a semester.

For Engineering courses the fees are \$5, \$7.50 or \$10 a semester as indicated in the description of the several courses.

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

The requirements relative to the Law courses accompany the announcement of those courses in this bulletin. (See page 41.)

All fees are payable at the time of registration, and registration should not be deferred longer than the second meeting of class. Checks should be made payable to the University of Minnesota. **NO FEE WILL BE REFUNDED ON ACCOUNT OF WITHDRAWAL FROM ANY COURSE, unless application for refund be made within ten days after registration.**

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

#### PLACES FOR CONDUCTING CLASSES

The classes in Law will be held in the Law Building on the University campus. Most of the classes in Engineering will be held in the Main Engineering Building, Electrical Engineering Building, or the Mechanical Engineering Building.

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

In St. Paul the work will be carried on in cooperation with the St. Paul Institute of Arts and Sciences at the Mechanic Arts High School or the City Normal School. 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. The semester is sixteen weeks long.

#### ENROLLMENT

Registration takes place during the week preceding the organization of classes (September 25-30.) Students may also register with the instructor at the class.

#### PROGRAM OF CLASSES

Folders will be issued about September 15, giving the program of classes and schedules of meeting places. It should be understood that not all the courses listed in this bulletin are given in any one year. Final announcements may be found in the special folders. Folders will be issued for the Collegiate courses, the Business courses, the Engineering courses, and the Law 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 Church Street, just north of Washington Avenue S. E. To telephone the office call N. W. East 2760 or T. S. Spruce 257 and ask the University central for the General Extension Division.

## COURSES OF INSTRUCTION

The courses of instruction naturally group themselves into four divisions, viz., (1) those corresponding to the regular college courses given in the College of Science, Literature, and the Arts, and conveying credit toward a degree from that college; (2) those furnishing a preparation for Business (most of which also carry credit toward a degree from the above college); (3) Engineering courses; and (4) Law courses. The descriptions 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 will be sent to all requesting it.

### CHEMISTRY

1. **ELEMENTARY CHEMISTRY.** A study of the common chemical elements and their compounds, with an introduction to the modern theories of chemistry. Special attention to be given to the practical applications of chemistry. Lectures, textbook and laboratory work. Those who wish to do work on special problems will be accommodated as far as possible. Four credits (two evenings a week); both semesters. Fee \$10 a semester. **TEMPLE.**

### EDUCATION

- 1 (3a\*). **BRIEF HISTORY OF EDUCATION.** The origin and development of schools, more particularly in the modern period, as a preparation for

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

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. Four credits (two evenings a week); each semester. Fee, \$10 a semester. NORMAN.

- 2 (121a). SCHOOL SUPERVISION. A course in fundamental principles of school organization, administration, and supervision. It is designed for teachers, principals, superintendents, members of boards of education, parents, or others who are interested in discussions relating to methods of administration and supervision of public school education. Open for credit to high-school graduates who are also graduates of normal schools, or who have had adequate experience in teaching. Other persons, not desiring credit, may register. Each prospective student must get permission from the instructor before registering for the course. Two credits (one evening a week); second semester. Fee, \$5 a semester. RANKIN.
- 3 (142). INDUSTRIAL EDUCATION. Open for credit to high-school graduates who are graduates of normal schools, or who have had adequate teaching experience, or who have had adequate experience as industrial workers. Other persons, not desiring credit, may register. Each person who wishes to take the course should see the instructor before registering. The course treats of the necessity for vocational training in the public schools. It aims to show the bearing of the facts of universal education and industrial evolution on the methods and material of a system of public schools. Four credits (one evening a week); both semesters; Wednesday. Fee, \$5 a semester. RANKIN.
- 4 (141). SCHOOL SANITATION. This course will be conducted by text, by lectures, and by investigation into the problems of school lighting, heating, and ventilation, and other questions of school architecture and management connected with the physical well-being of the pupils. Open for credit to teachers, prospective teachers, and school board members. Those desiring University credit must be eligible for enrollment in the University. Others may take the course without credit. Each student must see the instructor before enrolling. Two credits (one evening a week); first semester. Fee, \$5 a semester. RANKIN.

#### ENGLISH -

- 1 (55) SHAKESPEARE: THE EARLIER PLAYS. A course of lectures on Shakespeare with reading of a considerable number of plays. Two credits (one evening a week); second semester. Fee, \$5 a semester. NORTHERP.
2. THE SHORT STORY IN ENGLISH. A study of the principles and practice of the short story as evolved in modern literature. The work is aimed

not only to teach technic of the form, but to give the student practice in the production of this sort of fiction. Two credits (one evening a week); first semester. Fee, \$5 a semester. NORTHROP.

3. AMERICAN PROSE FICTION. Lectures on American Prose Fiction with the reading of representative works by Cooper, Poe, Hawthorne, James, Howells and others; recitations oral and written. Two credits (one evening a week); first semester. Fee \$5 a semester. CRAIG.
4. BRITISH POETS OF THE NINETEENTH CENTURY. A course of lectures on the principal poets in the nineteenth century, their significance in the life of the time and in the world's literature. Two credits (one evening a week); second semester. Fee, \$5 a semester. CRAIG.
- 5 (59). THE MODERN DRAMA. Contemporary drama from 1870 to the present; the new impulse in dramatic literature under the stimulus of latter-day thought. Two credits (one evening a week); second semester. Fee, \$5 a semester. BURTON.
6. STORY TELLING TO CHILDREN. The Science and the Art. Applied Theory upon: How to Choose the Story, How and Why the Oral Story Must Differ from the Written, How to Adapt Stories to Children, The Approach in Telling, The Beginning, The Climax, The Close, Platform Presence, Self-Effacement, Vocal and Verbal Adaptation. One evening a week, first semester. Fee, \$5 a semester. GARNs.
7. ADVANCED COURSE IN STORY TELLING. Emphasis of course throughout upon oral delivery of the story. Fundamentals in training of voice and body. Principles of vocal expression as they apply in story telling. Adaptation to the audience. The use of dialects and impersonation in story telling. One evening a week, first semester. Fee, \$5 a semester. GARNs.

#### GEOLOGY AND GEOGRAPHY

- 1 (1). GENERAL GEOLOGY. Materials of the earth and geologic processes; physiographic, structural, and dynamic geology, with a brief introduction to historical geology. Lectures, laboratory work, field excursions, map study, and conferences. Two credits (one evening a week); first semester. Fee, \$5 a semester. (Not given in 1916-17.) LEHNERTS.
- 2 (5). GEOGRAPHY AND GEOLOGY OF MINNESOTA. The geological study of Minnesota; its rocks and soils; minerals and mines; building stones, clay beds, and glacial deposits; rivers and lakes; scenic features; waterways and water powers; artesian well basins; prairies, forests, and agricultural lands; problems of state-wide interest, such as immigration, agriculture, drainage, reforestation, construction of state highways; utilization of natural resources, and development of old and new industries. Two credits (one evening a week); first semester. Fee, \$5 a semester. (Not given in 1916-17.) LEHNERTS.



- 3 (36). GEOGRAPHY OF NORTH AMERICA. A study of the United States, Canada, Mexico, and Central America; their surface, soil, climate, natural resources, industries, and peoples. Special study and scientific interpretation will be made of the most scenic regions of our continent, such as Yellowstone Park, Glacier Park, the Grand Canyon of the Colorado, the Yosemite Park, Lake Chelan and the Cascade Mountains, the Canadian Rockies, the Panama Canal, etc., etc. This course is planned (1) for those who can not travel but who wish to acquaint themselves with the peoples, resources, and conditions of our continent; (2) for those who have traveled, but desire further explanation of the conditions and phenomena; and (3) for those who intend to travel and wish to make adequate preparation. Two credits (one evening a week); second semester. Fee, \$5 a semester. (Not given in 1916-17.) LEHNERTS.
- 4 (116). GEOGRAPHY OF LATIN-AMERICA. A study of the regional geography of Latin-American countries; their surface features, climate, and natural resources as affecting their present and future development. Areas of probable great future development. Character, volume and direction of flow of trade. The trade relations between the Latin-American countries and the United States given special attention. The Panama Canal as affecting our relations with those countries. Two credits (one evening a week); first semester. Fee, \$5 a semester. POSEY.
- 5 (18). GEOGRAPHY OF EURASIA. The regional geography of the leading European and Asiatic countries. The relation of the surface features, climate, and natural resources to the present racial, industrial, and political development. Attention given to the attitude of the major European countries to the "new" lands of Asia. Trade relations with the United States considered. Two credits (one evening a week); second semester. Fee, \$5 a semester. POSEY.

## GERMAN

- 1 (1-2). BEGINNING GERMAN. Pronunciation, grammar, conversation, and composition; selected reading in easy prose and verse. Eight credits (two evenings a week); both semesters. Open to all who have had no German. Both semesters must be completed before credit is given for the first semester. Fee, \$10 a semester. DAVIES.
- 2 (3-4). INTERMEDIATE GERMAN. First semester; selections from modern narrative and descriptive prose; selected lyrics and ballads. Second semester; a drama of Lessing, Goethe, or Schiller. Open to those who have completed Course 1 or its equivalent. Both semesters must be completed before credit is given for the first semester. Students who obtain credit for this course can not receive credit also for Course 3. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. GEISSENDOERFER.

- 3 (5-6). PROSE AND POETRY. Geography, history, and legend. Review of German grammar throughout the year. Open to all with two years of German. Not open to those who have obtained credit in Course 2. Both semesters must be completed before credit is given for the first semester. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. MYERS.
- 4 (27-28). ELEMENTARY CONVERSATION. Conversation on topics of everyday life, aiming at fluency in the use of idiom. Not a course in composition. Organized on the laboratory basis—one hour credit with two hours recitation and at least one hour of outside preparation. Intended for those who have had at least one year of German. Two credits (one evening a week); both semesters. Fee, \$5 a semester. BURKHARD.
- 5 (7-8). THE DRAMA. First semester: Classic drama; plays of Lessing, Goethe, or Schiller; study of dramatic structure; history of the German drama in the eighteenth century. Second semester: Modern drama; plays of Grillparzer, Kleist, Hauptmann or Sudermann; study of the present-day drama in Germany; assigned readings and reports. Open to those who have taken Courses 1 and 2, or Course 3. Both semesters must be completed before credit is given for first semester. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. GEISSENDOERFER.
- 6 (29-30). INTERMEDIATE GERMAN CONVERSATION. This course follows the Elementary Course and is a conversational course only. Practice in speaking German, following the laboratory method. Some speaking knowledge of German is desirable. Should be preceded by Course 4. Two credits (one evening a week); both semesters. Fee, \$5 a semester. KOENIG.

## GREEK IN ENGLISH

1. GREEK MYTHOLOGY. No knowledge of Greek is required for this course. A course of lectures and readings dealing with the legends and myths which appear in the literature and art of ancient Greece. The quaint and beautiful stories of Greek gods and heroes found in Homer and in the tragic and lyric poets will be presented and interpreted, and the whole course will be richly illustrated with the stereopticon. The origin and evolution of the myth, its relations to Greek literature, philosophy and religion, and its influence upon later literature, will also be touched upon. Two credits (one evening a week); first semester. Fee, \$5 a semester. SAVAGE.
2. GREEK LITERATURE AND LIFE. This is a course dealing with the literature, life, and art of the ancient Greeks, for which no knowledge of Greek is required. The course consists of lectures and illustrative readings by the instructor and assigned readings in translation and textbook work by the class; conferences and informal discussions

will also be held. The character and influence of Greek culture, especially along the lines of literature, philosophy, and art, will be discussed; and the whole course will be richly illustrated with the stereopticon. Especially designed for those interested in language and literature. Two credits (one evening a week); second semester. Fee, \$5 a 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. Fee, \$5 a 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. Fee, \$5 a 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. Fee, \$5 a semester. (Not given in 1916-17.) KREY.

### LATIN

- 1 (9). ROMAN LIFE AND ARCHITECTURE. Chief topics: Roman national characteristics; Roman and the Campagna; the orders of architecture; the Forum; its life and activities; the forums and palaces of the Caesars; the Roman house and furniture; the theatres and the presentation of plays; amphitheatres and gladiatorial combats; the circuses and chariot races; Pompeian baths and Roman thermae; triumphal and sepulchral monuments. Two credits (one evening a week); first semester. Fee, \$5 a semester. GRANRUD.
- 2 (10). ROMAN AND ITALIAN LIFE AND ART. Leading topics; the first principles of art; Roman historical reliefs and portrait sculpture from Sulla to Constantine; pictorial technique and wall decoration; mythological paintings; landscape, *genre*, and still life; Italian scenery; typical Italian cathedrals; *Roma immortalis*, past and present; select masterpieces of Raphael and Michael Angelo. Two credits (one evening a week); second semester. Fee, \$5 a semester. GRANRUD.

Each session of Courses 1 and 2 will consist of an introductory lecture, reports, and discussions. The lectures are illustrated with numerous black and colored lantern slides, and aim to portray the

artistic side of the Romans and Italians, to describe the intimate and vital connection of their art and life, and to indicate the supreme importance of their artistic achievements.

## MATHEMATICS

- 1 (1). HIGHER ALGEBRA. PART I. The fundamental rules, factoring, highest common divisor, lowest common multiple, fractions, involution, evolution, surds, imaginaries, simple equations with one, two, and several unknown quantities, inequalities, ratio and proportion, arithmetical and geometrical progressions, quadratic equations, and numerous problems requiring both simple and quadratic equations. The examples and problems are more difficult than those under the same subjects in Elementary Algebra and demonstrations are an important part of the work. Four credits (two evenings a week); first semester. Fee, \$10 a semester. MIKESH.
- 2 (3). HIGHER ALGEBRA. PART II. First two evenings devoted to a review of factoring. H.C.D., L.C.M., fractions, surds, and theory of exponents. The following topics will be treated in detail: Quadratic equations, equations in quadratic form, simultaneous quadratic equations, progressions, the mathematical induction proof with the binomial formula, permutation, and combination, determinants of second and third order in connection with simultaneous linear equations, the theory of equations with methods of obtaining real roots of numerical equations. Graphical representation and graphical solution of equations will be given special attention all through the course. Open to those who have completed Course 1, or its equivalent. Four credits (two evenings a week); second semester. Fee, \$10 a semester. MIKESH.

## PHILOSOPHY AND PSYCHOLOGY

- 1 (1). ELEMENTS OF PSYCHOLOGY. The aims and methods of psychology, the facts and laws of mental life, and the functions of the various mental processes in the adjustment of man and his environment. Open to sophomores, juniors, seniors, and teachers. This course is required for the Teachers' Certificate. Four credits (two evenings a week); each semester. Fee, \$10 a semester. WOODROW, EDWARDS.
- 2 (9a). LOGIC. The nature of knowledge, the laws of reasoning, and the principles and methods of scientific proof. The aim of this course is to produce accuracy of thought as well as to familiarize the student with the logical grounds of modern science. Textbook, lectures, and reports. Open to those who have had some college work, and to teachers. Four credits (two evenings a week); each semester. Fee, \$10 a semester.
- 3 (20). PRESENT DAY PHILOSOPHY. A popular discussion of the most im-

portant 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. Fee, \$5 a semester. WILDE.

4. HUMAN NATURE. A course in modern philosophy and psychology, as applied to the chief problems of practical life. The course will be untechnical, and will include a number of simple experiments designed to illustrate the subjects treated, and to serve as basis for the discussion. Among the subjects dealt with, the following will be included: the analysis of character into its elements; the significance of laziness, fatigue and sleep; efficiency, and the chief factors in attaining it; the meaning of education: its various stages, and final goal; memory, and the laws of forgetfulness; thought transference, automatic writings, and kindred subjects. Two credits (one evening a week); first semester. Fee, \$5 a semester. LODGE.
5. THE MEANING AND VALUE OF LIFE. A course in the modern philosophy of life, dealing in a simple and untechnical way with the deeper values which underlie life as it is lived today. Among the subjects dealt with will be included: the philosophy of social life; the philosophy of pleasure; the philosophy of pain; the meaning and value of work; practical idealism, etc. One evening a week; second semester. Fee, \$5 a semester. LODGE.

#### 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. Fee, \$5 a semester. PATTISON.
- 2 (2). ENGLISH RHETORIC II. A continuation of the preceding course, open to those who have had one-half year course in freshman Rhetoric, or its equivalent. Two credits (one evening a week); second semester. Fee, \$5 a semester. PATTISON.
- 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. Fee, \$5 a 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. Fee, \$5 a semester.

- 5 (115). **DRAMA TECHNIQUE.** A study of contemporary methods, criticism of stage productions, and writing of plays. The best plays written by the class will be presented at the Little Theatre. Open to mature students who satisfy the instructor concerning their preparation for the course. Two credits (one evening a week); first semester. Fee, \$5 a semester. SKINNER.
- 6 (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. Fee \$5 a semester. RARIG, GISLASON.

## ROMANCE LANGUAGES

- 1 (1). **BEGINNING FRENCH.** Grammar, pronunciation, reading and practice in speaking. Open to all. Both semesters must be completed before credit is given for the first semester. Four credits (one evening a week); both semesters. Fee, \$5 a semester.
- 2 (3). **INTERMEDIATE FRENCH GRAMMAR AND COMPOSITION.** French grammar review; readings from modern authors. Open to all who would 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. Fee, \$5 a semester.
- 3 (7-8). **ELEMENTARY FRENCH CONVERSATION AND COMPOSITION.** Four credits (one evening a week); both semesters. Prerequisite French 1. Fee, \$5 a semester.
- 5 (31). **BEGINNING SPANISH.** Grammar, pronunciation, reading and practice in speaking. Four credits (one evening a week); both semesters. Fee, \$5 a semester.

## SCANDINAVIAN

- 1 (1-2). **BEGINNING NORWEGIAN.** Grammar, select reading in easy prose and poetry. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. BOTHNE.
- 2 (101-102). **MODERN NORWEGIAN LITERATURE.** History of Norwegian literature from 1814 to the present day. Open to advanced students who have completed Courses 1-2 and 3-4 (Elementary and Advanced Norwegian) and others having equivalent preparation. Both semesters must be completed before credit is given for the first semester. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. BOTHNE.
- 3 (5). **BEGINNING SWEDISH.** Grammar, conversation, composition, modern texts. Open to all who have had no Swedish. Both semesters

must be completed before credit is given for the first semester. Four credits (two evenings a week); first semester. Fee, \$10 a semester. STOMBERG.

- 4 (107-108). SWEDISH LITERATURE. History of Swedish literature from 1719 to the present time. History of the literature and study of modern authors, including Selma Lagerlöf, Geijerstam, Strindberg. Open to advanced students who have completed Courses 5-6 and 7-8 (Elementary and Advanced Swedish) and others able to carry the work successfully. Both semesters must be completed before credit is given for the first semester. Eight credits (two evenings a week); both semesters. Fee, \$10 a semester. STOMBERG.

### SOCIAL ECONOMICS

Emphasizing human values and human justice, the following courses in Social Economics make a special appeal to teachers, business leaders, charity workers, public officers, ministers, live, active citizens, workers for industrial peace and justice, and to the patriot. These courses are of value to the pursuer of money as well as to the advocate of greater human and national well being. Proper and just regard for the human factor is profitable. Business must be lead by socialized business chiefs. The teacher must know the economic conditions out of which her pupils come and those into which they will go. The patriot must realize that the problem of Americanization is one of social justice.

*These courses "prepare one to grapple with social problems." They "point one toward a safe and wholesome democracy."*

1. MAN AND HIS LIVING. A general course on human values. How to weigh and study the economic facts of life; the aim and goal of economic progress; democracy of well-being; wages, rent, interest, profits, scientific employment, money, taxes, trusts, insurance, and other related topics. Designed to appeal to all interested in human efficiency, human justice, and social welfare. Of special value to the teacher and to others interested in or responsible for active, intelligent citizenship. Two credits (one evening a week); one semester. Fee, \$5 a semester. PHELAN.
  2. ECONOMIC DEMOCRACY. The beginning of American democracy; the modern teachings found in the Utopian reformers; the beginning of modern socialism; the progress of socialism; its relation to anarchism, syndicalism, and trade unionism. The problem of monopoly and its solutions through (1) enforced competition, (2) socialism, or (3) public regulation. Of vital importance to every citizen and to students of human affairs. This course clears up many misconceptions, examines socialism carefully, and emphasizes economic reform through public regulation and education. Two credits (one evening a week); one semester. Fee, \$5 a semester. PHELAN.
- 3 (160). LABOR AND LIFE (LABOR PROBLEMS). The rise of the modern la-

- bor problem; woman labor, sweating, minimum wage; child labor, industrial education, vocational guidance, mothers' pensions; unemployment, industrial accidents, industrial disease, poverty. Teachers, employers, employees, social workers, and active citizens find much of interest and profit in this course, and in the courses numbered 4 and 5. Two credits (one evening a week); one semester. Fee, \$5 a semester. PHELAN.
- 4 (161). LABOR AND THE PUBLIC (LABOR PROBLEMS.) Strikes and their prevention, boycotts, injunctions; labor doctrines and theories; types of labor unions, of employers' associations; profit-sharing and co-operation; scientific management; housing and old-age pensions. Two credits (one evening a week); one semester. Fee, \$5 a semester. (Not offered in 1916-17.) PHELAN.
5. IMMIGRATION AND LABOR. Who is an immigrant; the causes of immigration; the immigrant and the development of America; the effects of immigration on the native population; the effects on labor; the commercial, social, and civic effects on Europe; what shall be done about immigration. Two credits (one evening a week); one semester. Fee, \$5 a semester. PHELAN.
6. THE CITY. A general course on the city in relation to human progress and economic justice. The rise of cities; their peculiar problems; city government and human well-being; revenues and expenditures; the city as a laboratory of democracy. Two hours (one evening a week); one semester. Fee, \$5 a semester. (Not offered in 1916-17.) PHELAN.
7. ACTIVE CITIZENSHIP, OR TO-DAY'S PROBLEMS. Current economic and social problems as presented by our reading and observation, to be viewed and discussed in the light of economic principles and of human experience. The purpose of this course is to enlarge the student's knowledge of existing conditions and to strengthen his grasp of present-day social problems, to clear up fallacies, to stimulate intelligent, active, socially-minded citizenship. Instruction will be by the round table method. *Classes will be limited to a workable number.* Two hours (one evening a week); Fee, \$5 a semester. PHELAN.

#### SOCIOLOGY AND ANTHROPOLOGY

- 1 (113). THE AMERICAN PEOPLE I. Dominant characteristics of the diverse foreign peoples now in the United States; their modification in America; the importance of these peoples to the American nation. Lectures, reading, and essay. Two credits (one evening a week); first semester. Fee, \$5 a semester. JENKS.
- 2 (114). THE AMERICAN PEOPLE II. A continuation of Course 1. Essential and unique historical Americanisms, and their value and virility for the future; facts and forces of amalgamation and assimilation in



America; America's ethnic problems. Lectures, readings, and essay. Two credits (one evening a week); second semester. Fee, \$5 a semester. JENKS.

#### ADDITIONAL COURSES

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

## DEPARTMENT OF BUSINESS INSTRUCTION

The following courses are arranged with a view to meet the needs of those who desire special training for the higher business positions. Business is rapidly becoming a profession, or rather the business field is opening up several professions, among which are Accountancy, Banking and Finance, Advertising, and Salesmanship. The University through its General Extension Division is attempting to afford a preparation for these professions, as it has long done for the profession of Law, Medicine, Engineering, and the like.

The time appears to be approaching when it will be just as necessary for one to secure special training for business positions as it is now to secure training for the learned professions. It is recognized, too, that the rewards for those trained for the business professions are fully as great both financially and in a social way as they are for those trained for the so-called learned professions. Moreover, experience is proving that the very people whom the General Extension Division are 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 or 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. Each course can be completed by taking three subjects per week for two years, each class meeting one night per week. Each course may be completed in three years by taking but two subjects per week. Upon the completion of one of these courses a University Certificate to that effect will be granted.

### THE COMMERCE CLUB ACCOUNTANCY PRIZE

In order to foster the study of accountancy the Commerce Club (composed of students of the Department of Business Instruction) offers a prize of \$15 to the best student in Principles of Accounting "A" and "B" in the year 1916-1917.

### 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.

### TWO-YEAR 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 of 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 Accounting will be granted.

The course requires a total of twenty-four credits, each one-semester subject counting for two credits. Each subject requires one class recitation per week for one semester of sixteen weeks. There are two semesters per year, hence the course may be completed in two years by taking three subjects per week. Or, if the student prefers, he may take but two subjects per week, thus requiring three years to complete the course.

The following subjects are required for the course:

- |  |                       |
|--|-----------------------|
| 1. Principles of Accounting "A"          | 7. Business Law "A"   |
| 2. Principles of Accounting "B"          | 8. Business Law "B"   |
| 3. Accounting Practice and Procedure "A" | 9. Business Law "C"   |
| 4. Accounting Practice and Procedure "B" | 10. Economics         |
| 5. Auditing "A"                          | 11. Business English  |
| 6. Cost Accounting                       | 12. Elective subjects |

#### FEEES

The fee for these courses is \$30 per year, payable \$15 each semester, when registering for three subjects; or \$24 per year, payable \$12 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials, these being furnished students at a nominal charge.

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 IN BANKING AND FINANCE

This course is designed to meet the needs of two kinds of students: (1) those who are preparing for, or who are now engaged in, such financial callings as banking, corporation management, stock and bond brokerage, credit work, or financial journalism; and (2) business men who wish to utilize in the upbuilding of their particular business all of the modern scientific knowledge of a practical financial nature.

#### *University Certificate in Finance*

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

This certificate will be granted to those who complete a total of twenty-four 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	Elective subjects (4)
Principles of Accounting A (2)	

### *The American Institute of Banking*

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

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

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

### GENERAL BUSINESS COURSE

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

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

### *The University Certificate in General Business*

This certificate will be granted to those who successfully complete a total of twenty-four credits distributed as follows:

Business English (2)	Elective subjects (12)
Business Law A (2)	(These electives should be selected with a view to specializing in some particular field, as in Advertising and Selling, in Railroad Traffic, and the like.)
Business Law B (2)	
Economics A (2)	
Accounting A (2)	
Accounting B (2)	

### DESCRIPTION OF SUBJECTS

#### ACCOUNTING

1. INTRODUCTION TO ACCOUNTING. The purposes of accounting, the use of books of original entry, posting to the ledger, the trial balance, clos-

ing the ledger, preparation of simple trading statements. Two credits (one evening per week). PRESTON AND HARPER.

This course is arranged for those students who do not understand bookkeeping principles sufficiently well profitably to pursue Course 2. (Hereafter an examination will be required for entrance to Course 2.) The object of the course is not to teach bookkeeping and office routine. Those desiring such training are advised to enter the classes in the Public Schools, the Y. M. C. A., or the Business Colleges. The object is to give such preparation for those who desire to make a further study of the science of accounts, but who, through inexperience or lack of study, are unable to begin with those who have had that preparation. A study of the principles of the subject will be made from the start, only sufficient bookkeeping practice being given to illustrate the principles involved.

2. PRINCIPLES OF ACCOUNTING "A". A fundamental general course treated from the standpoint, first, of the purposes which the science and practice of accounting seek to accomplish; second, of the methods and means by which this object is gained. The merchandise account and its analysis, account nomenclature, accruals, deferred charges, classification of loss and gain accounts and of balance sheet accounts. The use of the working sheet, of auxiliary ledgers and controlling accounts, exercises in closing the books and in arranging balance sheets and income statements, departmentization of accounts, imprest cash system, contingent liabilities. Designed for those who already have a knowledge of bookkeeping principles. Those not having such knowledge are expected to first take Course 1. Two credits (one evening a week); first semester. PRESTON, ROTZEL.
3. PRINCIPLES OF ACCOUNTING "B". Further exercises in the preparation of statements, the manufacturing, trading, and profit and loss accounts, good will, depreciation, the accountant's working sheet, accounts peculiar to a corporation, surplus, sinking funds and reserves, condensed balance sheet and income statement. For those who have completed Course 2 or its equivalent. To credits (one evening a week); second semester. PRESTON, ROTZEL.
4. ACCOUNTING PRACTICE AND PROCEDURE "A". 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) the study of a complete illustrative accounting installation for a manufacturing and selling enterprise; (b) 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 made possible by the use of an installation such as the one studied; (c) 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.

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.

5. ACCOUNTING PRACTICE AND PROCEDURE "B". A continuation of Course 4. Two credits (one evening a week); second semester. ROTZEL.

6. 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. Pre-determined standard costs, and their relation to "scientific management." The cost ledger and its relation to the general ledger. Two credits (one evening a week); first semester. PRESTON.

Modern industry demands that each plant to 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 economics in the operation of the plant.

7. 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 their 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.

8. AUDITING (B). A continuation of Course 7. Two credits (one evening a week); second semester. ROTZEL.

9. APPLIED ACCOUNTING (A). A similar course designed for those who have two years of work in Accounting. The purpose of the course is to apply the principles and the practice of accounts as studied in the previous years to a business most primitive to the student. Each student will work up in report form the details of an accounting installation which will be of such a character that it will meet in a scientific way all the contingencies which would be likely to arise in a series of years. Two credits (one evening a week); first semester.

10. APPLIED ACCOUNTING (B). Continuation of Course 9. 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; examinations; supervision, and reports; and bank policy from the analysis of local bank reports. Two credits (one evening a week); first semester. EBERSOLE.

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.

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

A thoro understanding of the character and functions of money and of the principles of credit is the cornerstone of modern business intelligence. This course in money and credit constitutes an interesting and scientific treatment of the forces that determine value and prices, of the processes of exchange, and of the many forms of media of payment represented by monetary and credit instruments.

- 23 (145). THE 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.

ties; 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. Two credits (one evening a week); second semester. EBERSOLE.

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.

- 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

### 31. BUSINESS LAW "A"—CONTRACTS AND AGENCY

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

Agency: Methods of forming agencies; methods of terminating agency; the rights and obligations of 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-essentials, (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"—PARTNERSHIPS AND CORPORATIONS

Partnerships: Formation of partnerships; articles of copartnership; methods of terminating partnerships; rights and obligations of partner (a) toward his copartners, (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. HOUCK.

### 34. BUSINESS LAW "D"—REAL PROPERTY, MORTGAGES, BANKRUPTCY

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

35. BUSINESS LAW "E"—COMMON CARRIERS, AND LAW OF RAILWAY TRAFFIC AND RATES. Among the items considered are: Who are common carriers; duties, privileges, rights and liabilities in general; duty to furnish equipment; demurrage; when liability of carrier begins; when liability ends; bills of lading and contracts limiting liability; carrier's liability for goods in storage awaiting shipment or delivery; liability on goods lost, damaged or delayed, etc., etc. The difference between private and public utility businesses for purposes of regulation; the fundamental principles of regulation; legal considerations and elements making up lawful rates; what are reasonable rates, discriminatory rates; how each is determined and protected against competition, long and short haul, construction of tariffs; routing and misrouting; reconsignment and diversion of cars; time and manner of presenting claims; state and federal regulation and regulatory bodies; right to have rates quoted; penalty for erroneous quotation; how to present and handle claims before the State and Interstate Commerce Commission.

Particular attention is paid to state and federal regulatory acts and tribunals. The Interstate Commerce Act (1887) and the Elkins Amendment (1903), the Hepburn Act (1906), the Mann Act (1910), and the Cummins Act (1915) are all thoroly covered.

The widest latitude of discussion and questioning will be allowed. Students will be allowed and invited to present actual pending disputes for discussion and advice as to proper procedure to be followed.

Two credits (one evening a week); first semester. HOUCK.

*Note.*—Railway Traffic and Rates (Railway Problems), Course 71, shown on page 31, should either precede this course or be taken simultaneously with it as an integral part of the instruction in this subject.

## 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. Fee, \$5.00 a semester. PHELAN.
- 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). Taxa-

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

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

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. 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. One evening a week; first semester. MARTIN.

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.

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 300 of the leading advertising men of this country will be available to the student. Two credits (one evening a week); second semester. MARTIN.

53. **RETAIL ADVERTISING.** In this course the student conducts an advertising campaign for a retailer under the same general plan as in Course 52 for a manufacturer. The student is shown the relation of advertising to the different departments of a great department store. He is also shown how some of these same principles may be adopted for the smallest of specialty stores. He is shown where the advertising manager gets his ideas and how they are developed into the finished advertisement—what pays and what does not pay. One evening a week; second semester. Not given in 1916-17.

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. One evening a week; each semester.

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. Not given in 1916-17.

71. **RAILWAY TRAFFIC AND RATES.** The course covers the various features and problems which are brought up in the actual practice of handling freight traffic. The lessons embrace the practical application of the Interstate Commerce Act and other laws and regulations; the correct compilation of tariffs; methods under which rates are published by other than the line over which they are applicable; the classifying of freight; classifications and their peculiar exceptions; the principal rate bases, such as all rail, rail and lake, etc.; tariffs, rules and regulations governing domestic, export and import traffic and the principal commodities; the routing and mis-routing of freight; various methods of loading and offering freight for shipment; tracing of freight;

presentation and adjustment of claims; the cancellation, suspension and restoration of rates and tariffs; "privileges" such as transit handling of grain, storage, diversion, etc.; rulings of the Interstate Commerce Commission are referred to in the lectures and rates are quoted from current tariffs and classifications. Four credits (one evening a week); both semesters. KUEMPEL.

72. RAILWAY TRAFFIC AND RATES (2). (LEGAL PHASES). For description see Course 35, Business Law "E." Two credits one evening a week; first semester. HOUCK.

#### 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 text book 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. One evening a week; first semester. Repeated second semester. VIETS.

83. PUBLIC SPEAKING. For description see Department of Collegiate Instruction. One evening a week; both semesters. RARIG, GISLASON.
90. COMMERCIAL SPANISH. For description see Department of Collegiate Instruction. One evening a week; both semesters.

## DEPARTMENT OF ENGINEERING INSTRUCTION

The increase in the number of students in the extension engineering classes last year indicates the importance of this work. 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.

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 registered who could 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.

A course in "English for Engineers" or its equivalent will be required of every student.

Unless otherwise stated herein the fee for a single course meeting one night a week is \$7.50 a semester; for two courses, \$12 a semester; for three courses, \$15 a semester.

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. Each semester of the Engineering Extension classes is twelve weeks long; but the classes in Shop Mathematics and Elementary Electricity continue for sixteen weeks.

## ARCHITECTURE

## FIRST YEAR

*First Semester*  
Elementary Architectural Design  
Freehand Drawing

*Second Semester*  
Elementary Architectural Design  
Architectural History

## SECOND YEAR

*First Semester*  
Intermediate Architectural Design  
Shop Mathematics

*Second Semester*  
Intermediate Architectural Design  
Mechanics, Strength of Materials

## THIRD YEAR

*First Semester*  
Advanced Architectural Design  
Structural Design

*Second Semester*  
Advanced Architectural Design  
Reinforced Concrete

## CIVIL ENGINEERING (For Office Men)

## FIRST YEAR

*First Semester*  
Shop Mathematics  
Drawing: Working Drawings

*Second Semester*  
Shop Mathematics—Advanced  
Structural Drafting

## SECOND YEAR

*First Semester*  
Applied Mechanics  
Elements of Structural Design

*Second Semester*  
Strength of Materials  
Structural Design

## THIRD YEAR

*First Semester*  
Reinforced Concrete  
Roof Trussed Bridges—Design

*Second Semester*  
Reinforced Concrete Design  
Bridge and Building Design

## CIVIL ENGINEERING (For Field Men)

## FIRST YEAR

*First Semester*  
Shop Mathematics  
Lettering and Sketching

*Second Semester*  
Plane Geometry and Trigonometry  
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

*First and Second Semesters*  
Elementary Electricity

## SECOND YEAR

<i>First Semester</i>	<i>Second Semester</i>
Alternating Currents	Alternating Currents
Mechanical Drawing	Mechanical Drawing
or	or
Applied Mechanics	Strength of Materials

## THIRD YEAR

<i>First Semester</i>	<i>Second Semester</i>
Direct and Alternating Current Machinery	Central Power Stations
or	or
Telephony	Telephony
Steam Boilers and Engines	Engine Testing
or	or
Electrical Measurements	Electrical Measurements

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

## MECHANICAL ENGINEERING

## FIRST YEAR

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

## SECOND YEAR

<i>First Semester</i>	<i>Second Semester</i>
Applied Mechanics	Strength of Materials
Advanced Shop Work	Gas Engines
or	or
Elementary Electricity	Plumbing

## THIRD YEAR

<i>First Semester</i>	<i>Second Semester</i>
Shop Management and Pattern Con- struction	Steam Boilers
or	or
Steam Engines and Engine Testing	Central Stations
Heating and Ventilation	Alternating Currents
or	or
Mechanical Equipment of Buildings	Elementary Machine Design

1. ARCHITECTURAL HISTORY. Twelve lectures illustrated with lantern slides, covering the ancient and Renaissance periods. One evening a week; second semester. Fee, \$5 a semester. FORSYTHE.
2. ELEMENTARY ARCHITECTURAL DESIGN. Shades and shadows and wash rendering. Architectural elements such as doors, windows, moldings, and the architectural orders; lectures and drawing. Open only to high-school students who have had mechanical drawing, or to those who have had one year or more in an architect's office, or who have had equivalent experience. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-9:30. Fee, \$7.50 a semester. FORSYTHE.



3. INTERMEDIATE ARCHITECTURAL DESIGN. Regular Class B "Analytique" or Order Problems of the Society of Beaux Arts Architects. Open only to those who have completed Course 1, or who have had two years or more in an architect's office, or who 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. JONES.
4. ADVANCED ARCHITECTURAL DESIGN. Class B, Plan Problems, and Class A, Problems of the Society of Beaux Arts Architects. Open only to those who have completed the required "Antalytique" or Order Problems, or to those who have had one or more years of design in an architectural school. Two evenings a week; both semesters. Monday and Thursday evenings, 7:30-10:00. \$5 a problem or \$10 a semester. JONES.

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

5. MAP DRAWING. (a) Farm and city plats. (b) Real estate display maps. (c) Landscape architects' maps. (d) Topographic and hydrographic symbols. One evening a week; second semester. Fee for course, \$7.50 a semester. ZELNER.
6. LETTERING AND TITLES FOR ENGINEERS. Principally freehand Reinhardt lettering. Title lay-outs and lettering. One evening a week; first semester. Fee for course, \$7.50 a semester. ZELNER.
7. 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, Fee \$7.50 a semester. CUTLER.
8. CURVES AND EARTHWORK. Mathematics of simple, compound, and spiral curves; preliminary and location surveys; plotting of profiles; vertical curves; cross-sectioning and computation of earthwork volume; methods of computation of overhaul; mass diagram, right-of-way and station ground maps. One evening a week; second semester. Fee, \$7.50 a semester. CUTLER.
9. 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. Fee, \$7.50 a semester. McMILLAN.

10. **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. Fee, \$7.50 a semester. McMILLIAN.
11. **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. Fee, \$7.50 a semester. MANEY.
12. **ELEMENTARY ELECTRICITY.** This course will start with the simple laws of magnetism and advance through the theory of direct current machinery. Special attention will be given to direct current motors and generators, armature windings, commutators, and wiring diagrams. The course will be of value to those who wish to take up the study of alternating current machinery and power plants. Experiments will be made throughout the course. One evening a week; both semesters. Fee, \$5 a semester. EDWARDS.
13. **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. Fee, \$7.50 a semester. TURNER.
14. **DIRECT AND ALTERNATING CURRENT MACHINERY.** The operation and maintenance of direct and alternating current generators, motors and electrical measuring instruments. A textbook by J. H. Morecroft will be used. One chapter will be taken each week, and a number of experiments will be made throughout the course. One evening a week; first semester. Fee, \$7.50 a semester. RYAN.
15. **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. Fee, \$7.50 a semester. RYAN.
16. **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 practicable. One evening a week; second semester. Fee, \$7.50 a semester. SHEPARDSON.

17. **SHOP MATHEMATICS.** This course is designed to meet the needs of shop men, 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. Fee, \$5 a semester. EDWARDS.
18. **TRIGONOMETRY.** This course is designed for those who have had the subjects of algebra and geometry and wish to pursue civil engineering studies. The solution of right and oblique triangles will be thoroly discussed and practical plane surveying problems will be given special attention. One evening a week; both semesters. Fee, \$5 a semester. EDWARDS.
19. **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. Fee, \$5 a semester. BROOKE.
20. **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. Fee, \$7.50 a semester. BROOKE.
21. **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. Fee, \$7.50 a semester. SHOOP.
22. **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. Fee, \$7.50 a semester. SHOOP.

23. STEAM BOILERS AND ENGINES. Theory and practice of steam boiler operation; settings and accessories; type of boilers, chimneys, smoke prevention, mechanical stokers and economizers. Mechanism of the steam engine, work in the cylinder, steam distribution, effect of reciprocating parts. Indicator and indicator cards. Horsepower from cards; valve diagrams and valve setting. Exercises and problems. One evening a week; second semester. Fee, \$7.50 a semester. MARTIN.
24. 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. Fee, \$7.50 a semester. RICHARDS.
25. 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. Fee, \$7.50 a semester. MARTENIS.
26. 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. Fee, \$7.50 a semester. MARTENIS.
27. GAS ENGINES AND PRODUCERS. Principles of operation of two-cycle and four-cycle engines; cylinder construction and arrangement, system of speed control, ignition, and cooling. Application of the indicator and consideration of indicator diagrams. A study of the power gas producer, including suction and pressure types for various fuels; construction and operation of the generator and accessory apparatus. Application to various industrial purposes. One evening a week; first semester. Fee, \$7.50 a semester. MARTIN.
28. MECHANICAL DRAWING. How to make machine and structural drawings and how to read them from blue prints. This is a general course taking up the use of instruments, lettering, drawing views and sections of machine and structural parts, dimensioning them for shop use, making the finished working drawings and exercises in reading drawings. Some of the necessary geometry is taken up. The student's advancement depends on the outside time which he is able to put in. Instruction is given individually. This course is a prerequisite and

leads to course 29, Advanced Mechanical Drawing; (one evening a week); both semesters. Fee \$7.50 per semester. FRENCH.

29. **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 riveted joints; keys, cotters and pins; pipes 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 28, (one evening a week); both semesters. Fee, \$7.50 per semester. ROWLEY.
30. **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. Fee, \$7.50 per semester. NICHOLS, VIETS.
31. **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. Fee, \$7.50 per semester. EDWARDS.

## COURSES IN LAW

### SCOPE OF COURSE

University Extension courses in substantive law will be given under the immediate direction of the Faculty of the Law School in Contracts, Torts, Personal Property, Agency and Real Property during the academic year 1916-17, provided that at least twenty students make application for the same. These courses are designed primarily for the benefit of those persons who desire legal instruction for the purpose of better qualifying themselves for business careers. They do not lead to a degree.

### TIME AND PLACE OF INSTRUCTION, AND TEXTBOOKS

All instruction in Law will be given at the Law Building of the University of Minnesota, Minneapolis. Class exercises will be held on the evening of each week day, excepting Saturday, during the session, beginning at 7:30 and extending not later than 9:30.

For the present, at least, textbooks used by students in pursuing the courses will be loaned by the University free of charge, upon payment of a deposit fee of \$5.00. This deposit will be repaid upon the student's returning in good condition all of the books loaned to him during the year.

### REQUIREMENTS FOR ADMISSION

The requirements for admission to the Extension courses in Law are in general the same as for the day courses in the College of Science, Literature, and the Arts; namely, either (1) passing special entrance examinations, (2) graduation from an accredited high school, or (3) evidence by certificate, of equivalent scholastic preparation.

By special arrangement, persons who are at least twenty-one years of age, and who do not comply with the general requirements as above outlined, may enter the evening courses in Law. In such cases, it will be necessary for applicants to satisfy the department that they are adequately fitted to carry the proposed work.

### UNIVERSITY CREDIT FOR EXTENSION WORK IN LAW

Students who show special aptitude may receive credit in Extension courses towards a degree in Law. Any student who has completed with marked success any Extension course will be admitted to the regular Law School examination in that subject, and, if successful, will be given full credit.

### FEES

The tuition fee for the regular Extension Course in Law is \$50 a year, payable one-half at the beginning of the first semester and one-

half at the beginning of the second semester. Students taking less than the whole course will be required to pay at the rate of \$5.00 for each recitation a week for each semester. No other charge of any kind will be made excepting the deposit required for the safe return of textbooks loaned, as indicated above.

#### REGISTRATION

From September 25 to October 7 the office of the Dean in the Law Building will be open for the purpose of giving information and registering students for the Extension Law courses every evening, except Saturday and Sunday, from 7:30 to 9:30. At other times, and for further particulars apply to Director of the General Extension Division, University of Minnesota, Minneapolis.

#### COURSES GIVEN IN 1916-17

The courses given are described in outline below.

1. **PERSONAL PROPERTY.** This course includes a consideration of the distinction between real and personal property; the acquisition of title to personal property other than by sale; accession, confusion; gifts; finding; property rights of bailor and bailee; possessory liens and pledges. One hour; first semester.
2. **CONTRACTS.** This course deals with the general principles of the Law of Contracts. The student considers full the rules governing the making of contracts, their operation and discharge, and the legal consequences of a breach of contract. The general purpose of the course is to afford a foundation for the later study of the important kinds of specific contracts, such as those of agency, bailments, partnership, commercial paper and sales, which are considered in separate courses. Two hours throughout the year.
3. **TORTS.** This course treats of trespasses to persons and property; the conversion of goods; slander, libel, and malicious prosecution; deceit; negligence; and statutory torts. Three hours, first semester.
4. **REAL PROPERTY.** This course covers a general treatment of estates in real property, the rights incident to ownership of realty, powers, uses and trusts, easements, and the methods of transferring rights in real estate. Two hours, second semester.
5. **AGENCY.** Principal and agent, master and servant—their rights and obligations, mutually and as to third persons; creation and termination. Wambaugh, *Cases on Agency*. Second semester, two hours.

## AGRICULTURAL EXTENSION DIVISION

For details relative to Extension Courses offered by the College of Agriculture, address the Agricultural Extension Division, University Farm, St. Paul.

### OTHER BULLETINS

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

Bulletin of Correspondence Courses

Bulletin of Extension Lectures

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

General Extension Division,  
The University of Minnesota,  
Minneapolis



# REGISTRATION 1915-1916

## DEPARTMENT OF COLLEGIATE INSTRUCTION

### MINNEAPOLIS

- Adams, Emma N., 3136 Portland Av.  
Adams, Julia O., Hampshire Arms  
Adams, Ruth, 906 5th St. S.E.  
Adler, Birdie H., 16 N. Franklin Av.  
Ainsworth, Alice, 1788 Hennepin Av.  
Akre, Belle C., 412 Oak St. S.E.  
Albright, Nora B., 125 W. 15th St.  
Aldrich, Malcolm, Hopkins, Minn.  
Aldrich, Ruth A., Hopkins, Minn.  
Alkerton, Margaret, 2645 Humboldt Av.  
Allee, Anne M., 2437 14th Av. S.  
Allen, Egbert L., 3436 Portland Av.  
Almquist, Herman E., 1410 Fremont Av.  
N.  
Aleen, Myrtle, 1209 Oliver Av. N.  
Alterton, Mrs. R. F., 2645 Humboldt Av.  
Amonson, Maude, 1800 13th Av. S.  
Amonson, Nettie, 1800 13th Av. S.  
Anderson, Bert G., Y.M.C.A., St. Paul  
Anderson, Edward D., 929 8th St. S.E.  
Anderson, Florence C., 2009 S. 9th St.  
Anderson, Lydia H. (Mrs.) 1809 10th  
Av. S.  
Anderson, Margaret E., 816 9th Av. S.E.  
Anderson, Nora C., 1222 Mary Place  
Anderson, Paul, R., 826 20th Av. N.E.  
Andresen, Adeline, 1614 Stevens Av.  
Andrews, Bernice, 3132 5th Av. S.  
Angst, Alice D., 91 Highland Av.  
Angwick, Alma K., 1326 Vine Place  
Anthony, Maude, 1715 Portland Av.  
Apfeld, Josephine J., 3032 Irving Av. S.  
Archer, Helen M., 4237 Linden Hills Blvd.  
Armstrong, J. Chester, 4254 Queen Av. N.  
Arnell, Mabel D., 2812 Grand Av. S.  
Atwell, Mrs. D. G., 62 S. 11th St.  
Babb, Charles G., 3403 Pleasant Av. S.  
Bacon, Eleanor J., 1310 S. 7th St.  
Bailey, Louise E., 1037 12th Av. S.E.  
Baillie, Jean E., 3133 Hennepin Av.  
Baird, Emma L., 2310 Emerson Av. S.  
Baldwin, Louise V., 2219 Dupont Av. S.  
Ballard, Huldah, 3335 Humboldt Av. S.  
Ballow, Edith S., 1618 Girard Av. N.  
Barber, Laura, 1605 Stevens Av.  
Barker, Nellie I., 710 10th St. S.  
Barney, Edith M., 2118 Cedar Av.  
Barry, Florence M., 1015 E. 28th St.  
Barry, Lena E., 2546 Aldrich Av. S.  
Barry, Mary E., 1929 3rd Av. S.  
Bartlett, Mae L., 2547 Blaisdell Av.  
Bartz, Lillian E., 2814 Girard Av. N.  
Bauman, Helen L., 91 Ash St.  
Baxter, Margaret, 134 E. 18th St.  
Beach, Rowena E., 2708 Colfax Av. S.  
Bean, Mary W., 716 Laurel Av., St. Paul  
Beck, Frieda, 202 S. 13th St.  
Beckstrom, Emily, 1330 Monroe St., S.E.  
Begin, Z. L., 527 5th Av. S.E.  
Beidler, Mary A., 2202 Portland Av.  
Bell, Jane E., 3408 2nd Av. S.  
Bell, Mabel V., 77 Ash St.  
Benjamin, Florence H., 3115 Calhoun  
Blvd.  
Benjamin, Paul L., 4280 Queen Av. N.  
Bennett, Muriel, 1933 James Av. S.  
Benton, Mrs. C. W., North High School  
Benton, Mrs. J. L., 3640 Portland Av.  
Ber, Adelaide, 1710 Stevens Av.  
Bevernick, A. W., 3555 Fremont Av. S.  
Bezanson, Edith E., 3432 Chicago Av.  
Bjork, Peter N., 748 Pine St., St. Paul  
Blodgett, Della H., 82 S. 12th St.  
Blosno, Oscar J., 732 Leamington  
Boardman, Charles W., 3315 W. 15th St.  
Boehner, Carl E., 120 E. 14th St.  
Bovy, Henry T., 1262 Raymond Av.  
Boyd, Helen W., 3336 Irving Av. S.  
Brackey, Elizabeth H., 707 E. 14th St.  
Bradford, Clarice, 1413 University Av. S.E.  
Breager, Frank S., 2326 26th Av. S.  
Breman, Jessie, 1780 Bryant Av. S.  
Bresky, Eleanore H., 1909 1st Av. S.  
Brickley, Margaret C.  
Brill, Esther, 823 16th Av. S.  
Broderick, Florence, 904 University Av.  
S.E.  
Broderick, Thomas M., Riverside Apts.  
Broderson, Clara, 2548 Filmore St. N.E.  
Brooks, Grace J., 802 W. Franklin Av.  
Brooks, Hazel J., 2615 Columbus Av.  
Brosius, Elizabeth L., 117 Broadway N. E.  
Brown, Adda, 1800 Stevens Av.  
Brown, Annette, Leamington Hotel  
Brown, D. Grace, 2439 Blaisdell Av.  
Brown, Eliza K., 2412 Garfield Av. S.

- Brown, Luella M., 819 2nd Av. S.  
 Brown, Mrs. James, Leamington Hotel  
 Browne, W. J., 3505 Fremont Av. S.  
 Brownlow, Lillian, Hotel Leamington  
 Bruce, Rena J., 2417 Columbus Av.  
 Buchanan, Anabel, 2400 Nicollet Av.  
 Buckley, Margaret C., 648 Van Buren St. N.E.  
 Buckman, Mrs. Ella, 3928 Richfield Road  
 Buell, Annie W., 2219 Knapp St., St. Paul  
 Buell, Myra, W., 2219 Knapp St., St. Paul  
 Buehrer, Bertha E., 237 Pleasant Av., St. Paul.  
 Bullard, Irma L., 3213 2nd Av. S.  
 Bulman, Korrine, 3924 Pillsbury Av.  
 Burchard, Margaret, 3341 Grand Av.  
 Burns, Louise (Mrs.), 1715 Portland Av.  
 Busian, Zella, 2544 Pillsbury Av.  
 Bye, Edwin, 2029 Clinton Av.  
 Byrnes, Mary S., 325 Franklin Av.  
 Byron, Marian E., Sanford Hall  
 Cady, Katherine R., 317 Harvard St., S.E.  
 Cady, L. H., 317 Harvard St. S.E.  
 Calhoun, Elsie M., 2318 N. Fremont Av.  
 Callahan, Ida M., 909 Summit Avenue  
 Cameron, Malvena M., 4055 Pillsbury Av.  
 Cameron, Neil A., 3503 33rd Av. S.  
 Camp, Ona E., Hotel Berkeley  
 Carey, Anna E. V., 4745 Lyndale Av. S.  
 Carey, Mary L., 4745 Lyndale Av. S.  
 Carlson, Alfred M., 223 Harvard St. S.E.  
 Carlson, Ida M., 1409 Stevens Av. S.  
 Carpenter, Martha E., 3247 Stevens Av.  
 Carroll, Catherine, 413 20th Av. S.  
 Carroll, Teresa, 413 20th Av. S.  
 Carson, Edwin S., 408 4th St. S.E.  
 Case, M. Maud, 1320 7th St. S.E.  
 Case, Mildred, 3146 Longfellow Av.  
 Casselman, Kenneth, 1238 W. Minnehaha Av., St. Paul  
 Cederburg, Signe, 689 Bedford St., S.E.  
 Chaline, Edith J., 2735 Garfield Av. S.  
 Chapel, Winnie M., 1834 Irving Av. N.  
 Chapin, Blanche I.  
 Cheney, Mrs. W. B., 4237 Washburn Av.  
 Chisholm, Catherine T., 2808 Fremont Av.  
 Chmelik, Ignus A., Pine City, Minn.  
 Christensen, Emma D., 635 E. 17th St.  
 Christian, Lela B., Hotel Waverly  
 Christie, Blanche, 2906 Humboldt Av. N.  
 Church, Mrs. Sherwood, 121 S. 11th St.  
 Clarke, Mary E., 3132 42nd Av. S.  
 Cleveland, Elaine, 531 S.E. 8th St.  
 Cleveland, Esther M., 531 8th St. S.E.  
 Cobb, Martha L., 3136 Holmes Av. S.  
 Coffee, Mabel, 2123 Aldrich Av. S.  
 Cole, Emma, 628 4th St. S.E.  
 Cole, Ruth F., 1228 5th St. S.E.  
 Colligan, Mary R., 134 E. 18th St.  
 Collins, Margaret E., 4207 Vincent Av. S.  
 Colquhoun, Flora, 1303 Hawthorn Av.  
 Comer, Jennie E., 1078 16th Av. S.E.  
 Comer, Zoe, 1078 16th Av. S.E.  
 Condon, Elizabeth C., 24 W. Grant St.  
 Connell, Mary E., 4013 Sheridan Av. S.  
 Conroy, Mary H., 1710 15th Av. S.  
 Cooley, Clara D., Hotel Clinton  
 Cooley, Fannie E., 3135 Humboldt Av. S.  
 Cooper, Helen, 618 5th St. S.E.  
 Cornish, Bessie H., 2930 Clinton Av.  
 Cort, Maud O., 4312 Linden Hills Blvd.  
 Countryman, Roger S., 213 Avon St., St. Paul  
 Coveny, Mary J., 1522 Emerson Av. N.  
 Cox, Carrie I., 3208 3rd Av. S.  
 Crandall, Eleanor A., 4237 Linden Hills Blvd.  
 Crane, Jennie C., 3043 Humboldt Av. S.  
 Crane, Laura A., 100 Seymour Av. S.E.  
 Cratty, Mabel E., 231 Curtis Court  
 Crawford, Bonnie B., 1225 5th St. S.E.  
 Crawford, Mary E., Curtis Court  
 Croasdale, Inez S., 1214 4th St. S.E.  
 Crombie, Grace, 415 E. Franklin  
 Cummins, George H., 3308 Irving Av. S.  
 Dahleen, Harry W., 1214 4th St. S.E.  
 Davidson, Emma L., 507 15th Av. S.E.  
 Davidson, Lois C., 3120 Dupont Av. S.  
 Davies, Pearl J., 3205 Fremont Av. S.  
 de Camp, A. Lee, 1608 W. 25th St.  
 de Camp, Malvina A., 1608 W. 25th St.  
 de Greif, Agnes M., 1301 7th St. S.E.  
 Deming, Norma H., Harvard Chambers  
 Densmore, Lydia M., 601 W. Franklin Av.  
 Devaney, Mary R., 1629 4th St. S.E.  
 Devany, Anne, 30 Lawrence Av.  
 Dickie, Mary L., 600 Essex St. S.E.  
 Diederick, Rose E., 1933 Ashland Av., St. Paul  
 Diehan, Anna M., 2327 Irving Av. N.  
 Dolan, Mrs. F. M., 3315 University Av. S.E.  
 Dollenmayer, Dorothy E., 724 E. 25th St.  
 Dougherty, Sada, 3118 Park Av.  
 Drake, Mary J., 608 E. Franklin Av.  
 Draper, Annie M., 1215 W. 31st St.  
 Drohan, Gertrude, 2716 Portland Av.  
 Drohan, Margaret, 2716 Portland Av.  
 Drummond, Amy, 9 E. 25th St.  
 Dugas, Joseph G., 1416 Blair St., S Paul  
 Dunbar, Louise E., 3140 Holmes Av.  
 Duval, Agnes E., 1425 Vine Place  
 Dwyer, Elizabeth, 600 Washington Av. S.E.  
 Dwyer, Vivian, 600 Washington Av. S.E.  
 Eaton, Nellie R., 1019 26th Av. N.E.  
 Eayrs, Helen F., 80 Orin Av. S.E.  
 Edgerton, Bessie, 2919 Girard Av. N.  
 Edson, Mary C., Leamington Hotel

- Edwards, Mae L., 3312 1st Av. S.  
 Egan, Elizabeth M., 1613 3rd Av. S.  
 Ellertson, Oscar, 417 Oak St.  
 Elliott, Mrs. C. B., 2538 Humboldt Av. S.  
 Erb, Nellie M., 1415 Dupont Av. N.  
 Erickson, Beda, 3010 Girard Av. N.  
 Erickson, Ruth C., 3338 Humboldt Av. S.  
 Estes, Vera M., 212 E. 36th St.  
 Evans, Carrie M., 1786 Hennepin Av.  
 Everhard, Mabel, 134 E. 18th St.  
 Fairchild, Elinor Z., 1115 Hawthorne Av.  
 Fairchild, Harriett, 1115 Hawthorne Av.  
 Farnham, Paul B., 2135 Irving Av. N.  
 Fasset, John S., 1514 3rd Av. S.  
 Fausy, Adaline, 517 8th St. S.E.  
 Fawcett, Jessie E., 1846 Dayton Av., St. Paul.  
 Fay, Cordelia A. (Mrs.)  
 Featherstone, Harriet, 3639 Stevens Av.  
 Ferguson, Amie L., 2742 Fremont Av. S.  
 Ferguson, Ida M., 2742 Fremont Av. S.  
 Ferran, Walter S., 116 4th St. S.E.  
 Fettel, Anna M., 217 20th Av. S.  
 Fields, Nellie M., 36 Spruce Place  
 Filbert, Madame Christian, 1775 Hennepin Av.  
 Finden, Sitona, 819 2nd Av. S.  
 Finn, Delia A., 1515 Vine Place  
 Finnegan, Catherine E., 1930 Clinton Av.  
 Finnegan, Josephine A., 1930 Clinton Av.  
 Finnegan, Nellie L., 1317 2nd Av. S.  
 Finsett, Amelia, 3032 Irving Av. S.  
 Firestone, Emma, 1320 7th St. S.E.  
 Fisher, Robt. McC., 2115 Harriet Av.  
 Fish, Florence, 2303 3rd Av. S.  
 Fitzgerald, Anna C., 1812 Bryant Av. S.  
 Fitzgerald, Caroline A., 2318 Pierce St.  
 Fitzgerald, Margaret, 1815 4th Av. S.  
 Fitzgerald, Teresa G., 1501 5th St. S.E.  
 Fitzpatrick, Lucy, Hotel Hastings  
 Fitzpatrick, Mary A., Hotel Hastings  
 Flaherty, Catherine, 2419 Colfax Av. S.  
 Flathava, Teresa, 2531 16th Av. S.  
 Fletcher, Cora V. (Mrs.), 2757 Bryant Av. S.  
 Flood, John C., 211 S. 11th St.  
 Flynn, Henrietta, 1700 Portland Av.  
 Foote, Miriam O., 1054 S.E. 14th Av.  
 Ford, Mary F., 1939 Bryant Av. S.  
 Forester, Fannie M., 3423 Portland Av.  
 Fosness, John L., 329 19th Av. S.E.  
 Foster, Rachel H., 32 Spruce Place  
 Fowler, Alice J., 209 S. 11th St.  
 Foxlee, Frederick L., 4147 Vincent Av. S.  
 Francis, Harriet A., 1671 Hague Av., St. Paul  
 Francis, Helena L., 1671 Hague Av., St. Paul  
 Foxton, Joseph, 411 Walnut St. S.E.  
 Prelin, Jules, 1206 5th St. S. E.
- Friedlander, Lillian, 607 Forest Av.  
 Frisch, Sarah B., 1415 8th Av. N.  
 Frizzell, Marie A., 3304 Elliot Av.  
 Prosbau, Eva E., 306 10th Av. S.E.  
 Frost, Edith L., 4625 Washburn Av. S.  
 Fullenwider, Mrs. T. I., 611 Delaware St. S.E.  
 Fuller, Mabel, 917 Chicago Av.  
 Galland, Mrs. Belle B., 4042 Linden Hills Blvd.  
 Galvin, Eugene F., 621 2nd St. N.E.  
 Garvey, Florence M., 1215 W. 31st St.  
 Gates, Myrtle L., 1620 3rd Av. S.  
 Gaus, Ottillie J., 2915 W. 44th St.  
 Gedney, Mrs. E. L., 1808 W. 31st St.  
 Goldman, David, 815 14th Av. S.  
 Gerdes, Robert L., 1218 25th Av. N.  
 Gibbon, Grace, 1788 Hennepin Av.  
 Gibbs, Anna P., 2618 Dupont Av. N.  
 Gilbert, Terence W., 1206 S.E. 5th St.  
 Gilkey, Katherine, 2416 Chicago Av.  
 Gilman, Louise, 3417 Park Av.  
 Gilruth, Genevieve, 412 Walnut St. S.E.  
 Gleason, Rev. Leo P., 4600 11th Av. S.  
 Glessner, Jean, 613 University Av. S.E.  
 Goetzman, Leon M., 2315 Quincy St. N.E.  
 Goodale, Ina L., 1413 Willow St.  
 Gorgen, Mary A., 1515 Vine Place.  
 Gorman, Philip T., 1523 Portland Av.  
 Gould, Ella C., 3217 Nicollet Av.  
 Grahl, O. W., 77 Iglehart Av., St. Paul  
 Grandy, Eleanor, 1606 Emerson Av. N.  
 Grant, Alex L., 3000 Humboldt Av. N.  
 Grant, Helen S., 3304 Elliot Av.  
 Graves, Alice M., 407 4th St. S.E.  
 Graves Arthur R., 407 4th St. S.E.  
 Graves, Helen, 4857 Emerson Av. S.  
 Greenly, W. L., 2428 Nicollet Av.  
 Grenager, Gudran, 1409 Stevens Av.  
 Grey, Lillian F., (Mrs.) 3423 Portland Av.  
 Grobel, Olive A., 1927 Elliot Av.  
 Groesbeck, Agnes (Mrs.), 2020 Fremont Av. N.  
 Guest, J. Eustace, Y.M.C.A.  
 Grout, Edith N., 3104 James Av. S.  
 Gullette, Albert, 2522 Filmore St. N.E.  
 Hage, Lillian C., 2201 Bryant Av. S.  
 Hage, Maud G., 2201 Bryant Av. S.  
 Hagen, Agnes C., 637 Grand Av., St. Paul  
 Hainer, Gertrude B., 2623 1st Av. S.  
 Halbert, Lucy E., 4939 Girard Av. S.  
 Hall, Robert A., 602 Essex St. S.E.  
 Hall, Mrs. R. A., 602 Essex St. S.E.  
 Hallingsworth, Ralph, 1107 13th Av. S.E.  
 Hallock, Olive N., 608 Oak St. S.E.  
 Hallowell, Jr., Morris L., The Ingleside  
 Halvorsen, Josephine M., (Mrs.) 2117 Harriet Av.  
 Hamilton, Eleanor J., St. Barnabas Hosp.  
 Hammond, Alice E., 309 W. 27th St.

- Hammond, Grace H., 309 W. 27th St.  
 Hamstreet, Earl W., 311 E. 22nd St.  
 Haney, Elizabeth, 4437 Washburn Av. S.  
 Hankey, Clara B., 1431 Adams St.  
 Hansen, Meta, 1522 Fremont Av. N.  
 Hanson, Olga S.  
 Harding, Everhart P., 819 Essex St. S.E.  
 Harding, Nellie, 1831 Park Av.  
 Hardgrove, Ellen M., 1521 Vine Place  
 Harger, Lena L., 1906 3rd Av. S.  
 Harrington, Julia G., 507 4th St. N.E.  
 Harrington, Lucy, 440 University Av. S.E.  
 Hart, Mabel R., 2643 S. Lyndale  
 Hartig, J. H., 405 W. 24th St.  
 Hartig, Mrs. J. H., 405 W. 24th St.  
 Hartney, J. Leo, 1410 5th St. S.E.  
 Hartwell, Arthur W., 2116 2nd Av. S.  
 Hasberg, Axel B., 2503 17th Av. S.  
 Haseltine, Julia M., 3109 Fremont Av. N.  
 Haserick, C. V., 1614 Girard Av. N.  
 Hatz, Anna B., 128 E. 18th St.  
 Hatz, Rose, 128 E. 18th St.  
 Haubold, Elsie, 3020 Minnehaha Av.  
 Haubrick, Genevieve, 307 3rd Av. S.E.  
 Hauer, Marie E., 3628 Pleasant Av.  
 Haven, Kittie, 3145 Stevens Av.  
 Hawkins, Catherine S., 1523 N. Fremont Av.  
 Hawley, Edward W., 323 11th Av. S.E.  
 Hawley, Luelah J., 323 11th Av. S.E.  
 Hayes, Anna M., 1701 University Av. S.E.  
 Hayes, Bridget, 1701 University Av. S.E.  
 Hayes, Effie M., 2610 W. 41st St.  
 Haynes, Stanley H., 703 River Road East  
 Hays, Ada S., 3348 1st Av. S.  
 Hefferman, Susan, 2633 Humboldt Av. S.  
 Hegel, Edith, 1310 7th St. S.  
 Hellberg, Oscar A., 202 13th St. S.  
 Helliwell, Clara E., 3341 2nd Av. S.  
 Hendrix, Julia W., 2408 Nicollet Av.  
 Hennemuth, Prilla, St. Barnabas Hospital  
 Hennessey, Amy, 1615 1st Av. S.  
 Hennessey, Julia F., 1610 3rd Av. S.  
 Hickey, Ora L., 2724 Chicago Av.  
 Higbee, Margaret G., 2142 Knapp St., St. Paul  
 Hilder, Fannie E., 1101 7th St. S.  
 Hildrup, Helen L., Leamington Hotel  
 Hill, Margaret E., 354 Curtis Court  
 Hirschfelder, Mrs. A.D., 2113 Oliver Av. S.  
 Hiscock, Isabelle, 715 13th Av. S.E.  
 Hiscock, Jennie I., 715 13th Av. S.E.  
 Hitchcock, Elizabeth, 2209 Chicago Av.  
 Hixon, Blanche, 808 4th St. S.E.  
 Hodel, Earl M., 1934 Pierce St. N.E.  
 Hoeborn, Elizabeth A., 679 Lincoln Av., St. Paul  
 Holbert, Lucy E., 4939 Girard Av. S.  
 Holden, Margaret, St. Barnabas Hospital  
 Holman, Maude E., 354 Curtis Court  
 Holmer, Valentine C., 523 Walnut St. S.E.  
 Hood, Leone B., 1501 Linden Av.  
 Hooper, Myrtle U., 1915 Hennepin Av.  
 Hopkins, Mary D., 1629 4th St. S.E.  
 Horan, Elizabeth, 1802 15th Av. S.  
 Horner, Lillian A.  
 Hoer, Edith M., 1321 22nd Av.  
 Hosmer, Frank H., 3721 Portland Av.  
 Howard, Margaret L., 3429 Columbus Av.  
 Howe, Grace A., 4010 Upton Av. S.  
 Howe, Jane A., 4010 Upton Av. S.  
 Howe, Mary S., Curtis Court  
 Hoyt, Cleo, F., 84 Spruce Place  
 Hubachek, Mrs. L. A., 4601 Lyndale Av. S.  
 Hubert, Florence M., 1322 Lowry Av. N.E.  
 Hudson, Irena May, 1777 Colfax Av. S.  
 Hughes, Charles L., 1706 2nd Av. S.  
 Hughes, H. E., 1800 W. 31st St.  
 Hughes, Harriet J., 2400 Aldrich Av. S.  
 Hughes, Margaret E., Hotel Berkeley  
 Hughson, Florence M., 2749 Bryant Av. S.  
 Hulett, Ethel R., 5017 Lyndale Av. S.  
 Hulett, Jessie I., 5017 Lyndale Av. S.  
 Hullsick, Florence J., 853 Raymond Av., St. Paul  
 Hult, Katherine A., 1521 7th St., S.E.  
 Husse, Tillie, 1400 Yale Place  
 Hussey, Martha L., 627 E. Franklin Av.  
 Huston, Robert, 165 14th Av. N.E.  
 Ingle, Jeanette N., 2724 Chicago Av.  
 Irle, Maud, 1684 Dayton Av.  
 Irving, Alice M., 833 Sumner St. N.E.  
 Irwin, Anna, 429 Oak St.  
 Irwin, Joe, 429 Oak St.  
 Isaacson, Emma M., 1823 13th Av. S.  
 Isca, Arthur W., 2609 Hennepin Av.  
 Jackson, Margaret 436 Harvard St. S.E.  
 Jacobson, Elizabeth K., 2638 Fremont Av. N.  
 James, Mary L., 1906 3rd Av. S.  
 Janzen, Gerhard, 2701 Girard Av. N.  
 Japs, Amelia R., 2407 Grand Av. S.  
 Jaquish, Bessie D., 126 W. Grant St.  
 Jasperson, Eva, 1515 Vine Place  
 Johnson, Anna F., 62 S. 11th St.  
 Johnson, Delia, 2704 11th Av. S.  
 Johnson, Dora U., Curtis Court  
 Johnson, Elizabeth, 1113 Hawthorn Av.  
 Johnson, F. G., 3020 Clinton Av.  
 Johnson, H. E., 1512 Brook Av. S.E.  
 Johnson, Jennie, 2108 Chicago Av.  
 Johnson, Lillian, 64 Barton Av., S. E.  
 Johnson, Mabel C., 1334 Monroe St. N.E.  
 Johnson, Milda, 2636 Chicago Av.  
 Johnson, Oscar G., 1601 University Av. S.E.  
 Johnston, Harriet C., 4626 Fremont Av. S.  
 Johnston, J. Wm., 2915 W. 44th St.  
 Jones, Addie M., 3936 Grand Av.

- Jones, Anna R., 2634 Penn Av. N.  
 Jones, Hallie E., 1918 Robbins Av., St. Paul  
 Jones, Jane B.  
 Jones, Pearl B., 739 E. 16th St.  
 Jordan, F. G., 2508 Grand Av.  
 Jordan, Helen, 1400 W. 26th St.  
 Joyce, Floyd E., 412 9th Av. S.E.  
 Junkermier, Marie, 905 Summit Av.  
 Kamman, Ina A., 128½ Eaton Av.  
 Kammarren, Abigail, 1428 N. 6th St.  
 Kamrath, Bertha M., 3141 Elliot Av.  
 Kane, Adelia L., 84 Spruce Place  
 Katen, Helen K., 46 Curtis Court  
 Keating, Anna B., Hotel Decorah  
 Kelly, Evie F., Curtis Court  
 Kerr, Maud M., 1821 Elliot Av.  
 Kerr, Mary, 1708 Portland Av.  
 Keys, Mary F., 3513 Bloomington Av.  
 Kilgore, Alice, 2634 Fremont Av.  
 Kilham, Lena E., 3232 Stevens Av.  
 Killeen, Florence M., Ogden Apts.  
 Killeen, Ursula M., Ogden Apts.  
 Kimball, Florence, 508 Oak St. S.E.  
 King, Julia E., 3552 Bryant Av. S.  
 Kingsford, Annie S., 1311 Chestnut Av.  
 Kingsley, A. G., 90 S. Snelling Av.  
 Kirk, Renie J., St. Barnabas Hospital  
 Klein, Elizabeth, Hotel Decorah  
 Klopsteg, Paul E., 328 Oak St., S.E.  
 Knapp, Edward A., 471 Marshall Av., St. Paul  
 Knight, Sara C., 317 Oak Grove St.  
 Knoblauch, Ida, 2500 Lake Place  
 Kocourek, Mary, 604 Oak St. S.E.  
 Koenig, Myra M., 602 7th St. S.E.  
 Kohler, Katherine M., Hotel Berkeley  
 Krauser, Alois, 43 N. 15th St.  
 Kriedt, Julia, Curtis Court  
 Krogstadt, Marie C., 234 W. Lake St.  
 Kyllingstad, Gertrude, (Mrs.) 4740 Nicollet Av.  
 Ladner, Emily, 311 7th Av. S.E.  
 La Du, Roy W., 960 27th Av. N.E.  
 Lambert, Mamie E., 3409 1st Av. S.  
 Laney, Albert G., 2415 Lake Place  
 Langvick, Clara, 329 Oak St. S.E.  
 Langvick, Emma M., 329 Oak St. S.E.  
 La Palme, Alma A., 2037 Crystal Lake Av.  
 Larson, Helen I., 541 Rondo St., St. Paul  
 Larson, Ida M., 1806 11th Av. S.  
 Larson, Laura K., 327 Church St. S.E.  
 Laubscher, Florence E., 907 8th St. S.E.  
 La Vigne, Mary E., 1906 Park Av.  
 Leary, Iva M., 1515 Vine Place  
 Leavitt, Clara K., 2015 James Av. S.  
 LeGros, Theodore C., City Hospital  
 Lenart, Etta, 3338 Humboldt Av. N.  
 Lentz, Mrs. Bernard, 1318 7th St. S.E.  
 Leonard, Alice E., 1023 14th Av. S.E.  
 Levy, Florence, 2541 Harriet Av.  
 Lewis, Adelaide H., 702 Russell Av. N.  
 Lewis, Harriet A., 702 Russell Av. N.  
 Lewis, J. L., 776 N. Hamline Av., St. Paul  
 Liedl, Rose M., 606 7th St. S.E.  
 Lilley, Elizabeth A., 2818 Fremont Av.  
 Little, Dorothy A., 3821 W. 43rd St.  
 Litzenberg, Jennie S., (Mrs.) 3137 Park Av.  
 Long, Frances L., 112 State St. S.E.  
 Loth, A. B., 1711 Queen Av. N.  
 Lovelace, D. W., 927 2nd Av. S.  
 Lovell, Lela L., 3032 Irving Av. S.  
 Ludermann, Caroline, 602 Essex St. S.E.  
 Lumley, Charles, 1120 7th St. S.E.  
 Lundstrom, Walter H., 3114 4th St. S.E.  
 Lyons, Mae Louise, 518 Ridgwood Av.  
 Lyskett, Sylvan L., 800 Cedar St., St. Paul  
 Maclean, Marjorie, 2641 Fremont Av. N.  
 McAlister, Gladys M., 4300 Colfax Av. S.  
 McAuliffe, Agnes, 909 Summit Av.  
 McAuliffe, Kate, 815 4th Av. S.  
 McBride, Emily R., 2105 Bryant Av. S.  
 McCall, Bessie, 3040 Harriet Av.  
 McCall, Nina B., 3040 Harriet Av.  
 McCarren, Jane 815 6th St. S.E.  
 McCarthy, Charles P., 304 State St. S.E.  
 McClelland, Edith, Hotel Leamington  
 McClendon, Margaret S., 715 University Av. S. E.  
 McConnell, Claire D., 3135 Oakland Av.  
 McCool, F. P., 4000 Nicollet Av.  
 McCormack, Katherine B., 1907 1st Av. S.  
 McCormick, Myrtle C., (Mrs.) 2530 Dupont Av. S.  
 McCoy, Alice, 2400 Dupont Av. N.  
 McCoy, Rhoda, 2400 Dupont Av. N.  
 McCue, Elizabeth, 1617 Bryant Av. N.  
 McCulloch, F. B., 221 Curtis Court  
 McDonald, Joseph L., St. Thomas College, St. Paul  
 McDonald, Mary, 2400 Blaisdell Av.  
 McDowell, Harriet J., 2608 3rd Av. S.  
 McDunn, Elizabeth B., 4112 Pleasant Av.  
 McFarlane, Mabel J., 2201 Aldrich Av. S.  
 McGovern, Rose S., 1416 Vine Place  
 McGrath, Helen, 211 W. 34th St.  
 McGregor, Effie, Hotel Waverly  
 McGregor, Ellen E., 2101 Portland Av.  
 McGregor, Lullie, 502 W. Franklin Av.  
 McGuire, Sarah E., 1215 W. 31st St.  
 McGuire, William W., 1994 Laurel Av.  
 McIntyre, Alice M., 4410 Lake Harriet Blvd.  
 McKenzie, Jennie, 2300 Garfield Av.  
 McLeon, Alice, 1551 Hillside Av.  
 McLochlan, Katherine M., 2010 Park Av.  
 McMillan, Margaret, 505 10th Av. S.E.  
 McMurtrie, N. B., 320 17th Av. S.E.  
 McNally, Sadie, Hampshire Arms  
 McNamara, Kathryn, 1521 Vine Place

- McNulty, Agnes D., 420 7th Av. N.E.  
 McNulty, Bea M., 420 7th Av. N.E.  
 McPherson, Gertrude K., 1715 Portland Av.  
 McShane, Catherine, Hotel Leamington  
 McYahon, Donald F., 321 Emerson Av. N.  
 Maddon, Adeline E., 2612 Chicago Av.  
 Magnuson, Jennie O. M., 413 Oak St. S.E.  
 Malone, May E., 4625 York Av. S.  
 Malthouse, Ellen D., 2615 Humboldt Av. S.  
 Mandt, Lenore, 3301 Harriet Av. S.  
 Manley, Mary E., 3236 Holmes Av.  
 Manuel, Clara A., 425 8th Av. S.E.  
 Marsh, Gertrude, 1352 Vine Place  
 Martin, Blanche, 413 5th St. S.E.  
 Martin, F. S., 2420 Hennepin Av.  
 Martin, Mrs. F. S., 2420 Hennepin Av.  
 Martin, Maud E., Hotel Berkeley  
 Martin, Mary L., 816 Spring St. N.E.  
 Masley, John A., 2201 2nd St. N.E.  
 Mason, Adelaide, 1108 15th Av. S.E.  
 Mather, Helen, Curtis Court  
 Mathis, Mrs. A. C., 1601 7th St. S.E.  
 Meader, Isabel R., 2600 W. 40th St.  
 Meason, Georgina, 1208 W. Franklin Av.  
 Mellenthin, Mrs. Gurli, 1515 Vine Place  
 Mero, Lillian, 3047 Nicollet Av.  
 Merrill, Agnes, 1700 Thomas Place  
 Merrill, Dorothy S., 2106 Aldrich Av. S.  
 Michaelson, Klara M., 2117 Harriet Av.  
 Michaelson, Matilda L., 2117 Harriet Av.  
 Miller, Cecil R., 3824 Pillsbury Av.  
 Miller, Jane S., 1873 Marshall Av.  
 Miller, O. H., 3345 2nd Av. S.  
 Miner, Robert I., 2375 Bourne Av., St. Paul  
 Mo, Einar Geo., 701 15th Av. S.E.  
 Mo, Mrs. Einar G., 701 15th Av. S.E.  
 Mo, Mrs. K. E., 701 15th Av. S.E.  
 Moersch, F. P., Curtis Court  
 Moir, Marian W.  
 Molan, Kathleen, 3523 Garfield Av.  
 Morand, Mr. & Mrs., 519 13th Av. S.E.  
 Morgan, Grace I., 2548 Chicago Av.  
 Morgan, Elizabeth H., 2300 5th Av. S.  
 Morrill, Eliza C., 1808 Stevens Av.  
 Morse, Margaret E., 3401 5th Av. S.  
 Mosher, A.E.  
 Mower, Margaret W., 3247 Stevens Av.  
 Mueller, Ada E., 15 W. Rustic Lodge  
 Mulcahy, Frank J., 1230 25th St., N.E.  
 Mullins, Ella, 1916 2nd Av. S.  
 Muller, Katherine J., 2622 3rd Av. S.  
 Mumm, Ruth E., 1908 5th St. N.  
 Munson, Harriet, 1319 Yale Place  
 Murphy, Grace, 2624 S. Humboldt Av.  
 Murphy, Mary V., 4109 Sheridan Av. S.  
 Murphy, Mary M., 1507 Adams St., N.E.  
 Murphy, Tressa H., 440 2nd St. N.E.  
 Murray, Agnes R., 43 N. 15th St.  
 Naegeli, Fred W., 2257 Langford Av., St. Paul  
 Naper, Martha E., 3149 Holmes Av.  
 Nash, Julia A., 2018 Hennepin Av.  
 Nason, Effie L., 1407 Clinton Av.  
 Nelson, Hilda C., 3141 Elliot Av.  
 Nelson, Hubert A., 3240 Harriet Av. S.  
 Nelson, Marion L., 3215 Fremout Av. S.  
 Nessell, Martha E., 1915 Aldrich Av. S.  
 Newell, Esther, 1786 Hennepin Av.  
 Newell, Margaret M., 1116 5th Av. S.E.  
 Nickerson, Edward, 600 Essex St. S.E.  
 Nickerson, Margaret, 600 Essex St. S.E.  
 Niles, Harriet S., Hotel Hastings  
 Nitardy, Paula M., 911 7th Av. S.  
 Norbeck, Gertrude F., 101 W. 35th St.  
 Nordquist, Jennie, 1214 5th St. S.E.  
 Northfield, Susan M. (Mrs.), 1415 19th Av. N.  
 Nugent, Philip M., 790 Bates Av., St. Paul  
 Nutter, Hannah A., 2226 Fremont Av. N.  
 Oas, Jennie, 410 21st Av. S.  
 Oberg, Ezra N., 2106 29th Av. S.  
 Oberg, Gerald O., 1127 15th Av. S.E.  
 O'Hearn, Mary, 1216 Harmon Place  
 O'Herrin, Mary F., (Mrs.) 1700 Portland Av.  
 Oldfield, Lee W., 820 22nd Av. N.E.  
 Olson, Carolyn, 168 Nina Av., St. Paul  
 O'Meara, Sarah F., 1425 6th St. S.E.  
 Orfield, D. J., 3052 10th Av. S.  
 Oswald, Mae B., Hampshire Arms  
 Owen, Bess, 2416 Chicago Av.  
 Owen, Gertrude B., 1428 Spruce Place  
 Owens, Esther W., 2425 Lyndale Av. S.  
 Oyen, Alice, 2440 23rd Av. S.  
 Page, Alta S., 1812 Bryant Av. S.  
 Pallmer, A. R., 703 4th St. S.E.  
 Paper, Sarah, 570 Capitol Blvd., St. Paul  
 Patch, Alice S., 2318 Aldrich Av. S.  
 Patchen, Georgia A., 1705 Portland Av.  
 Pattison, Edith S., 1020 Hawthorn Av.  
 Pease, Thomas G., 1417 6th St. S.E.  
 Pehousek, Elizabeth V., 639 Erie St. S.E.  
 Pehousek, Veronica B., 639 Erie St. S.E.  
 Peik, A., 208 10th Av. N.E.  
 Pepper, Mrs. Fred L., 277 Prescott St.  
 Perkins, Ellen G., 3401 5th Av. S.  
 Perrine, E. G., 731 Fulton St. S.E.  
 Perrine, Mrs. E. G., 731 Fulton St. S.E.  
 Peterson, Sigwald S., 223 8th St. S.E.  
 Petran, Mirian V., 1700 Kenwood Pkwy.  
 Phillips, Anna, 1808 Stevens Av.  
 Phillips, Bertha I., 1352 Vine Place  
 Phillips, Jennie L., 2728 Portland Av.  
 Phillips, Minnie B., 1908 Pleasant Av.  
 Pierce, Elizabeth, 300 State St. S.E.  
 Pinney, Gilbert, 904 University Av. S.E.  
 Pippel, Minnie, Robbinsdale

- Plummer, Bessie T., 740 E. 16th St.  
 Poehler, Harriet W., 2433 Garfield Av. S.  
 Pope, Lena M., St. Louis Park  
 Porcher, Maria R., 3136 Harriet Av.  
 Porter, Mary L., 3929 Clinton Av. S.  
 Potter, Marvyl, 314 10th St. S.E.  
 Powell, Kathryn, 1018 13th Av. S.E.  
 Pratt, Agnes A. (Mrs.), cor. Nicollet Av.  
 and 50th St. W.  
 Prentiss, Anna D., 4737 Colfax Av. S.  
 Probett, Ida, 1917 Stevens Av.  
 Quail, Margaret, 3012 Knox Av. S.  
 Quarters, Edwin N., 1814 4th St. S.E.  
 Radde, Elsa C., 1312 17th Av. N.  
 Radosch, Dorothea, 721 Erie St. S.E.  
 Radosch, Frieda J., 721 Erie St. S.E.  
 Radosch, Minna, 721 Erie St. S.E.  
 Raines, Mary E., 3044 Holmes Av.  
 Randall, Ada M., 329 Oak St.  
 Reed, Myrtle, 2633 Humboldt Av. S.  
 Reid, E. A., 514 Delaware St. S.E.  
 Reid, Katherine, St. Barnabas Hospital  
 Reid, Mary D., 2728 Chowan Av.  
 Reidy, Elizabeth M., 909 Summit Av.  
 Regan, Ella L., Curtis Court  
 Raque, Miss Dikka, 425 8th Av. S.E.  
 Reynolds, George W., 3811 10th Av. S.  
 Rheberg, Rachel, 2220 Oakland Av.  
 Rice, Catherine, 766 Carroll Av.  
 Rice, H. W., 3940 Richfield Road  
 Rice, Mrs. H. W., 3940 Richfield Road  
 Richards, Grace, 2639 Harriet Av.  
 Richmond, Ethel, 820 University Av., S.E.  
 Rise, Matilda E., 815 4th Av. S.  
 Ritze, Bertha L., 1401 Yale Place  
 Roberts, Charlotte (Mrs.), St. Barnabas  
 Hospital  
 Rodgers, Walter S., 4652 Emerson Av. S.  
 Rogers, Emma E., 2655 Grand Av.  
 Rogers, Helen L., 2400 Nicollet Av.  
 Rogers, Lena H., 1614 Girard Av.  
 Rohde, Henry J., 3241 Clinton Av.  
 Rood, Mary B., 116 Oak Grove St.  
 Rooney, Isabel, 819 2nd St. N.E.  
 Rosenberg, Ruth, 429 Forest Av.  
 Rothschild, Flora E., 1613 3rd Av. S.  
 Roush, Lyman P., 3025 4th Av. S.  
 Rowan, Margaret, 1700 Portland Av.  
 Rowell, Ora M., 2217 N. Fremont Av.  
 Rumbaugh, Mary L., 3552 Bryant Av. S.  
 Rundquist, Ethel, 2539 Central Av.  
 Russell, Clementina, 1306 Portland Av.  
 Russell, Grace, 2100 Hennepin Av.  
 Rutledge, Elizabeth C., 3408 2nd Av. S.  
 Rydell, Edmund T., 2114 Dupont Av. N.  
 St. Clair, Martha, 1107 University Av.  
 S.E.  
 Salisbury, Pearl C., N.E. Neighborhood  
 House  
 Samuelson, Cora, 3341 Grand Av.  
 Sanborn, Frances L., 3312 3rd Av. S.  
 Sandeen, Henry W., 912 Margaret St.  
 Sanderson, Elizabeth B., 605 12th Av. S.E.  
 Sandquist, G., 101 University Av. S.E.  
 Schibursky, Clara C., 1715 Portland Av.  
 Schirmer, Helene, 627 E. 17th St.  
 Schmidt, Edith M., 3537 Bloomington  
 Av.  
 Sconce, Lois E., Curtis Court  
 Schussler, Emma W., 2722 Bloomington  
 Av.  
 Scott, Jessie, 311 10th Av. S.E.  
 Scott, Sadie M., 3025 4th Av. S.  
 Scott, Zadie A., 1672 Hennepin Av.  
 Searle, Clinton E., 131 W. 36th St.  
 Seeley, J. L., 1916 2nd Av. S.  
 Sellhorn, Minnie D., 2816 Fremont Av.  
 N.  
 Sengir, Barbara, 732 E. 16th St.  
 Seyller, Blanche L., 3314 Elliot Av.  
 Shaw, Gertrude, 635 E. 17th St.  
 Shaw, Harry J., 1674 Hennepin Av.  
 Sheehan, Katherine, 909 Summit Av.  
 Shook, Jane L., 1502 2nd Av. S.  
 Shook, Kate P., 1502 2nd Av. S.  
 Shortridge, Wilson P., 816 16th Av. N.  
 Shove, Helen B., 3116 Clinton Av.  
 Siddall, Margaret W., 1820 Stevens Av.  
 Siebert, Emma, 3006 Oliver Av. N.  
 Siebert, Marie H., 3006 Oliver Av. N.  
 Siehl, Claude D., 4449 Beard Av. S.  
 Sieken, Agnes W., Curtis Court  
 Sikes, Lena A., 818 16th Av. N.  
 Simon, Clara J., 1065 Van Slyke Av.,  
 St. Paul  
 Simon, Ellen M., 1065 Van Slyke Av.,  
 St. Paul  
 Simpson, Mabel, 714 Monroe St. N.E.  
 Sims, Helen D., 1301 5th St. S.E.  
 Sirich, Edward H., 321 14th Av. S.E.  
 Small, Mary F., 2110 Lyndale Av. S.  
 Smith, Claribel, 1224 Mary Place  
 Smith, Dora, 1415 Willow St.  
 Smith, Eva, 2601 Humboldt Av. S.  
 Smith, Florence M., 405 Oak St. S.E.  
 Smith, Gertrude E., 3627 Blaisdell Av.  
 Smith, Harriet E., 126 W. Grant St.  
 Smith, Irene, 2028 Cedar Av.  
 Smith, Lois, 3825 Clinton Av. S.  
 Smith, Lora, 3825 Clinton Av. S.  
 Snell, A. M., 509 Washington Av. S.  
 Snyder, Mary, 1365 Spruce Place  
 Sommermeyer, Louise W., 220 9th Av.  
 S.E.  
 Southwell, Alice M., 4100 Sheridan Av.  
 Sprague, Eunice C., 1820 Stevens Av.  
 Stahley, Laurie, 2637 Humboldt Av. S.  
 Stanchfield, Lois H., 520 5th Av. S.E.  
 Standt, E. W., 513 Dale St., St. Paul  
 Stanley, Alice W., 4125 S. Upton Av.

- Stanley, Elizabeth A., 747 N.E. Madison St.
- Stanton, Helen J., 313 15th Av. S.E.
- Stephens, Stella M., 920 8th Av. S.
- Stevens, Catherine L., 1057 15th Av. S.E.
- Stevens, Dorothy J., Leamington Hotel
- Stewart, Mercia E., Leamington Hotel
- Sticka, Rose, 419 18th Av. S.E.
- Stivers, Elizabeth W., 131 E. 14th St.
- Stomberg, Dwight Wm., 531 Walnut St. S.E.
- Stone, Genevieve L., 1820 Stevens Av.
- Stover, Zelma E., 4006 Nicollet Av.
- Strate, Nettie M., 3032 Colfax Av. S.
- Strohmeier, Anna E., 427 8th Av. S.E.
- Stromme, Minnie, 2216 17th Av. S.
- Stultz, Laura R., 926 Hudson Av. St. Paul
- Sullivan, Elizabeth M., 846 Hall Av., St. Paul
- Sumner, Bernice, 2806 Humboldt Av. S.
- Sweet, Earl, 902 21st Av. S.E.
- Swennes, Agnes E., 813 E. 22nd St.
- Talbot, Esther B., 1808 Colfax Av. S.
- Tautges, Katherine L., 3025 Harriet Av. S.
- Taylor, Jessie E., 134 E. 18th St.
- Taylor, Susan E., Hotel Maryland
- Telfair, Nellie M., 2446 Chicago Av.
- Terry, Alta B., 2321 Harriet Av. S.
- Terry, Stephen N., 802 6th St. S.
- Thomas, Anna B., 3538 3rd Av. S.
- Thomas, Joseph M., 818 University Av. S.E.
- Thomas, Katherine R., 909 Summit Av.
- Thomas, Lucy A., 909 Summit Av.
- Thomas, Mary E., 1111 Hawthorne Av.
- Thompson, Agnes B. (Mrs.)
- Thompson, Chas. L., 4808 Nicollet Av.
- Thompson, Harry E., 3007 Fremont Av. N.
- Thompson, Laurie, 1725 Portland Av.
- Thompson, Ruth G., 4808 Nicollet Av.
- Thornton, Elizabeth B., 1515 Vine Place
- Thornton, Katherine J., 1515 Vine Place
- Thraillkill, Fanny F., 1902 4th Av. S.
- Thris, Cora O., 4115 Upton Av. S.
- Thurston, Mrs. Edward S., 911 5th St. S.E.
- Tice, Ethel A., 909 Summit Av.
- Tinkham, Bertha L., 3247 Stevens Av.
- Titus, James L., 316 15th Av. S.E.
- Tolson, Edgar, 856 Albenmarie St., St. Paul
- Tomlinson, Bessie A., 3115 13th Av. S.
- Tomlinson, Mabel E., 3115 13th Av. S.
- Towey, Mary W., 2746 Fremont Av. S.
- Trilling, Mabel B., 2077 Commonwealth Av., St. Paul
- Tucker, Ermina, 1808 Stevens Av.
- Turner, Effie S., 1786 Hennepin Av.
- Ulbricht, Clara M., 523 7th St. S.E.
- Ulbricht, Emma A., 523 7th St. S.E.
- Underwood, Elizabeth, 2548 Chicago Av.
- Urquhart, Mary I., 2615 Emerson Av. S.
- VanCamp, Kate, 405 Oak St. S.E.
- Vance, J. E., 3540 1st Av. S.
- Van Deusen, Wm. P., 3510 Architect Av. N.E.
- Van Valkenburg, Frederick, 1319 9th St. S.E.
- Van Kleeck, Maud, 3512 16th Av. S.
- Viets, Howard T., 410 University Av. S.E.
- Vilas, A. A., 1205 Raymond Av., St. Paul
- Vincent, Mrs. Geo. E., 1005 5th St. S.E.
- Vockert, Arnold, 2310 Queen Av. N.
- Von Rohr, Lucy E., 134 E. 18th St.
- Walker, Eunice M., 1214 5th St. S.E.
- Wallace, Dora B., 231 Curtis Court
- Walton, Maltilda K., 3125 Columbus Av.
- Ward, Susanna R., 4410 Lake Harriet Blyd.
- Warner, W. L., 78 Willow St.
- Waterman, A. A., 606 7th St. S.E.
- Waters, Vera E., 320 Church St. S.E.
- Weir, Harriet A., 3431 Knox Av. N.
- Welch, Richard D., 1409 8th St. S.E.
- Wentland, Ida V., 3301 Harriet Av. S.
- Wertz, Edith A., 1522 Fremont Av.
- Westlund, Mary E., 4351 Garfield Av.
- Westman, Leonard V., 2120 31st Av. S.
- White, Anna M., 1083 15th Av. S.E.
- White, Asher, 424 Walnut St.
- White, Carrie, 1101 S. 7th St.
- White, Evangeline L., 3301 Harriet Av. S.
- White, Grace I., 1621 W. 32nd St.
- White, Marian, 314 10th Av. S.E.
- White Philip T., 1083 15th Av. S.E.
- Whiteman, Mrs. L., 1715 Carroll Av., St. Paul
- Wickland, Gerald, 2800 Portland Av.
- Wiggins, Stella M., Brookside, Minn.
- Wilkie, David, 382 Wheeler St.
- Wilkinson, Sarah H., 313 15th Av. S.E.
- Wilkins, Mary S., 4644 Lake Harriet Blvd.
- Williams, Grace A., 1408 Yale Place
- Williams, Margaret J., 2921 16th Av. S.
- Witter, Ella M., 3345 1st Av. S.
- Wood, Adelia M., 3214 2nd Av. S.
- Wood, Harriet J., 1111 Hawthorne Av.
- Wood, Stella L., 315 11th Av. S.E.
- Woodward, Charles E., 3224 Harriet Av.
- Woodward, M. Myrtle, 2525 4th Av. S.
- Wright, Anna W., 97 Orlin Av. S.E.
- Yankoski, Frances E., 736 E. 16th St.
- Yokley, Robert L., 317 15th Av. S.E.
- Zickrick, Theodore, 1308 Harmon Place
- Zierold, A. A., 1110 W. 25th St.
- Zinne, Charles F.



## ST. PAUL

- Ames, Elizabeth D., 956 Marshall Av.  
 Anderson, Morgan E., 339 W. George St.  
 Antony, Theodore M., 1603 Berkeley Av.  
 Axtell, Mary E., 270 Dayton Av.  
 Blaha, James, 358 Arbor St.  
 Borden, Gertrude C., 2026 Laurel Av.  
 Borden, Mary A., 2026 Laurel Av.  
 Bridges, Mabel, 709 Ashland Av.  
 Bright, M. Louise, 179 Macalester St.  
 Bruce, Ethel M., 643 Hague Av.  
 Buckley, Margaret C., 632 St. Peter St.  
 Buell, Caroline, 536 Ashland Av.  
 Burns, Catherine, 999 Portland Av.  
 Burns, Maria, 999 Portland Av.  
 Burns, Sara, 999 Portland Av.  
 Cahill, G. E., 1074 Sherburne Av.  
 Caulfield, Mary G., 774 Laurel Av.  
 Chapin, Blanche, 629 Ashland Av.  
 Clark, Keith, 1470 Wesley Av.  
 Cooper, Margaret E., 1144 Ashland Av.  
 Copley, Mary E., 530 Ashland Av.  
 Corcoran, John J., 1608 11th Av. S.,  
 Minneapolis  
 Countryman, E. A., 1840 Selby Av.  
 Crosby, Clifford W., 172 W. University  
 Av.  
 Daly, Elizabeth, 624 Ashland Av.  
 Daly, Mary E., 624 Ashland Av.  
 Deahafe, A. B., 700 Conway St.  
 Dimond, Winnifred, 624 Ashland Av.  
 Doran, Lawrence, 1495 Sherburne Av.  
 Doyle, Mary C., 327 Carroll Av.  
 Driscoll, Charles B., 1888 Carroll Av.  
 Driver, Elizabeth J., 147 Summit Av.  
 DuBord, Alice M., 928 Osceola Av.  
 Dueschner, Erwin, 4051 Pillsbury Av.  
 Dunn, Teresa M., 331 Geranium St.,  
 Gehan, Mark H., 762 Capitol Heights  
 Geraghty, Bridget, 308 Como Av.  
 Ginsberg, Annie, 1744 Laurel Av.  
 Goff, Fred W., 724 E. 5th St.  
 Goodrich, Mabel, 485 Pelham St.  
 Gorman, Alice, 727 E. 3rd St.  
 Grant, Mary J., 648 Brown Av.  
 Gregory, Ada, (Mrs.) 808 Cromwell Av.  
 Halstead, P. J., 417 St. Anthony Av.  
 Hand, Richardine, 591 Ashland Av.  
 Hayes, Laura A., 1208 Dayton Av.  
 Hickman, Jr., John H., 325 N. St. Albans  
 St.  
 Hillard, Mrs. Homer, 816 Hague Av.  
 Hinnars, Clara L., 1850 Summit Av.  
 Hinnars, Gertrude, 1850 Summit Av.  
 Holland, Mary D., 724 Holly Av.  
 Hosmer, Alice M., 528 Ashland Av.  
 How, Mrs. E. L., 535 Laurel Av.  
 How, Mary W., 614 Grand Av.  
 Howell, R. B., 1228 Minnehaha St.  
 Hughes, Theresa, 620 Globe Bldg.  
 Jackson, Mary I., 955 Lombard Av.  
 James, Mrs. A. L., 307 Laurel Av.  
 Johnson, Fred O., 2117 Commonwealth  
 Av.  
 Johnson, Harry L., 667 Magnolia St.  
 Johnson, Jennie W., 1451 Van Buren St.  
 Johnson, Otto A., 1996 Milwaukee Av.  
 Johnson, Sophie J., 83 Como Av.  
 Johnston, Ida A., 177 Nelson Av.  
 Kelly, Raymond C., 477 Laurel Av.  
 Kelly, Wm. Vincent, 477 Laurel Av.  
 Kennedy, Ella F., 97 Kent St.  
 Kennedy, Thos. F., 108 Garfield Av.  
 King, Margaret M., 842 Laurel Av.  
 Knudson, Walter O., 35 Como Av.  
 Lacy, C. H., 1810 Wesley Av.  
 Larson, Helen I., 541 Rondo St.  
 Lawler, Cass, 561 Laurel Av.  
 Lowry, Ethelwyn, 519 Oakland Av.  
 Lutz, Paul E., 444 Arbor St.  
 Lyksett, Sylvan L., 800 Cedar St.  
 McClellan, Mary F., 88 Kent St.  
 McCormack, Elizabeth, 632 St. Peter St.  
 McGuire, Mary, 694 Carroll Av.  
 McKechnie, Mrs. A., 647 Holly Av.  
 McMullin, Catherine H., Visitation Con-  
 vent  
 Maguire, Helen F., 682 Ashland Av.  
 Maley, Clarence A., 448 Virginia Av.  
 Mann, Helen G., 766 Iglehart Av.  
 Martinet, Leslie, 707 Carroll Av.  
 Meyer, H. D.  
 Morice, Agnes, 950 Arkwright St.  
 Myer, A. G., 908 Laurel Av.  
 Nelson, Henry, 704 Smith Av.  
 Newton, Millicent, 1043 Goodrich Av.  
 Nicol, Mary E., 1199 Reaney Av.  
 Niemeyer, Gertrude, 1890 Laurel Av.  
 Nugent, Philip, 144 Bates Av.  
 Oace, Sophie, 662 Rondo St.  
 O'Brien, Ella C., 1837 Grand Av.  
 O'Dell, Thomas E., 139 Summit Av.  
 O'Donnell, M. E., 104 2nd Av. S.  
 Oehler, O., 1204 Lincoln Av.  
 Olsen, Carolyn, 168 Nina Av.  
 Orrison, Chester H., 803 Snelling Av.  
 Ostergren, Mabel C., 959 Burr St.  
 Perkins, Alfred G., 1780 Wakefield Av.  
 Perkins, Sidney, 622 Wabasha  
 Pollock, Isodore H., 201 E. Congress St.  
 Ringius, Edward P., 290 Sherburne Av.  
 Rohrer, Mertie, 766 Iglehart Av.  
 Roverud, Ella M., 643 Hague Av.  
 Sanders, Grace, 710 Ashland Av.  
 Savage, Mrs. Albert B., 719 Linwood Pl.  
 Sell, John M., 1933 Laurel Av.  
 Sell, Mrs. John M., 1933 Laurel Av.

Sinclair, Gertrude, 20 N. St. Albans  
 Sister Agnes M. Mahoney, Visitation Con-  
 vent  
 Sister Francis de Sales, Visitation Convent  
 Sister Jane M. Cullinan, Visitation Con-  
 vent  
 Sister Mary A. Noughton, Visitation Con-  
 vent  
 Sister Mary A. O'Connor, Visitation Con-  
 vent  
 Sister Mary C. Shepherd, Visitation Con-  
 vent  
 Sister Mary E. Ordan, Visitation Convent  
 Sister Mary F. Whaley, Visitation Con-  
 vent  
 Sister Mary T. Dougherty, Visitation Con-  
 vent  
 Sister Mary V. O'Brien, Visitation Con-  
 vent  
 Sister Rose J. Brennan, Visitation Con-  
 vent

Slaney, Elizabeth J., 736 Holly Av.  
 Smisek, M. J., 500 Michigan Av.  
 Smith, C. R., The Angus  
 Smith, Clifford, 421 Norwich Av.  
 Smith, Mrs. E. Pay, 1950 Selby Av.  
 Steen, J. H. Arnold, 14 Tilton St.  
 Summerfield, Arthur W., 841 Ashland Av.  
 Sutton, Clarence G., 530 Capitol Blvd.  
 Swanson, Elaine, 606 Portland Av.  
 Swanson, L. B., 205 Maria Av.  
 Swenson, Freda E., 945 Clark St.  
 Talbot, Georgiana, 293 Selby Av.  
 Tallman, Kate E., 476 Laurel Av.  
 Torbenson, Otelia, 1862 Dayton Av.  
 Tracy, Matilda, 2053 Lincoln Av.  
 Udell, Myra, 779 Carroll Av.  
 Watson, Florence H., 708 Holly Av.  
 Whitney, Maude H., 574 Selby Av.  
 Wilhelmi, R. J., 465 Whitall St.  
 Will, Elsie E., 185 Iglehart Av.  
 Winterfield, A. W., 972 Lincoln Av.  
 Zahler, Louise H., (Mrs.) 1018 E. 4th St

## DULUTH

Adair, J. R. Bennett, 122 E. 3rd St.  
 Anderson, Agnes V., 425 4th Av. E.  
 Auxer, Caroline C., 329 4th Av. W.  
 Baillie, Mabel L., 121 St. Marie St.  
 Berg, Elizabeth H., 1012 E. 4th St.  
 Boer, Ellen M., The Ashtabula  
 Boucher, Eileen, 204 E. 6th St.  
 Clark, Blanche E., 131 W. 3rd St.  
 Crowley, Jane M., 115 E. 3rd St.  
 Daley, Ann, College of St. Scholastica  
 Daley, Margaret, College of St. Scholastica  
 Doran, Loretta J., The Ashtabula  
 Duclett, Betsy, 1020 E. 6th St.  
 Dunn, Anna M., 204 E. 6th St.  
 Elevitch, Pearl, 15 W. Lenon St.  
 Gage, Leslie, 1524 E. 4th St.  
 Grant, Anna, 1007 E. 7th St.  
 Grimes, Helen, 1721 Piedmont Av.  
 Grinols, Marie E., 222 5th Av. E.  
 Guinn, Mary M., 113 E. Superior St.  
 Haley, Hazel, Villa Scholastica  
 Hammill, Mary E., 141 Faribault St.  
 Hartz, Louise, 1014 E. 8th St.  
 Helwig, Clara A., 1716 E. 5th St.  
 Hilton, Mrs. Geo. D., 1303 E. 6th St.  
 Joyce, Isabel R., 2127 Sussex Av.  
 Karnes, Katherine, 3 Chester Terrace  
 Lamb, Alice, Villa Scholastica  
 Larsen, C. Hortense, 307 E. 3rd St.  
 Longstreet, Gertrude, 1403 E. 2nd St.  
 MacArthur, Laura, 224 E. 5th St.  
 McPadden, Sarah P., 4117 McCulloch St.  
 McHugh, Ethel, College of St. Scholastica  
 McIntyre, Nora, College of St. Scholastica

Meier, Amanda, 1507½ E. 4th St.  
 Monahan, Elizabeth, College of St.  
 Scholastica  
 Monaghan, Leona, 2221 E. 4th St.  
 Neff, Maud, 610 5th Av. W.  
 Nelson, Anna B., 101 S. 19th Av. E.  
 Nelson, Emma, 1705 Jefferson St.  
 Nelson, Helen, 1705 Jefferson St.  
 Olson, Emma S., 112 N. 20th Av. W.  
 Olson, Hilda, 2301 W. 7th St.  
 Selhorn, Bertha, 5 E. 3rd St.  
 Semmer, A., 96 Cedar Lake Road, Minne-  
 apolis  
 Simon, Clara E., 1065 Van Slyke Av.  
 Sister Hyacinthe A. O'Brien, College of  
 St. Scholastica  
 Sister Leonissa M. Sauber, College of St.  
 Scholastica  
 Sister Rose O'Donnell, College of St.  
 Scholastica  
 Sister M. Athanasius Braegelman, College  
 of St. Scholastica  
 Sister M. Basilius Coleman, College of St.  
 Scholastica  
 Sister M. Bridget McCarthy, College of  
 St. Scholastica  
 Sister M. Chrysostom Doran, College of  
 St. Scholastica  
 Sister M. Prudentia Morin, College of St.  
 Scholastica  
 Smith, Francis E., 7 Munger Terrace  
 Soderburg, Sophia M., 1801 E. 3rd St.  
 Stone, Webster H., Box 33, West Duluth  
 Station

Strate, Johanna, 3 Munger Terrace  
 Strom, Christine, 124 10th Av. E.  
 Sullivan, Henry J., 518 N. 48th Av. W.

Sund, Joseph A., 915 E. 7th St.  
 Thomson, Eleanor M., 416 N. 18th Av. E.  
 Todd, Jessie M., 820 E. 5th St.

## ST. CLOUD

Ahlers, Harriet, 394 2nd Av. S.  
 Bemis, Clifford O., Ashby Minn. (St.  
 Cloud Normal)  
 Clarke, Charlotte E., 356 3rd Av. S.  
 Curry, Mary B., 1003 5th Av. S.  
 Douglas, Beulah, 227 7th St. S.  
 Henderson, Mabel, 810 5th Av. S.  
 Holmberg, Anna T., Lincoln School  
 Hurch, Charles A., State Reformatory  
 Knudson, Charlotte M., 810 5th Av. S.  
 Milton, William F., State Reformatory

Mitchell, Eleanor  
 Muckley, Rose  
 Oliver, Myrtle T.  
 Peake, Miss Gilna J., 206 W. Elm St.,  
 Stillwater  
 Smith, Inez M., 324 3rd Av. S.  
 Smith, Stella, Box B.  
 Sonju, Bertha, Farrabe Block  
 Tschumperlin, Anna C., 603 6th Av. S.  
 Walter, William W., 1918 Sherman Av.,  
 Evanston, Ill.

## DEPARTMENT OF BUSINESS INSTRUCTION

## MINNEAPOLIS

Adsem, John, 3412 16th Av. S.  
 Ainsworth, L. F., 1609 Linden Av.  
 Alberg, Albert, 824 27th Av. N.E.  
 Alvord, S. W., 4013 Sheridan Av. S.  
 Anderson, Frederick A., 613 15th Av. S.E.  
 Anderson, George E., 3304 Nicollet Av.  
 Anderson, Paul R., 826 20th Av. N.E.  
 Anderson, W. L., 3022 Irving Av. N.  
 Arth, Frank J., 836 E. 3rd St.  
 Ashcroft, F., 3320 Aldrich Av. S.  
 Asselin, Raymond A., 3441 Aldrich Av. S.  
 Badger, Lester R., 1900 Girard Av. S.  
 Barnard, Bessie, 3045 Bryant Av. S.  
 Bates, Curtis, 3041 Irving Av. S.  
 Bayley, C. S., 211 E. 34th St.  
 Bennett, William, 91 N. 17th St.  
 Berg, M. G., 99 Mt. Airy St. St. Paul.  
 Berner, Thorval E., 2915 Taylor St. N.E.  
 Bernstein, A. E., 1832 Irving Av. N.  
 Berry, Harry E., 3536 N. Upton Av.  
 Bintner, Joseph J., 324 University Av.  
 N.E.  
 Bjerke, W. M., 2055 8th St. S.  
 Bjork, Emil E., 1000 24th Av. N.E.  
 Blackburn, Earl J., 3336 Lyndale Av. S.  
 Blackman, H. E., 3824 Pleasant Av.  
 Blair, Raymond E., 324 E. 38th St.  
 Blum, Edward M., 430 4th St. N. E.  
 Blustin, Morton E., 824 11th Av. North  
 Boes, Joseph W., 912 4th St. N.E.  
 Bogt, J. E., 4001 Queen Av. S.  
 Bolduc, Albert T., 2112 2nd St. N.  
 Borman, I. O., 3115 Portland Av.  
 Bostad, O. H., 1839 Emerson Av. N.  
 Bothum, John A., 1300 Linden Av.  
 Bowen, J. G., 1015 1st Av. S.  
 Bowman, H. V., 3122 Morgan Av. N.

Brackey, Carl N., 707 E. 14th S.  
 Brancheau, Bert C., 1801 Irving Av. N.  
 Brandt, L. Basil, 116 W. Grant St.  
 Braunstein, Harry A., 403 Lyndale Av. N.  
 Breitschopf, John L., 381 Fuller Av., St.  
 Paul  
 Brenna, Leonard N., 120 E. 35th St.  
 Brewer, Royal L., 3127 4th Av. S.  
 Brick, Paul, 4315 Harriet Av.  
 Briese, Reinhold R., Y. M. C. A.  
 Brihart, Paul W., 1820 Carroll Av., St.  
 Paul  
 Browne, Ernest H., 2701 Elliot Av.  
 Browne, Jack W., 714 E. 17th St.  
 Buck, L. G., 4122 Wentworth Av.  
 Budde, Walter M.  
 Brittin, Lewis H., Hampshire Arms  
 Cahn, Robert R., 3825 Stevens Av.  
 Calvin, Carl A., 1306 7th St. S.  
 Campbell, Clarence E., 2721 Girard Av. S.  
 Carlbon, Arvid, 3319 14th Av. S.  
 Carleson, Basil N., 1920 Crystal Lake Av.  
 Carlson, A. R., 3 West 25th St.  
 Carlson, C. A., 2238 Buchanan St. N.E.  
 Carlson, Clarence W., 54 Eastman Av.  
 Carlson, George H., 2810 1st Av. S.  
 Carlson, Joseph E., 93 Spruce Place  
 Carr, Geo. A. J., 2620 Cedar Av. S.  
 Carr, Pat. H., 64 7th Av. N.E.  
 Cary, Walter E., 709 W. 35th St.  
 Catlin, Dudley B., 2645 Quincyfield Av. S.  
 Chailquist, F. R., 1845 Quincy St., N.E.  
 Chaney, Clarence R., 4908 Colfax Av. S.  
 Chapo, Marie, 52 S. 10th St.  
 Charles, J. K., 66 S. 12th St.  
 Christianson, Hilmar B. O., 2211 22nd  
 Av. S.

- Chilstrom, John A., 2841 Lake of Isles Blvd.  
 Chute, Robert W., 1910 Colfax Av. S.  
 Clark, Richard 2826 1st Av. S.  
 Clark, Ross R., 3341 Hennepin Av.  
 Class, George, 3719 Park Av.  
 Clausen, L. A., 2725 Elliot Av.  
 Cole, Charles W., 1018 4th St. S.E.  
 Cole, Roger I., 1427 Bryant Av. N.  
 Cooper, Walter W., 629 12th Av. S.E.  
 Core, Harold C., 3729 1st Av. S.  
 Cottor, Emil F., 193 Iglehart Av., St. Paul  
 Covell, Gladys M., 2809 Girard Av. S.  
 Crossland, Jr., Wm. H., 5018 43rd Av. S.  
 Cunningham, Thomas E., 2108 16th Av. S.  
 Curran, Clara, 106 Willow St.  
 Dahl, James A., 713 23rd Av. S.  
 Dahlstrom, Henry F., 309 S. 8th St.  
 Dale, Emil M., Care W. S. Nott Co., Mound, Minn.  
 Danforth, M. L., 3110 Fremont Av. S.  
 Danielson, A. W., 1910 Feronia Av., St. Paul  
 Danielson, C. T., 1715 Elliott Av.  
 Davenport, Lawrence, 3312 S. Bryant Av.  
 Davis, Charles A., 114 S. 8th St.  
 Day, George E., 1410 4th Av. S.  
 Dedon, W. L., 938 Cromwell Av., St. Paul  
 De Forrest, I. Lauretta, 1202 Plymouth Av.  
 Dempsey, J. H., 815 4th Av. S.  
 Denickson, Anthony B., 715 20th Av. S.  
 Dennis, D. W., Hastings Hotel  
 De St. Croix, Lawrence, 223 W. 39th St.  
 Dessert, Raymond B., 1045 23rd Av. S.E.  
 Devereux, Margaret, 1004 19th Av. S.E.  
 Dietrich, Arthur E., 1328 Vine Place  
 Dixon, H. S., 3406 Penn Av. N.  
 Dodgson, J. S., 3114 Oakland Av.  
 Duff, C. S., 2516 Hennepin Av.  
 Dunnigan, Thos. J., 4605 Blaisdell Av. S.  
 Elg, Fred A., 2702 University Av. S.E.  
 Ellertson, Carl H., 417 Oak St. S.E.  
 Ellertson, E. J., 5 Barton Av. S.E.  
 Ellertson, Selmer F., 417 Oak St. S.E.  
 Elliott, A. N., 1042 19th Av. S.E.  
 Ellis, George E., 4757 Bryant Av. S.  
 Fabian, John H., 3104 Lyndale Av. S.  
 Felt, Harold P., 2122 E. 22nd St.  
 Ferguson, George A., 3451 Oliver Av. N.  
 Fischer, Robert M., 2115 Harriet Av.  
 Fitzsimmons, S. J., 128 E. 18th St.  
 Flingstrom, Ernest, 245 21st Av. S.E.  
 Foley, Frances J., 311 7th Av. S.E.  
 Foster, Kent, 3022 Grand Av.  
 Franceshina, M. R., 42 S. 13th St.  
 Fraser, Norman D., 2317 Humboldt Av. S.  
 Freeman, Theodore W., 20 E. Elmwood Place  
 Fredlund, Paul, 909 21st Av. S.  
 Fuller, W. C., 1437 Van Buren St. N.E.  
 Galvin, Eugene F., 621 2nd St. N.E.  
 Gaus, Ernest G., 1441 W. Lake St.  
 Gemlo, James, 1814 Johnson St. N.E.  
 George, Herbert N., 625 E. 32nd St.  
 Gerrish, F. Earl, Hopkins, R. No. 2.  
 Ghose, Nagendranath, Curtis Court  
 Goldfus, Samuel, 511 N. Irving Av.  
 Graus, W. C., 315 10th Av. S.E.  
 Greiner, Morris E., 911 7th Av. S.  
 Grodnik, Hela Ray, 1011 Bryant Av. N.  
 Gruber, Jr., Jeffrey, 2349 Commonwealth Av., St. Paul  
 Gurney, E. A., 1211 25th Av. N.  
 Gustafson, Victoria E., 1311 Chestnut Av.  
 Gustafson, Walter, 3203 34th Av. S.  
 Hadley, Joseph A., 1232 5th St. N.E.  
 Hagen, Seward L., 3326 Columbus Av.  
 Hammond, Walter, 533 Knox Av. N.  
 Hannon, J. Emmett, 2542 Clinton Av.  
 Hanson, Anton G., 3225 30th Av. S.  
 Hanson, Forest E., 1510 E. 23rd St.  
 Hanson, Fred C., 899 Charles St., St. Paul  
 Hanson, George E., 4933 Pleasant Av. S.  
 Hasselberg, Ragnar F., 1105 Fillmore St. N.E.  
 Hauge, Arthur W., 4056 10th Av. S.  
 Hazen, F. S., 374 Wheeler St., St. Paul  
 Hedin, Oscar C., 1330 Johnston St. N.E.  
 Hedlund, Martin E., 204 Cecil St. S.E.  
 Herrick, Elmer E., 683 Simpson St., St. Paul  
 Hessburg, James P., 2603 17th Av. S.  
 Hillgren, H. A., 3342 Oakland Av.  
 Himmelman, H., 9 Central Av.  
 Hobart, Wallace A., 3738 Penn Av. N.  
 Hokenson, S. J., 709 9th St. S.  
 Holt, Clara E., 820 9th Av. S.E.  
 Houle, Henry J., 4330 Minnehaha Av.  
 Houston, Jr., G. Sidney, 3105 Girard Av. S.  
 Hughes, C. F., 114 E. 17th St.  
 Hughes, Ellis J., 2937 Bloomington Av.  
 Hutson, Erwin E., 1523 Washington St., N.E.  
 Jaroscak, Jack P., 2315 2nd St. N.E.  
 Jensen, Carl J., 680 Asbury Av., St. Paul  
 Jensen, Guy T., 607 University Av. S.E.  
 Jespersen, Arthur, 3215 Blaisdell Av.  
 Johanson, Arnold H., 1107 Plymouth Av. N.  
 Johnson, Ansel R. H., 2325 Fremont Av. S.  
 Johnson, Clarence H., 3512 Pillsbury Av.  
 Johnson, Clarence M., 1338 Knox Av. N.  
 Johnson, Evan M., 1335 Oliver Av. N.  
 Johnson, Frank, 4053 Snelling Av.  
 Johnson, Fred A., 2906 University Av. S.E.  
 Johnson, Frederick B., 3041 Oakland Av.

- Johnson, J. H., 4039 Queen Av. S.  
 Johnson, Leander, 64 S. 11th St.  
 Johnson, Lillian P., 2911 N. Lyndale  
 Johnson, Roy G., 2108 Chicago Av.  
 Johnson, Simon, 2614 Hayes St. N. E.  
 Johnson, W. N., 1929 Newton Av. N.  
 Johnston, F. E., 2111 Dupont Av. N.  
 Jones, Davis G., 1644 Hennepin Av.  
 Jones, William R., 3540 Minnehaha Av.  
 Kacher, Albert C., 722 Superior St., S.E.  
 Karl, C. L., 2943 Queen Av. N.  
 Keegan, Edward F., 742 Adams St. N.E.  
 Kellberg, E. H., 136 E. 17th St.  
 Kelly, T. H., 723 2nd St. N.E.  
 Kennedy, George M., 321 Nelson Av., St. Paul  
 Kennedy, T. F., 104 Garfield Av., St. Paul  
 Kerker, Thomas, 1250 Capitol Av., St. Paul  
 King, Samuel E., 2912 Fremont Av. N.  
 Klingensmith, Walter, 2143 St. Anthony Av., St. Paul  
 Knutson, Harry M., 1991 Marshall Av., St. Paul  
 Koch, C. C., 3317 2nd Av. S.  
 Koehl, Lester E., 2000 Emerson Av. S.  
 Kolb, John, 1402 N. Fremont Av.  
 Kraffe, John, 2107 Willow Av. N.  
 Kranhold, H. E., 913 Sherburne Av.  
 Krone, Fred O., 1422 Logan Av. N.  
 Kuehn, Henry E., 1831 Irving Av. N.  
 Ladd, Stephen C., Hampshire Arms  
 Lange, Irving A., 3610 Dupont Av. N.  
 Larsen, Milan M., 1019 13th Av. S.  
 Larson, A. J., 1609 Lincoln St. N.E.  
 Larson, H. J., 3248 Grand Av.  
 Lebeck, Roy C., 1319 Adams St. N.E.  
 Lebeis, Clara F., 1520 Plymouth Av. N.  
 Lee, Edward G., 1560 Laurel Av.  
 Lee, John K., 22 Oak Grove St.  
 Lee, Reynold, 2018 25th Av. S.  
 Leighton, Emmet, G., 2645 15th Av. S.  
 Lemke, F. J., 911 Fuller Av., St. Paul  
 Lennon, Arve B., 2924 12th Av. S.  
 Leonard, Clarence E., 1315 Aldrich Av. N.  
 Letcher, Albert, 3400 18th Av. S.  
 Lewis, E. C., 1493 Lincoln Av., St. Paul  
 Lilligren, H. M., 734 Pierce St. N.E.  
 Lineburg, George F., 1213 17th Av. N.  
 Linstroth, Clarence C., 4340 S. Aldrich  
 Little, Wirt F., 1 E. 34th St.  
 Livingstone, R. A., 2600 Fremont Av. S.  
 Loberg, James M., 423 9th St. S.  
 Long, Fred E., 1045 16th Av. S.E.  
 Long, James E., 408 2nd St. N.E.  
 Longworth, H. A., 3231 14th Av. S.  
 Lorberbaum, Max, 1513 E. 18th St.  
 Lundberg, H. C., 1230 James Av. N.  
 Lundell, Leon N., 707 Penn Av. N.  
 Lundin, H. W., 2916 18th Av. S.  
 Lyle, Floyd, 707 8th Av. S.E.  
 Lyness, Ida, Fessenden, North Dakota  
 Lyness, Marion E., Fessenden, North Dakota  
 Lyon, C. R., 32 N. 11th St.  
 McCartin, Aaron J., 440 University Av. N.E.  
 McCourtie, S. R., 4905 30th Av. S.  
 McCuaig, Gordon H., 1624 W. 26th St.  
 McDonagh, W. C., 3342 W. 32nd St.  
 McDowell, J. C., 2429 Nicollet Av.  
 McHenry, J. A., 1820 Stevens Av.  
 McHenry, Robt. D., 711 8th Av. S.E.  
 McKenna, John J., 18 N. 13th St.  
 McKercher, J. C., 915 Essex St. S.E.  
 McMartin, Harry R., 3355 Calhoun Blvd.  
 Maas, H. H., Robbinsdale  
 Mains, T. M., 3805 10th Av. S.  
 Manley, B. E., 428 8th St. S.  
 Marth, Anne, 3821 Pillsbury Av.  
 Matson, C. W., 4147 Garfield Av.  
 Matthews, A. G., 914 W. Lake St.  
 Meder, H. P., 1418 Girard Av. N.  
 Mehlen, Gus, 2613 13th Av. S.  
 Melville, Earl Wm., 127 E. Grant St.  
 Mendow, Hymen, Z., 921 14th Av. S.  
 Merrill, Ethel, Ingleside Apts.  
 Meyers, Melie G., 2101 Girard Av. S.  
 Miller, Fred K., 2421 11th Av. S.  
 Montgomery, G. E., 2509 Clinton Av.  
 Moores, Mabel E., 1913 Clinton Av.  
 Morrill, Andrew, 3303 Garfield Av. S.  
 Morris, A. B. (Miss), Friedman Court  
 Morrison, Arthur D., 2401 Harriet Av.  
 Mosher, Leon H., 5700 Pillsbury Av.  
 Murray, Leo P., 2918 Taylor St. N.E.  
 Nalezny, Joseph F., 347 Polk St., N.E.  
 Nelson, Arthur, 1406 Madison St.  
 Neudeck, Wm. E., 1934 Lincoln St. N.E.  
 Newcomb, Glenn F., 605 E. 17th St.  
 Nickerson, C. E., 1704 Brooks Av. S.E.  
 Nimerfroh, G. B., 1100 20th Av. N.  
 Nolan, Thomas H., 1704 1st Av. S.  
 Novack, James G., 3555 Queen Av. N.  
 Noyes, C. A., 436 Stryker Av., St. Paul  
 Noyes, Wilbur J., 2617 S. Lyndale Av.  
 Nyman, Martin W., 4115 Park Av.  
 Obara, Shiro, 629 3rd Av. S.  
 Oberg, Ezra N., 2106 29th Av. S.  
 O'Brien, Frank C., 806 15th Av. S.  
 O'Connell, John F., 906 N.E. 4th St.  
 O'Dette, Archibald V., 904 15th Av. S.  
 Olson, Anna, 1501 10th Av. S.  
 Olson, E. A., 3205 Bloomington Av. S.  
 Olson, Elmer J., 1300 Linden Av.  
 Olson, Floyd J., 4350 Harriet Av.  
 Olson, John W., 3205 Bloomington Av.  
 Olson, Orde C., 1253 LaFond St., St. Paul.  
 Olson, Paul, 509 S. 3rd St.  
 Oman, Carl J., 513 16th Av. S.

- Ortley, Arthur R.  
 Ostrom, A. L., 639 Elwood Av. N.  
 Ostrom, Waldemar A., 639 Elwood Av. N.  
 Oustad, Olaf, 3303 18th Av. S.  
 Paavola, George P., 103 Spruce Place  
 Palfy, Louis E., 1817 Washington Av. S.  
 Palmer, R. P., 2007 Aldrich Av. S.  
 Parker, Donald G., 2439 Bryant Av. S.  
 Parsons, H. A., 3100 Dupont Av. N.  
 Patterson, A. C., 42 S. 13th St.  
 Pehousek, James, 639 Erie St. S.E.  
 Pierce, Charles A., 4225 4th St. N.  
 Penningroth, W. J., 3020 Holmes Av. S.  
 Perry, Howard M., 2945 Pleasant Av.  
 Peterson, Arthur C., 3208 N. 3rd St.  
 Peterson, Axel M., 411 Forest St., St. Paul.  
 Peterson, Clarence A., 3905 5th Av. S.  
 Peterson, Ernest G., 2611 N. Emerson Av.  
 Peterson, Edwin J., 2421 10th Av. S.  
 Peterson, George R., 1801 15th Av. S.  
 Peterson, Helge A., 4220 31st Av. S.  
 Peterson, R. F., 1401 15th Av. N.  
 Phillips, Parry, 2036 Upton Av. S.  
 Piemeisel, Rudolph A., 1701 Park Av.  
 Pollard, George H., 1710 Fremont Av. N.  
 Preston, Earl R., 1507 N. Dupont Av.  
 Prisch, H. W., 4428 Beard Av. S.  
 Pritchard, Hugh, 4509 Ewing Av.  
 Purdham, Plummer, 4000 Lyndale Av. N.  
 Rast, Leonard, 2221 Portland Av.  
 Redding, E. J., N. W. National Bank  
 Reed, George J., 3121 Aldrich Av. S.  
 Reid, Frank A., 1709 Irving Av. S.  
 Richard, H. H., 529 Y. M. C. A., St. Paul  
 Richardson, R. W., 4410 W. Lake Harriet  
 Bldg.  
 Riedel, John P., 403 Broadway N.E.  
 Riecki, August, 2000 Park Av.  
 Ring, Gertrude, 819 2nd Av. S.  
 Rittenhouse, Theo. H., 2801 3rd St. N.  
 Roberts, Thomas C., 2303 Pleasant Av.  
 Rose, Carroll H., 923 13th Av. S.  
 Rose, J. L., 1311 Yale Place  
 Rose, Le Roy V., 3800 Portland Av.  
 Rosing, C. L., 1915 Willow Av. N.  
 Rotering, Victor, 122 W. Grant St.  
 Rowe, Ina B., 2116 Como Av. W., St. Paul  
 Royse, H. S., 4015 Pleasant Av.  
 Rudeen, Elmer, 2925 Lyndale N.  
 Russell, Roy E., 3644 Portland Av.  
 Rydell, Edmund T., 2114 N. Dupont Av.  
 Sandahl, Harold E., 3844 Elliot Av.  
 Sandy, Alan F., 2112 Dupont Av. S.  
 Sargent, W. D., 2447 Aldrich Av. S.  
 Sawyer, Fred W., 25 Clarence Av. S.E.  
 Schlamp, Edward A., 1622 Girard Av. N.  
 Schmal, G. P., 3024 James Av. S.  
 Schmidt, Raymond O., 3805 Stevens Av.  
 Schwach, Alois  
 Schwartz, Alfred B., 828 N. 12th Av.  
 Schwartz, S., 51 Royalston Av. N.  
 Score, Albert H., 3315 N. Russel Av.  
 SeEVERS, Sig. G., 2613 Colfax Av. N.  
 Seidel, Walter, 515 8th St. S.E.  
 Senn, Arthur H., 1822 10th Av. S.  
 Shannon, Thomas J., care of Edwin J.  
 Bishop, Globe Bldg., St. Paul  
 Shattuck, Irwin E., 4226 Crocker Av.  
 Shay, Harry J., 1674 Hennepin Av.  
 Sidletsky, J., 211 E. 14th St.  
 Sinclair, Lucien D., 7 Barton Av. S.E.  
 Skinner, F. T., 1725 University Av. S.E.  
 Simerman, George A., 2068 Carroll St.,  
 St. Paul  
 Smith, A. W., 4050 Wentworth Av.  
 Smith, Arthur P., 4327 Lyndale Av. S.  
 Smith, Arthur V., 3221 2nd Av. S.  
 Smith, Fred H., 4050 Wentworth Av.  
 Smith, John W., 3045 Portland Av.  
 Smith, W. H., 2181 Queen Av. N.  
 Snyder, Leslie, 600 11th Av. S.E.  
 Sombke, O. H., 1397 Van Buren St. N.E.  
 Sower, M. G., 515 S. 9th St.  
 Spaeth, Wesley W., 1563 Ashland Av.  
 Spargue, Robert S., 3208 Logan Av. N.  
 Stacy, Harlan G., Maryland Hotel  
 Starkey, Val P., 21 N. 15th St.  
 Stebbins, Robert S., 3119 Clinton Av.  
 Steele, Cecil C., 1114 14th Av. N.  
 Steller, Adolph W., 1337 Morgan Av. N.  
 Steller, Carl C., 1337 Morgan Av. N.  
 Stensrud, Nicolas, 411 Walnut St.  
 Stephens, R. P., 920 8th Av. S.  
 Stiles, Lawrence H., 828 University Av.  
 S.E.  
 Stone, Allen, 127 W. 26th St.  
 Story, Harlan G., Maryland Hotel  
 Stratton, Margaret, 3636 Pleasant Av.  
 Sullivan, Daniel, 2721 Blooming Av.  
 Sutherland, James F., 1819 Dupont Av. S.  
 Swanson, E. Leonard, 813 Lowry Av. N.E.  
 Swanson, Reuben W., 4230 Nicollet Av.  
 Swenson, Manne S., 1934 Crystal Lake Av.  
 Swenson, Marcus M., 3440 33rd Av. S.  
 Swett, L. R., 3220 Clinton Av.  
 Taraldson, H. W., 124 W. Grant St.  
 Taylor, Charles P., 2810 W. 42nd St.  
 Taylor, Paul S., 2628 5th Av. S.  
 Thies, Roy., 1222 Jefferson St. N.E.  
 Thomas, William D., 900 8th Av. S.  
 Thompson, Harry E., 3007 Fremont Av. N.  
 Thompson, Roy C., 5637 Pillsbury Av.  
 Thomson, Alexander, 1517 Chestnut Av.  
 Thrall, Ralph A., 2729 Fremont Av. N.  
 Tilleson, Claude A., 3037 Calhoun Blvd.  
 Towle, R. E., 16 Oak Grove St.  
 Towne, Fred W., 2620 S. Dupont Av.  
 Vanstrum, Paul A., 1818 10th Av. S.  
 Velin, Hjalmer, 1712 5th Av. N.  
 Volding, Myron J., 3020 Holmes Av.

Wagner, Archibald, 1712 Dupont Av. S.  
 Wallin, Chas. W., 3218 Dupont Av. N.  
 Walton, Florence, 313 15th Av. S.E.  
 Warner, Harold L., 3030 W. Calhoun  
 Blvd.  
 Webb, Hobart, Y. M. C. A.  
 Webber, Anthony O., 604 Marshall St.  
 N.E.  
 Weingart, Alexander, 3346 Emerson Av. N.  
 Weisenberger, Albert, 1011 8th St. S.E.  
 Welliner, L. R., 1315 N. Irving Av.  
 Weston, C. D., 1727 Vine Place  
 Westerman, Walter, 2936 Dupont Av. S.  
 Westrand, Edwin R., 3026 Fremont Av. N.  
 Wickstram, Peter E., 2432 30th Av. S.  
 Wilkinson, C. P., 915 N. Y. Life Bldg.  
 Wikeen, Oscar A., 2891 James Av. S.  
 Will, Fred L., 108 E. 19th St.  
 Wilson, Alfred E., 518 4th St. N.E.

Wilson, Alonzo W., 315 10th Av. S.E.  
 Wilson, James G., 3244 3rd Av. S.  
 Wilson, Ronald K., 2014 W. 21st St.  
 Wing, Llewellyn, 3208 Pillsbury Av.  
 Winslow, A. E., 2309 Grand N.E.  
 Witt, Geo. P., 3019 N. Morgan Av.  
 Wood, Geo. B., 3144 Clinton Av.  
 Woodruff, R. A., 3145 Clinton Av.  
 Woolley, John H., 1701 Bryant Av. N.  
 Wren, Richard, 353 Broadway  
 Yates, Raymond, 3906 Thomas Av. S.  
 Young, H. T., 106 Spruce Place  
 Youngquist, Dewey, 3028 Stevens Av.  
 Zehrfeld, Mello E., 30 Grove St.  
 Zickert, L. R., 2803 Emerson Av. N.  
 Zikan, Joseph W., 476 Herschel Av., St.  
 Paul  
 Zimmerman, John P., 3014 15th Av. S.  
 Zinne, Charles F., 3700 Girard Av. N.

## ST. PAUL

Anderson, R. W., 652 Thomas St.  
 Anderson, W. L., 357 Hope St.  
 Armbruster, E. J., 726 Hudson Av.  
 Arth, Clarence J., 836 East 3rd St.  
 Baker, Valdine, 829 Portland Av.  
 Benson, J. R., 751 Fauquier St.  
 Bernstein, C. W., 301 Pleasant Ave.  
 Bialozynski, John, 1009 E. Magnolia St.  
 Blasser, Max, 197 E. 14th St.  
 Boberg, W. E., 725 E. California St.  
 Bossart, H. A., 1779 Ashland Av.  
 Bovard, Jr., James H., 239 Aurora Av.  
 Brillhart, Paul W., 1820 Carroll Av.  
 Buetow, Herbert P., 733 Charles St.  
 Cameron, E. M., 391 North St. Albans St.  
 Carroll, Charles P., 61 West Delos St.  
 Christ, Rubert W., 894 E. 3rd St.  
 Corcoran, John J., 1316 4th St. S.E.,  
 Minneapolis  
 Cottor, Emil F., 193 Iglehart Av.  
 Danielson, A. W., 1910 Feronia Av.  
 Dumaran, C. W., 670 Laurel Av.  
 Eardley, W. C., 680 South Smith St.  
 Ellis, Harris, 1223 Hawthorne Av., Mpls.  
 Elmquist, Nan C., 356 Pleasant Av.  
 Engle, M. E., 710 Selby Av.  
 Esch, Otto, 974 E. Minnehaha St.  
 Fischer, Anna M., 673 S. Robert St.  
 Flesher, Benjamin H., 357 Maria Av.  
 Gadacz, Stanley J., 15 W. George St.  
 George, Charles W., 17 W. Summit Av.  
 Gilbert, M. K., 1519 Como Av. S.E., Mpls.  
 Goldberg, Stanley, 923 Linwood  
 Goodson, Curtis C., 753 Carroll Av.  
 Gothe, Oscar E., 655 Case St.  
 Greggs, Calvin W., 365 Summit Av.  
 Gruber, Jeffrey, 2349 Commonwealth Av.

Harris, Chas. S., 270 Kent St.  
 Harris, Ellis, 668 St. Peter St.  
 Harrison, Luther B., White Bear Lake  
 Hart, Milton, 1174 E. Minnehaha St.  
 Hartman, C. N., 653 Elfert  
 Haselbeck, H., 733 E. Jessamine St.  
 Hickey, M. J., 153 St. Anthony Av.  
 Ivey, Thomas L., 1386 Selby Av.  
 Johnson, A. J., 19 E. College  
 Johnson, Herbert, 790 Sherburne Av.  
 Johnson, Roy I., 937 Watson Av.  
 Kain, R. J., 2077 Marshall Av.  
 Kennedy, Thomas F., 104 Garfield Av.  
 Kennedy, W. W., 1247 Edmund St.  
 Keppers, Wm. M., 889 Arcade St.  
 Klima, Etta, 346 Von Minden  
 Kotilinek, James L., 119 Iglehart Av.  
 Kulp, Delmar E., 29 Garfield Av.  
 Larson, Edward J., 122 W. Arch St.  
 Lawler, Cass, 561 Laurel Av.  
 Linnerooth, Sidney, 802 Margaret St.  
 McLane, J. J., 916 Aurora St.  
 McLeod, Malcolm, 634 Iglehart Ave.  
 McSimons, Ira J., 241 Sherman Av.  
 Mahoney, Frances, 975 East 6th St.  
 Matchett, Henry, 1416 Capitol Av.  
 Melamed, Maurice L., 222 E. Fairfield Av.  
 Meyer, Melville, 1090 Reaney St.  
 Miller, Herbert M., 982 Hastings Av.  
 Miller, Hilda, 84 W. Lawson St.  
 Miller, Lydia P., 330 Capitol Bldg.  
 Mingaye, H. T., 761 Osceola Av.  
 Muchenhirn, John C., 540 St. Anthony Av.  
 Mulkern, Gertrude, 763 Sherburne Av.  
 Naughton, Wm. T., 205 Goodrich Av.  
 Nyberg, Gustave, 1017 Kilburn  
 Oberg, Stafford L., 710 Rose St.

O'Brien, Helen, 255 W. George St.  
 Olson, Orde C., 1253 La Fond St.  
 Ortman, Anna B., 1153 Abell St.  
 Peterson, Paul B., 357 Hope St.  
 Price, Edward, 254 Sidney St.  
 Quinn, Thomas L., 114 Amherst  
 Reimers, Wm. J., 739 Sims St.  
 Roether, Ernest A., 823 East 3rd St.  
 Rossman, John Geo., 5 Como Av.  
 Rudeen, F. J., 1660 Dayton Av.  
 Rush, Alice G., 962 S. Robert St.  
 Sansen, G. M., 856 Fremont St.  
 Seabern, Clifford P., 1557 Grand Av.  
 Schaffelke, Henry A., 500 Bellows Av.  
 Schiffer, Meyer, 615 Ashland Av.  
 Schilling, Paul A., 879 Thomas St.

Scholtz, Henry C., 390 Dayton Av.  
 Schulz, H. T., 927 Hastings Av.  
 Shaeth, Oliver W., 1563 Ashland Av.  
 Shannon, Joseph, 286 N. Milton St.  
 Sidletsky, J., 211 E. 14th St.  
 Smith, Stanley J., 233 Smith Av.  
 Spaeth, O. W., 1563 Ashland Av.  
 Spaeth, W. U., 1563 Ashland Av.  
 Sweeney, George P., 523 Laurel Av.  
 Temple, M., 891 Fairmont Av.  
 Thorsen, O. M., 1008 Lexington Av.  
 Tolson, Edgar, 856 Albemarle St.  
 Vetter, George H., 63 Tilton St.  
 Voelker, Katherine, 354 Fuller Av.  
 Warren, Vera, 662 Sherburn Av.  
 Wick, S. W., 1458 Charles St.

## DULUTH

Arneson, Anker E., 101 E. 5th St.  
 Belleperche, A. J., 1901 E. 5th St.  
 Beschenbossel, Carl C., 415 E. 4th St.  
 Bethune, A. J., 481 Mesaba Av.  
 Brown, Colin F., 316 S. 16th Av. E.  
 Brude, Arthur C., Y. M. C. A.  
 Busselman, J. A., 24 4th Av. E.  
 Carlson, C. A., 212 N. 22nd Av. W.  
 Chisholm, J. A., 513 1st Av. W.  
 Currie, John A., 428 W. 4th St.  
 De Vohn, A. R., 2310 W. 3rd St.  
 Fisher, Sherwood S., 325 E. 5th St.  
 Flynn, E. L., 1009 E. 3rd St.  
 Franseen, Carl G., 712 1st Av. E.  
 Fredin, David H., 901 E. 6th St.  
 Frykdahl, Carl E. H., 1027 E. 2nd St.  
 Goss, Leander M., 221½ Devonshire St.  
 Grochau, Ernest R., 3101 Minnesota Av.  
 Gross, Geo. L., 514 11th Av. E.  
 Haig, William F., 2021 E. 4th St.  
 Hanson, Jarl W., 2721 W. Helm St.  
 Johnston, Arthur J., 329 E. Superior St.  
 Karon, Abe, 20 E. 2nd St.

Kent, A. R., 4 Munger Terrace  
 Killam, John W., 110 Laurie St.  
 Krantz, Clemens, 706 56th W. St.  
 Laskowski, Frank S., 2918 W. Huron St.  
 Leonard, W. T., Y. M. C. A.  
 Lundstrom, Roy, 119 32nd Av. W.  
 Marjamaa, Jafet, 1617 London Road  
 Meakin, James, 1412 E. 3rd St.  
 Moeller, John, 2628 W. 3rd St.  
 Moore, Philip R., 418 15th Av. E.  
 Mostue, Erling, 214 Osakis St.  
 Murray, D. S., 2028 E. Superior St.  
 Olson, Charles, 2625 W. 1st St.  
 Olson, M. J., 431 N. 23rd Av. W.  
 Olsons, A. J., 516 N. 2nd Av. W.  
 Pattinson, Chauncy R., 1218 E. 5th St.  
 Peterson, Arthur C., 320 E. 3rd St.  
 Pyfer, George A., 118 7th Av. E.  
 Roper, Cyril J., 418 E. 6th St.  
 Rufard, George, 4711 Pitt St.  
 Staky, Carl E., 5817 W. 8th St.  
 Wagner, A. E., 709 8th Av. E.

## AUSTIN

Albertson, O. S. Dr.  
 Anderson, Rollin C.  
 Banfield, E. C.  
 Bennett, W. P.  
 Dalager, Clarence  
 Drost, Henry J.  
 Dugan, M. F.

Edson, F. H.  
 Fenton, Harold R.  
 Fox, Irwin D.  
 Hardy, Milton J.  
 Mann, Joseph W.  
 Wilbour, Frank C.

## DEPARTMENT OF ENGINEERING INSTRUCTION

## MINNEAPOLIS

Ainsworth, Earl R., 1112 Dartmouth Av.  
 S.E.  
 Alton, Albert R., 402 2nd Av. S.E.

Anderson, G. Alfred, 1057 18th Av. S.E.  
 Arness, Olaf J., 527 10th St. S.  
 Asen, Walter, 3524 17th Av. S.



- Badowe, A. D., 3105 Colfax Av. S.  
 Banville, Oscar H. 67 West Island Av.  
 Baptiste, Noel, 1710 19th St. E.  
 Barber, F. W., 1472 Raymond Av., St. Paul  
 Bartel, Erwin G., 1285 James St., St. Paul  
 Blade, J. Robt., 3318 E. 26th St.  
 Bratberg, Anton, 501 8th St. S.  
 Brunberg, Alex E., 2009 4th Av. S.  
 Burns, John L., 3346 3rd Av. S.  
 Burns, William, 2631 16th Av. S.  
 Carlson, John F., 1238 Newton Av. N.  
 Chance, H. C., 3825 Elliot Av.  
 Cochrane, H. H., 1732 Clifton Place  
 Cory, Harry H., 2601 3rd Av. S.  
 Corwin, J. R., 1674 St. Anthony Av.  
 Crowl, Frank L., 3545 Blaisdell Av.  
 Cruttenden, Charles, 618 15th Av. S.E.  
 Dahlstrom, G., 829 Thornton St., S.E.  
 Delling, Torvald, 3017 6th St. N.  
 Dobbs, Loyal D., 2116 Como Ave., S.E.  
 Eddy, John A., 3839 Elliot Av.  
 Eggen, Oscar E., 872 18th Av. S.E.  
 Eklund, H., 2210 5½ St. S.  
 Ellerbe, Thos. Farr, 117 Mackubin St., St. Paul.  
 Engquist, Victor E., 731 York St., St. Paul  
 Enzler, Carl A., 316 Monroe St. N.E.  
 Erstad, Andrew, 1029 4th St., S.E.  
 Ferguson, John A., 2256 Carter Av. St. Paul  
 Field, Clarence M., 3205 Harriet Av.  
 Flad, Geo. W., 688 Simon Place, St. Paul  
 Fleischbein, Alvin C., 517 Y. M. C. A., St. Paul  
 Fournier, Marietta (Mrs.), 3505 Sheridan Av. North  
 Frank, Carl W., 2921 18th Av. S.  
 Gaarder, Le Roy, 1831 Park Av.  
 Garmoe, Harold, 2744 16th Av. S.  
 Gerdes, R. L., 1218 25th Av. N.  
 Gillard, Hubert W., 1671 Marshall St. N.E.  
 Gilman, A., 1400 Main St. N. E.  
 Gleason, Frank, 530 Broadway N.E.  
 Gronwald, John O., 1922 Buchanan St.  
 Guidman, M. L., 1920 Hamlin Av.  
 Guernsey, Newell F., 3337 University Av. S.E.  
 Hale, Arthur D., 1917 2nd Av. S.  
 Hamstreet, W. E., 311 E. 22nd St.  
 Hahn, Stanley W., Menomonie, Wis.  
 Hansky, Henry L., 955 Fuller Av., St. Paul  
 Haug, Daniel, 710 21st Av. S.  
 Hepp, Maylon H., 3306 4th Av. S.  
 Hill, Elmer M., 2335 Illion Av. N.  
 Hills, James B., 1988 Summit Av., St. Paul  
 Hofmann, Wm. Charles, 1514 Adams St. N.E.  
 Hulsing, H. O., 691 40th Av. N.E.  
 Huston, Robt., 165 14th Av. N.E.  
 Iverson, Carl R., 272 Taylor St., N.E.  
 Jacobson, Howard C., 1057 18th Av. S.E.  
 Jensen, Ernest W., 3240 18th Av. S.  
 Johansen, Henry, 217 Walnut St. S.E.  
 John, Edward O., 373 Maple St., St. Paul  
 Johnson, Albert W., 621 S. Magnolia St., St. Paul  
 Johnson, Arthur, 4135 Dupont Av.  
 Johnson, Edward J., 2349 Territorial Road  
 Johnson, Edward L., 1005 Lincoln Av., St. Paul  
 Johnson, Elmer A., 1083 Edgerton St., St. Paul  
 Johnson, Frederick O., 2117 Commonwealth Av.  
 Johnson, Guy Conrad, 2325 Fremont Av. S.  
 Juergens, H. E., 3214 W. Calhoun Blvd.  
 Kearney, Norman L., 1910 2nd Av. S.  
 Klawiter, Frederick C., 1166 Thomas St. St. Paul  
 Klingensmith, Frank, 2143 St. Anthony Av., St. Paul  
 Knudson, Morgan, 1509 Park Av.  
 Kocourek, John F., 604 Oak St. S.E.  
 Kummer, N. E., 3150 Harriet Av.  
 Lambert, Harry E., 12 E. 17th St.  
 Lambert, R. Wm., 2705 1st Av. S  
 Larson, Albert O., 636 Selby Av., St. Paul  
 Larson, Ernest O., 2638 Bryant Av. N.  
 Larson, Nathan, 2421 Buchanan St. N.E.  
 Lasdin, Julius, 1932 Riverside Av.  
 Lawton, J. E., 22 Oak Grove St.  
 Leander, Henry, 955 Fuller Av., St. Paul  
 Lewis, Walter Lee, 125 W. Delos St., St. Paul  
 Linden, C. J., 2608 3rd Av. S.  
 Lockwood, Newton L., 1509 Park Av.  
 Lundell, Floyd A., 77 Knox Av.  
 Lundquist, C. E., 820 20th Av. N.E.  
 McCall, Helen F., 3040 Harriet Av.  
 McCullough, John G., 1927 Hennepin Av.  
 McGandy, Edward L., 819 Lowry Av.  
 McKenzie, Fern, 610 St. Peter St., St. Paul  
 Macomber, Wm. K., 1003-4 Plymouth Bldg.  
 Maconnell, G. E., 315 W. 15th St.  
 Magnuson, Carl J., 2101 10th Av. S.  
 Mahoney, G. P., 1840 Roblyn St., St. Paul  
 Manley, Roy J., 1397 Grand Av., St. Paul  
 Mayhew, Joseph H., 4160 Washington Av. N.  
 Mehren, Andrew S., 345 Snelling Av., St. Paul  
 Meyers, Raymond T., 2527 Penn Av. N.

- Michaelson, R. M., 663 Maryland St., St. Paul  
 Michel, Clarence B., 610 Fuller Av. St. Paul  
 Miller, Hollis D., 2321 Harriet Av.  
 Miller, Howard R., Bryn Mawr  
 Moberg, David W., 76 East Side Flat  
 Moore, O. F., 1007 East River Road  
 Morley, Roy L., 1397 Grand Av.  
 Mullaney, John J., 3132 Columbus Av.  
 Nadon, Camille F., 715 5th St. N.E.  
 Nelson, David G., 3626 2nd Av. S.  
 Nelson, Henry C., 3756 Elliot Av.  
 Nordlien, Bergen, 415 31st Av. N.  
 Noren, Clifford, 2548 Taylor St. N.E.  
 Noren, Harold, 2548 Taylor St. N.E.  
 Northfelt, Andrew P., 1710 11th Av. S.  
 Nothaker, W. K., 4820 28th Av. S.  
 Oakley, Fayette F., 4644 Upton Av. S.  
 Oehler, Walter W., 15 E. 25th St.  
 Olson, Clarence T., 1419 7th St. S.  
 Olson, Raymond K., 3321 18th Av. S.  
 Ostberg, Connie J. N., 2891 James Av. S.  
 Owens, Robert S., 3227 23rd Av. S.  
 Patton, E. W., 2704 Chicago Avenue  
 Pemberton, J. L., 3814 Colgate Av. W.  
 Peonidas, Philip  
 Pelton, Charles, C., 3120 Chicago Av. S.  
 Peterson, R. K., 1359 W. 7th St., St. Paul  
 Petterson, Einar T., 4418 Colfax Av. S.  
 Pickett, L. F., 3114 Hennepin Av.  
 Rasmussen, Robert D., 2600 E. 24th St.  
 Raymer, Jr., Arthur C., 1835 Iglehart Av., St. Paul  
 Raymond, Carl A., 1516 2nd Av. S.  
 Reichmuth, Fred C., 1320 Jefferson St. N.E.  
 Remmer, T. E., 732 15th St. E.  
 Ritten, George A., 902 24th Av. N.  
 Robohm, Jr., John F., 3126 Elliot Av.  
 Rohlen, Arthur W., 3311 32nd Av. S.  
 Rogers, Harvey G., 1776 Iglehart Av., St. Paul  
 Rude, Hjalmar A., 1822 10th Av. S.  
 Rustad, Joseph H., 708 E. 36th St.  
 Scharpf, Elmer L., 2745 Columbus Av.  
 Schibsby, F. M., 2107 Pleasant Av.  
 Schletty, George, 3144 Columbus Av.  
 Schmidt, Henry R., 115 W. Robie St., St. Paul  
 Schulz, Emil H., 951 Wakefield Av., St. Paul  
 Schwach, Alois, 405 Oak St. S.E.  
 Schwartz, Louis F., 1503 S. 5th St.  
 Serrell, Herbert S., 427 Logan Av. N.  
 Serum, Phillip C., 1356 Vine Place  
 Sexton, M. J., 819 Marquette Av.  
 Shallbetter, Anthony S., 2419 Bryant Av. N.  
 Shartin, Samuel S., 610 Fremont Av. N.  
 Simms, Herbert D., 1477 Blair St., St. Paul  
 Skarnes, Jay A., 3304 Longfellow Av. S.  
 Skarnes, R. F., 3304 Longfellow Av. S.  
 Stewart, G. A., Y. M. C. A., St. Paul  
 Stin, John, 3904 27th Av. S.  
 Stoneman, Harrison S., 444 Wheeler Av., St. Paul  
 Stoppenbach, Paul F., 264 Dayton Av., St. Paul  
 Storen, Arthur R., 697 Gorman Av., St. Paul  
 Strain, Arthur  
 Strom, Fred, 853 E. 5th St., St. Paul  
 Sweger, Martin A., 49 W. Lawson St.  
 Thorshaug, Olaf, 208 Cecil St.  
 Trask, Donald M., 3237 Aldrich Av. S.  
 Trierweiler, Dominic G., 406 Maple St., St. Paul  
 Turner, Howard A., 1419 Girard Av.  
 Tyra, Arthur F., 2009 Lyndale Av. N.  
 Urquhart, Kathryn, 820 Holly Av., St. Paul  
 Vennes, Harold J., 501 Beacon St. N.E.  
 Von Lorenz, Harold, 52 Hoffman Av., St. Paul  
 Wahlquist, Hugo, 525 Ontario St. S.E.  
 Watt, Harmon H., 24 Dell Place  
 Weinmann, Alfred H., 398 E. Lawson St., St. Paul  
 Wells, Wm. S., 2429 Aldrich Av. S.  
 Wilson, Walter T., 3328 4th Av. S.  
 Wolf, Fred P., Highwood Park, St. Paul  
 Woodward, Ralph, 2626 E. Franklin Av.  
 Wyrill, Walter T., 3328 4th Av. S.  
 Yager, Nathan, 1911 14th Av. S.  
 Yanda, Frederyk, 1627 6th St. N.E.

## ST. PAUL

- Appel, Henry J., 576 Ottawa Avenue  
 Benhart, Ray, 844 Selby Av.  
 Giles, John M., City & County Hospital  
 McKnight, K. R., 355 St. Anthony Av.  
 Nolting, Walter C., 265 Dayton Av.

- Peterson, Roy K., 1359 W. 7th  
 Raymer, Arthur C., 1835 Iglehart Av.  
 Stoppenbach, Paul, 264 Dayton Av.  
 Strom, Fred, 853 East 5th St.

## DULUTH

Brown, Harry H., 2316 W. 3rd St.  
Ericson, C. A., 101 S. 64th Av. W.  
Fuller, Ernest, 4320 Tiogo St., Lakeside  
Gustafson, A Bernard, 2305 W. 4th St.  
Johnson, Fred H., 2015 61st Av. W.  
Lufholm, Laurence, 2005 W. 2nd St.

Olson, Goodwin, 616 N. 56th Av. W.  
Ostlund, Eric L., 613 21st Av. W.  
Smallidge, R. T., 221 N. 53rd Av. W.  
Thompson, James D., 114 E. 3rd St.  
Westover, Clayton, 5113 London Road

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

GENERAL EXTENSION DIVISION

**EVENING BUSINESS**  
**COURSES**

1916-1917



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# CALENDAR

1916-1917

1916

September	25-30	Registration Week
September	29	Friday, 8:00 p.m. Annual opening of St. Paul Institute and General Extension Courses, Mechanic Arts High School, St. Paul
September	30	Saturday, 8:00 p.m. Annual opening of General Extension Courses, Minneapolis
October	2	Monday. Regular class work begins
November	30	Thursday. Thanksgiving holiday
December	23	Saturday. Christmas recess to January 2,

1917

January	2	Tuesday. Class work resumed
January	22-26	Examination week, first semester
January	29	Second semester begins
May	14-19	Examination week, second semester

## FACULTY

GEORGE E. VINCENT, Ph.D., LL.D., President of the University  
CYRUS NORTHROP, LL.D., President, Emeritus  
RICHARD R. PRICE, M.A., Director of the University Extension Division

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CHARLES H. PRESTON, in charge of Business Courses  
NELSON F. COBURN, Commercial Spanish  
J. FRANKLIN EBERSOLE, Finance and Banking  
HALDOR C. GISLASON, Public Speaking  
HARRY D. HARPER, Accounting  
STANLEY B. HOUCK, Business Law  
LEE KUEMPEL, Railroad Traffic and Rates  
MAC MARTIN, Advertising  
MORTON M. NEWCOMB, Business Management  
RAYMOND V. PHELAN, Economics  
FRANK M. RARIG, Public Speaking  
CLARE L. ROTZEL, Accounting and Auditing  
WILLIAM C. SMILEY, Business Law  
H. T. VIETS, Business English

## DEPARTMENT OF BUSINESS INSTRUCTION

The following courses are arranged with a view to meet the needs of those who desire special training for the higher business positions. Business is rapidly becoming a profession, or rather the business field is opening up several professions, among which are Accountancy, Banking and Finance, Advertising, and Salesmanship. The University through its General Extension Division is attempting to afford a preparation for these professions, as it has long done for the profession of Law, Medicine, Engineering, and the like.

The time appears to be approaching when it will be just as necessary for one to secure special training for business positions as it is now to secure training for the learned professions. It is recognized, too, that the rewards for those trained for the business professions are fully as great both financially and in a social way as they are for those trained for the so-called learned professions. Moreover, experience is proving that the very people whom the General Extension Division are 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 or 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. Each course can be completed by taking three subjects per week for two years, each class meeting one night per week. Each course may be completed in three years by taking but two subjects per week. Upon the completion of one of these courses a University Certificate to that effect will be granted.

### THE COMMERCE CLUB ACCOUNTANCY PRIZE

In order to foster the study of accountancy the Commerce Club (composed of students of the Department of Business Instruction) offers a prize of \$15 to the best student in Principles of Accounting "A" and "B" in the year 1916-1917.

### 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.

### TWO-YEAR 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 of 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 Accounting will be granted.

The course requires a total of twenty-four credits, each one-semester subject counting for two credits. Each subject requires one class recitation per week for one semester of sixteen weeks. There are two semesters per year, hence the course may be completed in two years by taking three subjects per week. Or, if the student prefers, he may take but two subjects per week, thus requiring three years to complete the course.

The following subjects are required for the course:

- |  |                       |
|--|-----------------------|
| 1.. Principles of Accounting "A"         | 7. Business Law "A"   |
| 2. Principles of Accounting "B"          | 8. Business Law "B"   |
| 3. Accounting Practice and Procedure "A" | 9. Business Law "C"   |
| 4. Accounting Practice and Procedure "B" | 10. Economics         |
| 5. Auditing "A"                          | 11. Business English  |
| 6. Cost Accounting                       | 12. Elective subjects |

#### FEEES

The fee for these courses is \$30 per year, payable \$15 each semester, when registering for three subjects; or \$24 per year, payable \$12 per semester, when registering for two subjects. The fee for a single subject is \$7.50 per semester. This does not include materials, these being furnished students at a nominal charge.

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 IN BANKING AND FINANCE

This course is designed to meet the needs of two kinds of students: (1) those who are preparing for, or who are now engaged in, such financial callings as banking, corporation management, stock and bond brokerage, credit work, or financial journalism; and (2) business men who wish to utilize in the upbuilding of their particular business all of the modern scientific knowledge of a practical financial nature.

##### *University Certificate in Finance*

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

This certificate will be granted to those who complete a total of twenty-four 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	Elective subjects (4)
Principles of Accounting A (2)	

### *The American Institute of Banking*

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

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

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

### GENERAL BUSINESS COURSE

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

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

### *The University Certificate in General Business*

This certificate will be granted to those who successfully complete a total of twenty-four credits distributed as follows:

Business English (2)	Elective subjects (12)
Business Law A (2)	(These electives should be selected with a view to specializing in some particular field, as in Advertising and Selling, in Railroad Traffic, and the like.)
Business Law B (2)	
Economics A (2)	
Accounting A (2)	
Accounting B (2)	

### DESCRIPTION OF SUBJECTS

#### ACCOUNTING

1. INTRODUCTION TO ACCOUNTING. The purposes of accounting, the use of books of original entry, posting to the ledger, the trial balance, clos-

ing the ledger, preparation of simple trading statements. Two credits (one evening per week). PRESTON AND HARPER.

This course is arranged for those students who do not understand bookkeeping principles sufficiently well profitably to pursue Course 2. (Hereafter an examination will be required for entrance to Course 2.) The object of the course is not to teach bookkeeping and office routine. Those desiring such training are advised to enter the classes in the Public Schools, the Y. M. C. A., or the Business Colleges. The object is to give such preparation for those who desire to make a further study of the science of accounts, but who, through inexperience or lack of study, are unable to begin with those who have had that preparation. A study of the principles of the subject will be made from the start, only sufficient bookkeeping practice being given to illustrate the principles involved.

2. PRINCIPLES OF ACCOUNTING "A". A fundamental general course treated from the standpoint, first, of the purposes which the science and practice of accounting seek to accomplish; second, of the methods and means by which this object is gained. The merchandise account and its analysis, account nomenclature, accruals, deferred charges, classification of loss and gain accounts and of balance sheet accounts. The use of the working sheet, of auxiliary ledgers and controlling accounts, exercises in closing the books and in arranging balance sheets and income statements, departmentization of accounts, imprest cash system, contingent liabilities. Designed for those who already have a knowledge of bookkeeping principles. Those not having such knowledge are expected to first take Course 1. Two credits (one evening a week); first semester. PRESTON, ROTZEL.
3. PRINCIPLES OF ACCOUNTING "B". Further exercises in the preparation of statements, the manufacturing, trading, and profit and loss accounts, good will, depreciation, the accountant's working sheet, accounts peculiar to a corporation, surplus, sinking funds and reserves, condensed balance sheet and income statement. For those who have completed Course 2 or its equivalent. To credits (one evening a week); second semester. PRESTON, ROTZEL.
4. ACCOUNTING PRACTICE AND PROCEDURE "A". 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) the study of a complete illustrative accounting installation for a manufacturing and selling enterprise; (b) 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 made possible by the use of an installation such as the one studied; (c) 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.

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.

5. ACCOUNTING PRACTICE AND PROCEDURE "B". A continuation of Course 4. Two credits (one evening a week); second semester. ROTZEL.
6. 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. Pre-determined standard costs, and their relation to "scientific management." The cost ledger and its relation to the general ledger. Two credits (one evening a week); first semester. PRESTON.

Modern industry demands that each plant to 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 economics in the operation of the plant.
7. 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 their 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.
8. AUDITING (B). A continuation of Course 7. Two credits (one evening a week); second semester. ROTZEL.
9. APPLIED ACCOUNTING (A). A similar course designed for those who have two years of work in Accounting. The purpose of the course is to apply the principles and the practice of accounts as studied in the previous years to a business most primitive to the student. Each student will work up in report form the details of an accounting installation which will be of such a character that it will meet in a scientific way all the contingencies which would be likely to arise in a series of years. Two credits (one evening a week); first semester.

10. APPLIED ACCOUNTING (B). Continuation of Course 9. 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; examinations; supervision, and reports; and bank policy from the analysis of local bank reports. Two credits (one evening a week); first semester. EBERSOLE.

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.

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 bimetalism and the gold exchange standard; discount rates, the problem of securing an elastic currency, and the distribution of the world's gold between the nations; the problem of securing an ideal money. Text-book and money-market articles in current newspapers will furnish material for discussion. Two credits (one evening a week); second semester. EBERSOLE.

A thoro understanding of the character and functions of money and of the principles of credit is the cornerstone of modern business intelligence. This course in money and credit constitutes an interesting and scientific treatment of the forces that determine value and prices, of the processes of exchange, and of the many forms of media of payment represented by monetary and credit instruments.

- 23 (145). THE 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.

ties; 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. Two credits (one evening a week); second semester. EBERSOLE.

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.

- 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

#### 31. BUSINESS LAW "A"—CONTRACTS AND AGENCY

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

Agency: Methods of forming agencies; methods of terminating agency; the rights and obligations of 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-essentials, (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"—PARTNERSHIPS AND CORPORATIONS

Partnerships: Formation of partnerships; articles of copartnership; methods of terminating partnerships; rights and obligations of partner (a) toward his copartners, (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. HOUCK.

### 34. BUSINESS LAW "D"—REAL PROPERTY, MORTGAGES, BANKRUPTCY

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

35. BUSINESS LAW "E"—COMMON CARRIERS, AND LAW OF RAILWAY TRAFFIC AND RATES. Among the items considered are: Who are common carriers; duties, privileges, rights and liabilities in general; duty to furnish equipment; demurrage; when liability of carrier begins; when liability ends; bills of lading and contracts limiting liability; carrier's liability for goods in storage awaiting shipment or delivery; liability on goods lost, damaged or delayed, etc., etc. The difference between private and public utility businesses for purposes of regulation; the fundamental principles of regulation; legal considerations and elements making up lawful rates; what are reasonable rates, discriminatory rates; how each is determined and protected against competition, long and short haul, construction of tariffs; routing and misrouting; reconsignment and diversion of cars; time and manner of presenting claims; state and federal regulation and regulatory bodies; right to have rates quoted; penalty for erroneous quotation; how to present and handle claims before the State and Interstate Commerce Commission.

Particular attention is paid to state and federal regulatory acts and tribunals. The Interstate Commerce Act (1887) and the Elkins Amendment (1903), the Hepburn Act (1906), the Mann Act (1910), and the Cummins Act (1915) are all thoroly covered.

The widest latitude of discussion and questioning will be allowed. Students will be allowed and invited to present actual pending disputes for discussion and advice as to proper procedure to be followed.

Two credits (one evening a week); first semester. HOUCK.

*Note.*—Railway Traffic and Rates (Railway Problems), Course 71, shown on page 31, should either precede this course or be taken simultaneously with it as an integral part of the instruction in this subject.

## 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. Fee, \$5.00 a semester. PHELAN.

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). Taxa-

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

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

- 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. 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. One evening a week; first semester. **MARTIN.**

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.

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 300 of the leading advertising men of this country will be available to the student. Two credits (one evening a week); second semester. MARTIN.

53. **RETAIL ADVERTISING.** In this course the student conducts an advertising campaign for a retailer under the same general plan as in Course 52 for a manufacturer. The student is shown the relation of advertising to the different departments of a great department store. He is also shown how some of these same principles may be adopted for the smallest of specialty stores. He is shown where the advertising manager gets his ideas and how they are developed into the finished advertisement—what pays and what does not pay. One evening a week; second semester. Not given in 1916-17.

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. One evening a week; each semester.

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. Not given in 1916-17.

71. **RAILWAY TRAFFIC AND RATES.** The course covers the various features and problems which are brought up in the actual practice of handling freight traffic. The lessons embrace the practical application of the Interstate Commerce Act and other laws and regulations; the correct compilation of tariffs; methods under which rates are published by other than the line over which they are applicable; the classifying of freight; classifications and their peculiar exceptions; the principal rate bases, such as all rail, rail and lake, etc.; tariffs, rules and regulations governing domestic, export and import traffic and the principal commodities; the routing and mis-routing of freight; various methods of loading and offering freight for shipment; tracing of freight;

presentation and adjustment of claims; the cancellation, suspension and restoration of rates and tariffs; "privileges" such as transit handling of grain, storage, diversion, etc.; rulings of the Interstate Commerce Commission are referred to in the lectures and rates are quoted from current tariffs and classifications. Four credits (one evening a week); both semesters. KUEMPEL.

72. RAILWAY TRAFFIC AND RATES (2). (LEGAL PHASES). For description see Course 35, Business Law "E." Two credits one evening a week; first semester. HOUCK.

### 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 text book 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. One evening a week; first semester. Repeated second semester. VIETS.

83. PUBLIC SPEAKING. For description see Department of Collegiate Instruction. One evening a week; both semesters. RARIG, GISLASON.
90. COMMERCIAL SPANISH. For description see Department of Collegiate Instruction. One evening a week; both semesters.

## STUDENTS

### MINNEAPOLIS

- Adsem, John, 3412 16th Av. S.  
 Ainsworth, L. F., 1609 Linden Av.  
 Alberg, Albert, 824 27th Av. N.E.  
 Alvord, S. W., 4013 Sheridan Av. S.  
 Anderson, Frederick A., 613 15th Av. S.E.  
 Anderson, George E., 3304 Nicollet Av.  
 Anderson, Paul R., 826 20th Av. N.E.  
 Anderson, W. L., 3022 Irving Av. N.  
 Arth, Frank J., 836 E. 3rd St  
 Ashcroft, F., 3320 Aldrich Av. S.  
 Asselin, Raymond A., 3441 Aldrich Av. S.  
 Badger, Lester R., 1900 Girard Av. S.  
 Barnard, Bessie, 3045 Bryant Av. S.  
 Bates, Curtis, 3041 Irving Av. S.  
 Bayley, C. S., 211 E. 34th St.  
 Bennett, William, 91 N. 17th St.  
 Berg, M. G., 99 Mt. Airy St. St. Paul.  
 Berner, Thorval E., 2915 Taylor St. N.E.  
 Bernstein, A. E., 1832 Irving Av. N.  
 Berry, Harry E., 3536 N. Upton Av.  
 Bintner, Joseph J., 324 University Av.  
 N.E.  
 Bjerke, W. M., 2055 8th St. S.  
 Bjork, Emil E., 1000 24th Av. N.E.  
 Blackburn, Earl J., 3336 Lyndale Av. S.  
 Blackman, H. E., 3824 Pleasant Av.  
 Blair, Raymond E., 324 E. 38th St.  
 Blum, Edward M., 430 4th St. N. E.  
 Blustin, Morton E., 824 11th Av. North  
 Boes, Joseph W., 912 4th St. N.E.  
 Bogt, J. E., 4001 Queen Av. S.  
 Bolduc, Albert T., 2112 2nd St. N.  
 Borman, I. O., 3115 Portland Av.  
 Bostad, O. H., 1839 Emerson Av. N.  
 Bothum, John A., 1300 Linden Av.  
 Bowen, J. G., 1015 1st Av. S.  
 Bowman, H. V., 3122 Morgan Av. N.  
 Brackey, Carl N., 707 E. 14th S.  
 Brancheau, Bert C., 1801 Irving Av. N.  
 Brandt, L. Basil, 116 W. Grant St.  
 Braunstein, Harry A., 403 Lyndale Av. N.  
 Breitschopf, John L., 381 Fuller Av., St.  
 Paul  
 Brenna, Leonard N., 120 E. 35th St.  
 Brewer, Royal L., 3127 4th Av. S.  
 Brick, Paul, 4315 Harriet Av.  
 Briese, Reinhold R., Y. M. C. A.  
 Brillhart, Paul W., 1820 Carroll Av., St.  
 Paul  
 Browne, Ernest H., 2701 Elliot Av.  
 Browne, Jack W., 714 E. 17th St.  
 Buck, L. G., 4122 Wentworth Av.  
 Budde, Walter M.  
 Brittin, Lewis H., Hampshire Arms  
 Cahn, Robert R., 3825 Stevens Av.  
 Calvin, Carl A., 1306 7th St. S.  
 Campbell, Clarence E., 2721 Girard Av. S.  
 Carlborn, Arvid, 3319 14th Av. S.  
 Carleson, Basil N., 1920 Crystal Lake Av.  
 Carlson, A. R., 3 West 25th St.  
 Carlson, C. A., 2238 Buchanan St. N.E.  
 Carlson, Clarence W., 54 Eastman Av.  
 Carlson, George H., 2810 1st Av. S.  
 Carlson, Joseph E., 93 Spruce Place  
 Carr, Geo. A. J., 2620 Cedar Av. S.  
 Carr, Pat. H., 64 7th Av. N.E.  
 Cary, Walter E., 709 W. 35th St.  
 Catlin, Dudley B., 2645 Garfield Av. S.  
 Chailquist, F. R., 1845 Quincy St., N.E.  
 Chaney, Clarence R., 4908 Colfax Av. S.  
 Chapo, Marie, 52 S. 10th St.  
 Charles, J. K., 66 S. 12th St.  
 Christianson, Hilmar B. O., 2211 22nd  
 Av. S.  
 Childstrom, John A., 2841 Lake of Isles  
 Blvd.  
 Chute, Robert W., 1910 Colfax Av. S.  
 Clark, Richard 2826 1st Av. S.  
 Clark, Ross R., 3341 Hennepin Av.  
 Class, George, 3719 Park Av.  
 Clausen, L. A., 2725 Elliot Av.  
 Cole, Charles W., 1018 4th St. S.E.  
 Cole, Roger I., 1427 Bryant Av. N.  
 Cooper, Walter W., 629 12th Av. S.E.  
 Core, Harold C., 3729 1st Av. S.  
 Cottor, Emil F., 193 Iglehart Av., St.  
 Paul  
 Covell, Gladys M., 2809 Girard Av. S.  
 Crossland, Jr., Wm. H., 5018 43rd Av. S.  
 Cunningham, Thomas E., 2108 16th Av. S.  
 Curran, Clara, 106 Willow St.  
 Dahl, James A., 713 23rd Av. S.  
 Dahlstrom, Henry F., 309 S. 8th St.  
 Dale, Emil M., Care W. S. Nott Cor.,  
 Mound, Minn.  
 Danforth, M. L., 3110 Fremont Av. S.  
 Danielson, A. W., 1910 Feronia Av., St.  
 Paul  
 Danielson, C. T., 1715 Elliott Av.  
 Davenport, Lawrence, 3312 S. Bryant Av.

- Davis, Charles A., 114 S. 8th St.  
 Day, George E., 1410 4th Av. S.  
 Dedon, W. L., 938 Cromwell Av., St. Paul  
 De Forrest, I. Lauretta, 1202 Plymouth Av.  
 Dempsey, J. H., 815 4th Av. S.  
 Denickson, Anthony B., 715 20th Av. S.  
 Dennis, D. W., Hastings Hotel  
 De St. Croix, Lawrence, 223 W. 39th St.  
 Dessert, Raymond B., 1045 23rd Av. S.E.  
 Devereux, Margaret, 1004 19th Av. S.E.  
 Dietrich, Arthur E., 1328 Vine Place  
 Dixon, H. S., 3406 Penn Av. N.  
 Dodgson, J. S., 3114 Oakland Av.  
 Duff, C. S., 2516 Hennepin Av.  
 Dunnigan, Thos. J., 4605 Blaisdell Av. S.  
 Elg, Fred A., 2702 University Av. S.E.  
 Ellertson, Carl H., 417 Oak St. S.E.  
 Ellertson, E. J., 5 Barton Av. S.E.  
 Ellertson, Selmer F., 417 Oak St. S.E.  
 Elliott, A. N., 1042 19th Av. S.E.  
 Ellis, George E., 4757 Bryant Av. S.  
 Fabian, John H., 3104 Lyndale Av. S.  
 Felt, Harold P., 2122 E. 22nd St.  
 Ferguson, George A., 3451 Oliver Av. N.  
 Fischer, Robert M., 2115 Harriet Av.  
 Fitzsimmons, S. J., 128 E. 18th St.  
 Flingstrom, Ernest, 245 21st Av. S.  
 Foley, Frances J., 311 7th Av. S.E.  
 Foster, Kent, 3022 Grand Av.  
 Franceshina, M. R., 42 S. 13th St.  
 Fraser, Norman D., 2317 Humboldt Av. S.  
 Freeman, Theodore W., 20 E. Elmwood Place  
 Fredlund, Paul, 909 21st Av. S.  
 Fuller, W. C., 1437 Van Buren St. N.E.  
 Galvin, Eugene F., 621 2nd St. N.E.  
 Gaus, Ernest G., 1441 W. Lake St.  
 Gemlo, James, 1814 Johnson St. N.E.  
 George, Herbert N., 625 E. 32nd St.  
 Gerrish, F. Earl, Hopkins, R. No. 2.  
 Ghose, Nagendranath, Curtis Court  
 Goldfus, Samuel, 511 N. Irving Av.  
 Graus, W. C., 315 10th Av. S.E.  
 Greiner, Morris E., 911 7th Av. S.  
 Grodnik, Hela Ray, 1011 Bryant Av. N.  
 Gruber, Jr., Jeffrey, 2349 Commonwealth Av., St. Paul  
 Gurney, E. A., 1211 25th Av. N.  
 Gustafson, Victoria E., 1311 Chestnut Av.  
 Gustafson, Walter, 3203 34th Av. S.  
 Hadley, Joseph A., 1232 5th St. N.E.  
 Hagen, Seward L., 3326 Columbus Av.  
 Hammond, Walter, 533 Knox Av. N.  
 Hannon, J. Emmett, 2542 Clinton Av.  
 Hanson, Anton G., 3225 30th Av. S.  
 Hanson, Forest E., 1510 E. 23rd St.  
 Hanson, Fred C., 899 Charles St., St. Paul  
 Hanson, George E., 4933 Pleasant Av. S.  
 Hasselberg, Ragnar F., 1105 Fillmore St. N.E.  
 Hauge, Arthur W., 4056 10th Av. S.  
 Hazen, F. S., 374 Wheeler St., St. Paul  
 Hedin, Oscar C., 1330 Johnston St. N.E.  
 Hedlund, Martin E., 204 Cecil St. S.E.  
 Herrick, Elmer E., 683 Simpson St., St. Paul  
 Hessburg, James P., 2603 17th Av. S.  
 Hillgren, H. A., 3342 Oakland Av.  
 Himmelman, H., 9 Central Av.  
 Hobart, Wallace A., 3738 Penn Av. N.  
 Hokenson, S. J., 709 9th St. S.  
 Holt, Clara E., 820 9th Av. S.E.  
 Houle, Henry J., 4330 Minnehaha Av.  
 Houston, Jr., G. Sidney, 3105 Girard Av. S.  
 Hughes, C. F., 114 E. 17th St.  
 Hughes, Ellis J., 2937 Bloomington Av.  
 Hutson, Erwin E., 1523 Washington St., N.E.  
 Jaroscak, Jack P., 2315 2nd St. N.E.  
 Jensen, Carl J., 680 Asbury Av., St. Paul  
 Jensen, Guy T., 607 University Av. S.E.  
 Jesperson, Arthur, 3215 Blaisdell Av.  
 Johnson, Arnold H., 1107 Plymouth Av. N.  
 Johnson, Ansel R. H., 2325 Fremont Av. S.  
 Johnson, Clarence H., 3512 Pillsbury Av.  
 Johnson, Clarence M., 1338 Knox Av. N.  
 Johnson, Ewan M., 1335 Oliver Av. N.  
 Johnson, Frank, 4053 Snelling Av.  
 Johnson, Fred A., 2906 University Av. S.E.  
 Johnson, Frederick B., 3041 Oakland Av.  
 Johnson, J. H., 4039 Queen Av. S.  
 Johnson, Leander, 64 S. 11th St.  
 Johnson, Lillian P., 2911 N. Lyndale  
 Johnson, Roy G., 2108 Chicago Av.  
 Johnson, Simon, 2614 Hayes St. N.E.  
 Johnson, W. N., 1929 Newton Av. N.  
 Johnston, F. E., 2111 Dupont Av. N.  
 Jones, Davis G., 1644 Hennepin Av.  
 Jones, William R., 3540 Minnehaha Av.  
 Kacher, Albert C., 722 Superior St., S. E.  
 Karl, C. L., 2943 Queen Av. N.  
 Keegan, Edward F., 742 Adams St. N.E.  
 Kellberg, E. H., 136 E. 17th St.  
 Kelly, T. H., 723 2nd St. N.E.  
 Kennedy, George M., 321 Nelson Av., St. Paul  
 Kennedy, T. F., 104 Garfield Av., St. Paul  
 Kerker, Thomas, 1250 Capitol Av., St. Paul  
 King, Samuel E., 2912 Fremont Av. N.  
 Klingensmith, Walter, 2143 St. Anthony Av., St. Paul  
 Knutson, Harry M., 1991 Marshall Av., St. Paul  
 Koch, C. C., 3317 2nd Av. S.

- Koehl, Lester E., 2000 Emerson Av. S.  
 Kolb, John, 1402 N. Fremont Av.  
 Krafte, John, 2107 Willow Av. N.  
 Kranhold, H. E., 913 Sherburne Av.  
 Krope, Fred O., 1422 Logan Av. N.  
 Kuehn, Henry E., 1831 Irving Av. N.  
 Ladd, Stephen C., Hampshire Arms  
 Lange, Irving A., 3610 Dupont Av. N.  
 Larsen, Milan M., 1019 13th Av. S.  
 Larson, A. J., 1609 Lincoln St. N.E.  
 Larson, H. J., 3248 Grand Av.  
 Lebeck, Roy C., 1319 Adams St. N.E.  
 Lebeis, Clara F., 1520 Plymouth Av. N.  
 Lee, Edward G., 1560 Laurel Av.  
 Lee, John K., 22 Oak Grove St.  
 Lee, Reynold, 2018 25th Av. S.  
 Leighton, Emmet G., 2645 15th Av. S.  
 Lemke, F. J., 911 Fuller Av., St. Paul  
 Lennon, Arve B., 2924 12th Av. S.  
 Leonard, Clarence E., 1315 Aldrich Av. N.  
 Letcher, Albert, 3400 18th Av. S.  
 Lewis, E. C., 1493 Lincoln Av., St. Paul  
 Lilligren, H. M., 734 Pierce St. N.E.  
 Lineburg, George F., 1213 17th Av. N.  
 Linstroth, Clarence C., 4340 S. Aldrich  
 Little, Wirt F., 1 E. 34th St.  
 Livingstone, R. A., 2600 Fremont Av. S.  
 Loberg, James M., 423 9th St. S.  
 Long, Fred E., 1045 16th Av. S.E.  
 Long, James E., 408 2nd St. N.E.  
 Longworth, H. A., 3231 14th Av. S.  
 Lorberbaum, Max, 1513 E. 18th St.  
 Lundberg, H. C., 1230 James Av. N.  
 Lundell, Leon N., 707 Penn Av. N.  
 Lundin, H. W., 2916 18th Av. S.  
 Lyle, Floyd, 707 8th Av. S.E.  
 Lyness, Ida, Fessenden, North Dakota  
 Lyness, Marion E., Fessenden, North  
 Dakota  
 Lyon, C. R., 32 N. 11th St.  
 McCartin, Aaron J., 440 University Av.  
 N.E.  
 McCourtie, S. R., 4905 30th Av. S.  
 McCuaig, Gordon H., 1624 W. 26th St.  
 McDonagh, W. C., 3342 W. 32nd St.  
 McDowell, J. C., 2429 Nicollet Av.  
 McHenry, J. A., 1820 Stevens Av.  
 McHenry, Robt. D., 711 8th Av. S.E.  
 McKenna, John J., 18 N. 13th St.  
 McKercher, J. C., 915 Essex St. S.E.  
 McMartin, Harry R., 3355 Calhoun Blvd.  
 Maas, H. H., Robbinsdale  
 Mains, T. M., 3805 10th Av. S.  
 Manley, B. E., 428 8th St. S.  
 Marth, Anne, 3821 Pillsbury Av.  
 Matson, C. W., 4147 Garfield Av.  
 Matthews, A. G., 914 W. Lake St.  
 Meder, H. P., 1418 Girard Av. N.  
 Mehlen, Gus, 2613 13th Av. S.  
 Melville, Earl Wm., 127 E. Grant St.  
 Mendow, Hymen Z., 921 14th Av. S.  
 Merrill, Ethel, Ingleside Apts.  
 Meyers, Melie G., 2101 Girard Av. S.  
 Miller, Fred K., 2421 11th Av. S.  
 Montgomery, G. E., 2509 Clinton Av.  
 Moores, Mabel E., 1913 Clinton Av.  
 Morrill, Andrew, 3303 Garfield Av. S.  
 Morris, A. B. (Miss), Friedman Court  
 Morrison, Arthur D., 2401 Harriet Av.  
 Mosher, Leon H., 5700 Pillsbury Av.  
 Murray, Leo P., 2918 Taylor St. N.E.  
 Nalezny, Joseph F., 347 Polk St. N.E.  
 Nelson, Arthur, 1406 Madison St.  
 Neudeck, Wm. E., 1934 Lincoln St. N.E.  
 Newcomb, Glenn F., 605 E. 17th St.  
 Nickerson, C. E., 1704 Brooks Av. S.E.  
 Nimerfroh, G. B., 1100 20th Av. N.  
 Nolan, Thomas H., 1704 1st Av. S.  
 Novack, James G., 3555 Queen Av. N.  
 Noyes, C. A., 436 Stryker Av., St. Paul  
 Noyes, Wilbur J., 2617 S. Lyndale Av.  
 Nyman, Arthur W., 4115 Park Av.  
 Obara, Shiro, 629 3rd Av. S.  
 Oberg, Ezra N., 2106 29th Av. S.  
 O'Brien, Frank C., 806 15th Av. S.  
 O'Connell, John F., 906 N.E. 4th St.  
 O'Dette, Archibald V., 904 15th Av. S.  
 Olson, Anna, 1501 10th Av. S.  
 Olson, E. A., 3205 Bloomington Av. S.  
 Olson, Elmer J., 1300 Linden Av.  
 Olson, Floyd J., 4350 Harriet Av.  
 Olson, John W., 3205 Bloomington Av.  
 Olson, Orde C., 1253 LaFond St., St. Paul  
 Olson, Paul, 500 S. 3rd St.  
 Oman, Carl J., 513 16th Av. S.  
 Ortle, Arthur R.  
 Ostrom, A. L., 639 Elwood Av. N.  
 Ostrom, Waldemar A., 639 Elwood Av. N.  
 Oustad, Olaf, 3303 18th Av. S.  
 Paaavola, George P., 103 Spruce Place  
 Palfy, Louis E., 1817 Washington Av. S.  
 Palmer, R. P., 2007 Aldrich Av. S.  
 Parker, Donald G., 2439 Bryant Av. S.  
 Parsons, H. A., 3100 Dupont Av. N.  
 Patterson, A. C., 42 S. 13th St.  
 Pehousek, James, 639 Erie St. S.E.  
 Pierce, Charles A., 3215 4th St. N.  
 Penningroth, W. J., 3020 Holmes Av. S.  
 Perry, Howard M., 2945 Pleasant Av.  
 Peterson, Arthur C., 3208 N. 3rd St.  
 Peterson, Axel M., 411 Forest St., St. Paul.  
 Peterson, Clarence A., 3905 5th Av. S.  
 Peterson, Ern st G., 2611 N. Emerson Av.  
 Peterson, Edwin J., 2421 10th Av. S.  
 Peterson, George R., 1801 15th Av. S.  
 Peterson, Helge A., 4220 31st Av. S.  
 Peterson, R. F., 1401 15th Av. N.  
 Phillips, Parry, 2036 Upton Av. S.  
 Piemeisel, Rudolph A., 1701 Park Av.  
 Pollard, George H., 1710 Fremont Av. N.

- Preston, Earl R., 1507 N. Dupont Av.  
 Prisch, H. W., 4428 Beard Av. S.  
 Pritchard, Hugh, 4509 Ewing Av.  
 Purdham, Plummer, 4000 Lyndale Av. N.  
 Rast, Leonard, 2221 Portland Av.  
 Redding, E. J., N. W. National Bank  
 Reed, George J., 3121 Aldrich Av. S.  
 Reid, Frank A., 1709 Irving Av. S.  
 Richard, H. H., 529 Y. M. C. A., St. Paul  
 Richardson, R. W., 4410 W. Lake Harriet  
 Blvd.  
 Riedel, John P., 403 Broadway N.E.  
 Riekkii, August, 2000 Park Av.  
 Ring, Gertrude, 819 2nd Av. S.  
 Rittenhouse, Theo. H., 2801 3rd St. N.  
 Roberts, Thomas C., 2303 Pleasant Av.  
 Rose, Carroll H., 923 13th Av. S.  
 Rose, J. L., 1311 Yale Place  
 Rose, Le Roy V., 3800 Portland Av.  
 Rosing, C. L., 1915 Willow Av. N.  
 Rotering, Victor, 122 W. Grant St.  
 Rowe, Ina B., 2116 Como Av. W., St. Paul  
 Royse, H. S., 4015 Pleasant Av.  
 Rudeen, Elmer, 2925 Lyndale N.  
 Russell, Roy E., 3644 Portland Av.  
 Rydell, Edmund T., 2114 N. Dupont Av.  
 Sandahl, Harold E., 3844 Elliot Av.  
 Sandy, Alan F., 2112 Dupont Av. S.  
 Sargent, W. D., 2447 Aldrich Av. S.  
 Sawyer, Fred W., 25 Clarence Av. S.E.  
 Schlampp, Edward A., 1622 Girard Av. N.  
 Schmal, G. P., 3024 James Av. S.  
 Schmidt, Raymond O., 3805 Stevens Av.  
 Schwach, Alois  
 Schwartz, Alfred B., 828 N. 12th Av.  
 Schwartz, S., 15 Royalston Av. N.  
 Score, Albert H., 3315 N. Russel Av.  
 SeEVERS, Sig. G., 2613 Colfax Av. N.  
 Seidel, Walter, 515 8th St. S.E.  
 Senn, Arthur H., 1822 10th Av. S.  
 Shannon, Thomas J., care of Edwin J.  
 Bishop, Globe Bldg., St. Paul  
 Shattuck, Irwin E., 4226 Crocker Av.  
 Shay, Harry J., 1674 Hennepin Av.  
 Sidletsky, J., 211 E. 14th St.  
 Sinclair, Lucien D., 7 Barton Av. S.E.  
 Skinner, F. T., 1725 University Av. S.E.  
 Simerman, George A., 2068 Carroll St.,  
 St. Paul  
 Smith, A. W., 4050 Wentworth Av.  
 Smith, Arthur P., 4327 Lyndale Av. S.  
 Smith, Arthur V., 3221 2nd Av. S.  
 Smith, Fred H., 4050 Wentworth Av.  
 Smith, John W., 3045 Portland Av.  
 Smith, W. H., 2181 Queen Av. N.  
 Snyder, Leslie, 600 11th Av. S.E.  
 Sombke, O. H., 1397 Van Buren St. N.E.  
 Sower, M. G., 515 S. 9th St.  
 Spaeth, Wesley W., 1563 Ashland Av.  
 Spargue, Robert S., 3208 Logan Av. N.  
 Stacy, Harlan G., Maryland Hotel  
 Starkey, Val P., 21 N. 15th St.  
 Stebbins, Robert S., 3119 Clinton Av.  
 Steele, Cecil C., 1114 14th Av. N.  
 Steller, Adolph W., 1337 Morgan Av. N.  
 Steller, Carl C., 1337 Morgan Av. N.  
 Stensrud, Nicolas, 411 Walgan St.  
 Stephens, R. P., 920 8th Av. S.  
 Stiles, Lawrence H., 828 University Av.  
 S.E.  
 Stone, Allen, 127 W. 26th St.  
 Story, Harlan G., Maryland Hotel  
 Stratton, Margaret, 3636 Pleasant Av.  
 Sullivan, Daniel, 2721 Bloomington Av.  
 Sutherland, James F., 1819 Dupont Av. S.  
 Swanson, E. Leonard, 813 Lowry Av. N.E.  
 Swanson, Reuben W., 4230 Nicollet Av.  
 Swenson, Manne S., 1934 Crystal Lake Av.  
 Swenson, Marcus M., 3440 33rd Av. S.  
 Swett, L. R., 3220 Clinton Av.  
 Taraldson, H. W., 124 W. Grant St.  
 Taylor, Charles P., 2810 W. 42nd St.  
 Taylor, Paul S., 2628 5th Av. S.  
 Thies, Roy., 1222 Jefferson St. N.E.  
 Thomas, William D., 900 8th Av. S.  
 Thompson, Harry E., 3007 Fremont Av. N.  
 Thompson, Roy C., 5637 Pillsbury Av.  
 Thomson, Alexander, 1517 Chestnut Av.  
 Thrall, Ralph A., 2729 Fremont Av. N.  
 Tilleson, Claude A., 3037 Calhoun Blvd  
 Towle, R. E., 16 Oak Grove St.  
 Towne, Fred W., 2620 S. Dupont Av.  
 Vanstrum, Paul A., 1818 10th Av. S.  
 Velin, Hjalmer, 1712 5th Av. N.  
 Volding, Myron J., 3020 Holmes Av.  
 Wagner, Archibald, 1712 Dupont Av. S.  
 Wallin, Chas. W., 3218 Dupont Av. N.  
 Walton, Florence, 313 15th Av. S.E.  
 Warner, Harold L., 3030 W. Calhoun  
 Blvd.  
 Webb, Hobart, Y. M. C. A.  
 Webber, Anthony O., 604 Marshall St.  
 N.E.  
 Weingart, Alexander, 3346 Emerson Av. N.  
 Weisenberger, Albert, 1011 8th St. S.E.  
 Welliner, L. R., 1315 N. Irving Av.  
 Weston, C. D., 1727 Vine Place  
 Westerman, Walter, 2936 Dupont Av. S.  
 Westrand, Edwin R., 3026 Fremont Av. N.  
 Wickstram, Peter E., 2432 30th Av. S.  
 Wilkinson, C. P., 915 N. Y. Life Bldg.  
 Wikeen, Oscar A., 2891 James Av. S.  
 Will, Fred L., 108 E. 19th St.  
 Wilson, Alfred E., 518 4th St. N.E.  
 Wilson, Alonzo W., 315 10th Av. S.E.  
 Wilson, James G., 3244 3rd Av. S.  
 Wilson, Ronald K., 2014 W. 21st St.  
 Wing, Llewellyn, 3208 Pillsbury Av.  
 Winslow, A. E., 2309 Grand N.E.  
 Witt, Geo. P., 3019 N. Morgan Av.

Wood, Geo. B., 3144 Clinton Av.  
 Woodruff, R. A., 3145 Clinton Av.  
 Woolley, John H., 1701 Bryant Av. N.  
 Wren, Richard, 353 Broadway  
 Yates, Raymond, 3906 Thomas Av. S.  
 Young, H. T., 106 Spruce Place  
 Youngquist, Dewey, 3028 Stevens Av.

Zehrfeld, Mello E., 30 Grove St.  
 Zickert, L. R., 2803 Emerson Av. N.  
 Zikan, Joseph W., 476 Herschel Av., St.  
 Paul  
 Zimmerman, John P., 3014 15th Av. S.  
 Zinne, Charles F., 3700 Girard Av. N.

## ST. PAUL

Anderson, R. W., 652 Thomas St.  
 Anderson, W. L., 357 Hope St.  
 Armbruster, E. J., 726 Hudson Av.  
 Arth, Clarence J., 836 East 3rd St.  
 Baker, Valdine, 829 Portland Av.  
 Benson, J. R., 751 Fauquier St.  
 Bernstein, C. W., 301 Pleasant Av.  
 Bialozynski, John, 1009 E. Magnolia St.  
 Blasser, Max, 197 E. 14th St.  
 Boberg, W. E., 725 E. California St.  
 Bossart, H. A., 1779 Ashland Av.  
 Bovard, Jr., James H., 239 Aurora Av.  
 Brillhart, Paul W., 1820 Carroll Av.  
 Bustow, Herbert P., 733 Charles St.  
 Cameron, E. M., 391 North St. Albans St.  
 Carroll, Charles P., 61 West Delos St.  
 Christ, Rubert W., 894 E. 3rd St.  
 Corcoran, John J., 1316 4th St. S.E.,  
 Minneapolis  
 Cottor, Emil F., 193 Iglehart Av.  
 Danielson, A. W., 1910 Feronia Av.  
 Dumaran, C. W., 670 Laurel Av.  
 Eardley, W. C., 680 South Smith St.  
 Ellis, Harris, 1223 Hawthorne Av., Mpls.  
 Elmquist, Nan C., 356 Pleasant Av.  
 Engle, M. E., 710 Selby Av.  
 Esch, Otto, 974 E. Minnehaha St.  
 Fischer, Anna M., 673 S. Robert St.  
 Flesher, Benjamin H., 357 Maria Av.  
 Gadacz, Stanley J., 15 W. George St.  
 George, Charles W., 17 W. Summit Av.  
 Gilbert, M. K., 1519 Como Av. S.E., Mpls.  
 Goldberg, Stanley, 923 Linwood  
 Goodson, Curtis C., 753 Carroll Av.  
 Gothe, Oscar E., 655 Case St.  
 Greggs, Calvin W., 365 Summit Av.  
 Gruber, Jeffrey, 2349 Commonwealth Av.  
 Harris, Chas. S., 270 Kent St.  
 Harris, Ellis, 668 St. Peter St.  
 Harrison, Luther B., White Bear Lake  
 Hart, Milton, 1174 E. Minnehaha St.  
 Hartman, C. N., 653 Elfert  
 Haselbeck, H., 733 E. Jessamine St.  
 Hickey, M. J., 153 St. Anthony Av.  
 Ivey, Thomas L., 1386 Selby Av.  
 Johnson, A. J., 19 E. College  
 Johnson, Herbert, 790 Sherburne Av.  
 Johnson, Roy I., 937 Watson Av.  
 Kain, R. J., 2077 Marshall Av.  
 Kennedy, Thomas F., 104 Garfield Av.

Kennedy, W. W., 1247 Edmund St.  
 Keppers, Wm. M., 889 Arcade St.  
 Klima, Etta, 346 Von Minden  
 Kotilinek, James L., 119 Iglehart Av.  
 Kulp, Delmar E., 29 Garfield Av.  
 Larson, Edward J., 122 W. Arch St.  
 Lawler, Cass, 561 Laurel Av.  
 Linnerooth, Sidney, 802 Margaret St.  
 McLane, J. J., 916 Aurora St.  
 McLeod, Malcolm, 634 Iglehart Ave.  
 McSimons, Ira J., 241 Sherman Av.  
 Mahoney, Frances, 975 East 6th St.  
 Matchett, Henry, 1416 Capitol Av.  
 Melamed, Maurice L., 222 E. Fairfield Av.  
 Meyer, Melville, 1090 Reaney St.  
 Miller, Herbert M., 982 Hastings Av.  
 Miller, Hilda, 84 W. Lawson St.  
 Miller, Lydia P., 330 Capitol Bldg.  
 Mingay, H. T., 761 Osceola Av.  
 Muchenhirn, John C., 540 St. Anthony Av.  
 Mulkern, Gertrude, 763 Sherburne Av.  
 Naughton, Wm. T., 205 Goodrich Av.  
 Nyberg, Gustave, 1017 Kilburn  
 Oberg, Stafford L., 710 Rose St.  
 O'Brien, Helen, 255 W. George St.  
 Olson, Orde C., 1253 La Fond St.  
 Ortman, Anna B., 1153 Abell St.  
 Peterson, Paul B., 357 Hope St.  
 Price, Edward, 254 Sidney St.  
 Quinn, Thomas L., 114 Amherst  
 Reimers, Wm. J., 739 Sims St.  
 Roether, Ernest A., 823 East 3rd St.  
 Rossman, John Geo., 5 Como Av.  
 Rudeen, F. J., 1660 Dayton Av.  
 Rush, Alice G., 962 S. Robert St.  
 Sansen, G. M., 856 Fremont St.  
 Seabern, Clifford F., 1557 Grand Av.  
 Schaffelke, Henry A., 500 Bellows Av.  
 Schiffer, Meyer, 615 Ashland Av.  
 Schilling, Paul A., 879 Thomas St.  
 Scholtz, Henry C., 390 Dayton Av.  
 Schulz, H. T., 927 Hastings Av.  
 Shaeth, Oliver W., 1563 Ashland Av.  
 Shannon, Joseph, 286 N. Milton St.  
 Sidletskey, J., 211 E. 14th St.  
 Smith, Stanley J., 233 Smith Av.  
 Spaeth, O. W., 1563 Ashland Av.  
 Spaeth, W. U., 1563 Ashland Av.  
 Sweeney, George P., 523 Laurel Av.  
 Temple, M., 891 Fairmont Av.

Thorsen, O. M., 1008 Lexington Av.  
 Tolson, Edgar, 856 Albemarle St.  
 Vetter, George H., 63 Tilton St.

Voelker, Katherine, 354 Fuller Av.  
 Warren, Vera, 662 Sherburn Av  
 Wick, S. W., 1458 Charles St.

## DULUTH

Arneson, Anker E., 101 E. 5th St.  
 Belleperche, A. J., 1901 E. 5th St.  
 Beschenbossel, Carl C., 415 E. 4th St.  
 Bethune, A. J., 481 Mesaba Av.  
 Brown, Colin F., 316 S. 16th Av. E.  
 Brude, Arthur C., Y. M. C. A.  
 Busselman, J. A., 24 4th Av. E.  
 Carlson, C. A., 212 N. 22nd Av. W.  
 Chisholm, J. A., 513 1st Av. W.  
 Currie, John A., 428 W. 4th St.  
 De Vohn, A. R., 2310 W. 3rd St.  
 Fisher, Sherwood S., 325 E. 5th St.  
 Flynn, E. L., 1009 E. 3rd St.  
 Franseen, Carl G., 712 1st Av. E.  
 Fredin, David H., 901 E. 6th St.  
 Frykdahl, Carl E. H., 1027 E. 2nd St.  
 Goss, Leander M., 221½ Devonshire St.  
 Grochau, Ernest R., 3101 Minnesota Av.  
 Gross, Geo. L., 514 11th Av. E.  
 Haig, William F., 2021 E. 4th St.  
 Hanson, Jarl W., 2721 W. Helm St.  
 Johnston, Arthur J., 329 E. Superior St.  
 Karon, Abe, 20 E. 2nd St.

Kent, A. R., 4 Munger Terrace  
 Killam, John W., 110 Laurie St.  
 Krantz, Clemens, 706 56th Av. W.  
 Laskowski, Frank S., 2918 W. Huron St.  
 Leonard, W. T., Y. M. C. A.  
 Lundstrom, Roy, 119 32nd Av. W.  
 Marjamaa, Jafet, 1617 London Road  
 Meakin, James, 1412 E. 3rd St.  
 Moeller, John, 2628 W. 3rd St.  
 Moore, Philip R., 418 15th Av. E.  
 Mostue, Erling, 214 Osakis St.  
 Murray, D. S., 2028 E. Superior St.  
 Olson, Charles, 2625 W. 1st St.  
 Olson, M. J., 431 N. 23rd Av. W.  
 Olsons, A. J., 516 N. 2nd Av. W.  
 Pattinson, Chauncy R., 1218 E. 5th St.  
 Peterson, Arthur C., 320 E. 3rd St.  
 Pyfer, George A., 118 7th Av. E.  
 Roper, Cyril J., 418 E. 6th St.  
 Rufard, George, 4711 Pitt St.  
 Staky, Carl E., 5817 W. 8th St.  
 Wagner, A. E., 709 8th Av. E.

## AUSTIN

Albertson, O. S. Dr.  
 Anderson, Rollin C.  
 Banfield, E. C.  
 Bennett, W. P.  
 Dalager, Clarence  
 Drost, Henry J.  
 Dugan, M. F.

Edson, F. H.  
 Fenton, Harold R.  
 Fox, Irwin D.  
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 Wilbour, Frank C.



**Bulletin of  
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GENERAL EXTENSION DIVISION

**CORRESPONDENCE COURSES**

**1916-1917**



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## CORRESPONDENCE COURSES

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FLETCHER H. SWIFT, Ph.D., Professor of Education  
JOSEPHINE E. TILDEN, M.S., Professor of Botany  
PERCIVAL W. VIESSELMAN, M.A., LL.B., Assistant in Political Science  
HOWARD T. VIETS, M.A., Instructor in Rhetoric  
JEREMIAH S. YOUNG, Ph.D., Professor of Political Science  
OTTO S. ZELNER, B.S., Assistant Professor of Surveying

## GENERAL INFORMATION

The developments of the last few years have clearly demonstrated the effectiveness of, and the necessity for, university teaching by correspondence. The foremost American universities have recently recognized this opportunity for specific service by extending their work beyond the lecture room and the campus, in order to reach students who are unable to comply with the traditional limitations of university and college study.

In thus extending its functions the University offers a plan of practical instruction whereby collegiate training is made available in every section of the state and to those who of necessity must devote a part of their time to other duties. Altho such instruction can not compensate for the lack of a complete cultural or professional course taken in residence, it makes available to persons unable to attend the University an opportunity to study along lines best adapted to their respective needs and interests.

By a careful economy of time it is possible to contribute largely to the requirements for a Bachelor of Arts degree by combining work in residence at the University Summer Session with correspondence study under the General Extension Division.

## CORRESPONDENCE STUDENTS

Correspondence teaching is of significance to several kinds of students: to the teacher, whom experience has taught the need of further study for individual satisfaction and professional efficiency; to the college graduate, who desires to take up some study which he did not pursue in his resident work; to the man or woman who left school early and who now feels the value of broader training to make either life more interesting or work more productive; and to the young high school graduate who desires to begin his college course. When correspondence teaching is fully developed, it can offer something to every one in the community, whatever his age, training, occupation, or interests. Even at the present stage it meets the needs of very considerable numbers and many different classes.

## SCOPE OF THE WORK

The subjects offered cover a wide range and give sufficient material for the needs of numbers of men and women intent on further study. Mathematics and certain lines of natural science, language, and literature, history, politics, economics, and the elements of philosophical and other social sciences, afford a considerable breadth of selection.

## THE INSTRUCTION

Upon receipt of application and fee the first lesson will be sent, with instructions for study and methods of preparation, and directions for returning lesson sheets and reports. Each lesson will be returned to the student with such corrections, explanations, and suggestions as may be needed. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that no student will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

Each assignment contains questions to test the student's methods of work as well as his understanding of the ground covered. After preparing for recitation the student writes his answers to the questions and returns them, together with a statement of any difficulties which may have arisen during his study.

## INSTRUCTORS

The correspondence teaching is done by instructors from the various faculties in the University, who are in continuous charge of similar courses and who are familiar with the needs of non-resident students. The courses outlined are not mere duplicates of university work, but have been outlined and will be administered in such a way as to take advantage of the broader experience of the mature non-resident student and to make this experience serve as far as possible instead of the more intensive reading of the college student.

## THE UNIT COURSE

The unit course is divided, where practicable, into forty assignments, representing a five-credit course in residence. Such a course represents at least an amount of work equal to that done in residence at the University in a study of five full recitation-hours per week for one semester or half year. It is assumed that this work may be done by the average student in forty weeks with a minimum leisure for study of one hour per day, six days in the week. It is, however, the student's privilege to pursue his studies as rapidly as he is able. There are a few six-credit courses in modern languages. Shorter courses are ordinarily divided into fifths of the unit course of forty assignments, corresponding to three-credit, two-credit, or one-credit courses in resident work at the University. A three-credit course in residence, then, would be covered by correspondence teaching in twenty-four assignments, and shorter courses in proportion. Two assignments in correspondence approximately cover the ground in quantity of a week's work in residence.

## CLASS WORK

The work here offered is primarily for individual students. When a group of twelve or more is pursuing the same course, however, in any community, the University offers to send an instructor at a nominal

charge of five dollars for each visit, in order to direct personally either in the beginning of the term or occasionally at intervals the studies of the group.

### BOOKS AND OUTFIT

All necessary textbooks, drawing outfits, apparatus, dissecting material, chemicals, etc., are extra and *must be procured by the student*. The student also pays postage on lessons one way.

Some reference books may be borrowed from the University Library. This privilege does not apply to the necessary textbooks. The period of loan is one month. The student is expected to pay express or postage both ways. Requests for such reference books should be addressed to The Librarian, University of Minnesota, Minneapolis, and the student should state explicitly what books are desired, with the author's name, title of the book, and the volume number, naming the course taken by correspondence and giving full instructions for mailing.

No list of textbooks is published by the Division.

### PROCEDURE

The student who wishes to undertake correspondence study should first select such course or courses as he may desire to take and send for an application blank. He should fill out the blank with all the information called for and return it with the required fee to the office of the General Extension Division.

### HOW TO SEND MONEY

By post-office or express money order, personal check, or draft. *Make all checks and orders payable to the University of Minnesota.* Always address the General Extension Division, University of Minnesota, Minneapolis.

## REGULATIONS

### ADMISSION

All men and women who seem qualified to pursue successfully the courses offered will be admitted to registration without formal examination. The student is required to fill out an application blank giving such information as may be helpful in adapting the instruction to the personal needs of each student. It is desired that the student state fully the purpose he has in view in taking the work and also in detail such educational advantages, training, or experience as he may have had. The Division endeavors to meet the needs of the individual student by advice and suggestions, as well as by formal instruction, but whenever it finds that the course elected is not for the best interests of the student, it reserves the right to reject the application or to advise change or discontinuance.

### TIME

Students may begin a correspondence course at any time during the year and will be required to complete the course within twelve months from the time of enrollment, but the Division *can not guarantee that all courses will be given during the summer months*. During an instructor's vacation, a substitute will be provided to carry on such course or courses, if possible, or the time for completing the courses will be extended.

### NUMBER OF COURSES CARRIED

Not more than two courses may be carried through correspondence at one time.

### FEEES

All fees are payable at the time the student files his application for registration. If a student enrolls for more than one course at a time he may pay \$12.00 at the time of application and the remaining amount any time within sixty days thereafter.

Three-credit course—24 lesson assignments.....	\$12.00
Five-credit course—40 lesson assignments.....	20.00
For two three-credit courses of 24 lesson assignments each, carried simultaneously .....	20.00
For two five-credit courses of 40 lesson assignments each, carried simultaneously .....	35.00
For one five-credit course plus a three-credit course, carried simultaneously .....	30.00

The reduction in fees is made for the benefit of those who register for and carry two courses at the same time and not for those who carry two courses consecutively.



*No fee is refunded because of a student's inability to enter upon or pursue a course for which he has once registered. If an application for instruction is rejected, the fee is returned.*

#### REINSTATEMENT

Any student whose registration has expired, or who has failed to complete a course within the prescribed time of one year through causes not within the control of the University, may be reinstated with the consent of the Director on payment of one dollar for each course.

#### CREDIT

Students who undertake correspondence study work for university credit must state this fact in advance and comply with all requirements of the University. University credits allowed in this connection will be recorded separately until the student matriculates at the University, when they will be recorded permanently as university credits. Registrations for credit will not be accepted until university entrance requirements have been met. These requirements are ordinarily comprised in a four-year high school course.

Those seeking a university degree must conform to all the requirements exacted by the college or school in which such degree is sought. The bulletin of any college or school may be obtained from the University Registrar.

A maximum of one half the required credits for the B.A. degree may be accumulated through correspondence. The work of the earlier part of the course is more likely to be available for correspondence study. In any case the work of the senior year must be done in residence.

No credits may be earned by correspondence study to apply on the Master's Degree, or any other graduate degree. At present courses in Engineering subjects do not give credit.

#### PROFESSIONAL STATE TEACHERS' CERTIFICATE

Credit toward the Professional State Teachers' Certificate will be allowed only to such students as are now admitted to examination by the committee acting for the State Department of Public Instruction. Credit may be earned by correspondence in General Pedagogy, History of Education, Psychology, and School Organization and Law. Similar credit may also be earned in certain collegiate subjects, which are indicated in each instance under the description of the course. Upon the satisfactory completion of a course a certificate is issued by the University and this may be presented to the State Department of Public Instruction with a request for credit on the State Certificate.

## RESIDENT STUDENTS

Registrations for correspondence courses will not be accepted from resident students of the University of Minnesota or of any other institution of learning unless acceptance would be justified by exceptional circumstances.

No university student may enroll for a correspondence course for the purpose of removing a condition or a failure.

## EXAMINATIONS

All students on completing any course will be given an examination either at the University or, by arrangement, in their home towns under the supervision of an accredited representative of the University. This representative may often be the local superintendent of schools.

## COURSES OF INSTRUCTION

### ASTRONOMY

1. **ASTRONOMY.** A descriptive course designed to give accurate general information regarding the solar system and the stellar universe. Students will be expected to construct some simple inexpensive apparatus for themselves to aid in the comprehension of the subject. Altho not necessary, the student will find that a small telescope, or even an opera glass, will add greatly to the interest in the subject.  
Twenty-four lessons (three university credits). BEAL.

### BOTANY

1. **GENERAL BOTANY.** A university course in General Botany, designed to meet the needs of students who have not the facilities of a regular laboratory. The course includes field study of autumn flowers, of weeds, trees, and shrubs, and of mushrooms and toadstools; the preparation of herbs and woody plants in garden and nature for winter; the migration of seeds and fruits; the gross structure of plants; the physiology of germination and growth.  
Twenty-four lessons (three university credits). One-half credit toward Botany on the State Professional Teachers' Certificate. BERGMAN.  
Registrations for this course will be accepted only between September 1 and October 15, and in April of each year.
2. **GENERAL BOTANY.** Field and garden study of the classification and adaptations of flowering plants with special training in the identification of the common plants of field, forest, and garden, and in the recognition of family types. Particular attention is paid to the adaptations of plants for propagation and pollination, and to the concrete evidences of evolution.  
Twenty-four lessons (three university credits). BERGMAN.  
Registrations for this course will be accepted only between January 15 and March 1, of each year.

### BUSINESS COURSES

1. **PRINCIPLES OF ACCOUNTING.** The purposes of accounting; the main classification of accounts; single entry accounting; the principles of double entry; the application of those principles to the cash book, journal, sales book and purchase book; the trial balance; adjustments and accruals before closing; the balance sheet and income sheet; the working sheet as an aid to statement making; columnar books of orig-

inal entry; subsidiary ledgers and controlling accounts in the general ledger; contingent liabilities; imprest cash; manufacturing accounts and the manufacturing statement; depreciation; voucher systems.

A fundamental general course treating of the principles underlying the science of accounts and the practical application of those principles. The principal aim of the course is to study accounts from the standpoint of the business statements—the balance sheet, and profit and loss statement. The first series of eight lessons is aimed to give the student an understanding of the principles of double-entry bookkeeping. The remaining sixteen lessons apply to the principles and practice of accounts not ordinarily understood by the average bookkeeper.

Twenty-four lessons (three university credits). PRESTON.

2. **BUSINESS ENGLISH.** Mastery of materials, letters in general, complaint answers, reminder letters, recommendation letters, application letters, credit-adjustment letters, "ginger" letters, form letters, follow-up letters, general sales letters.

Twenty-four lessons (no university credit). VIETS.

3. **BUSINESS LAW A—CONTRACTS AND AGENCY**

The general rules of contracts being fundamental to all work in business law, this course should precede the others.

Contracts: Formation of contracts, offer and acceptance, consideration, capacity of parties, minors, married women, misrepresentation, fraud, legality of object, the operation of contracts, interpretation of contracts, methods of discharging contracts.

Agency: Methods of forming the relation of agency, who may act as agent, who may act as principal, liabilities of principal to third parties, liabilities of agents, termination of agency.

Sixteen lessons (two university credits). Fee, \$8.00. SMILEY.

4. **BUSINESS LAW B—PERSONAL PROPERTY, SALES, BAILMENTS, NEGOTIABLE INSTRUMENTS**

Negotiable instruments, nature and characteristics (a) definition; (b) the uniform negotiable instruments law, essentials, non-essentials, negotiations, indorsements and delivery, holder in due course and his rights, notice of dishonor, protest, checks.

Personal Property—Bailments: definitions, distinction between real and personal property, nature of bailment, rights of bailor, rights of bailee.

Sales of personal property. Definition of a sale; when the title passes to the buyer; rights of the seller (a) to set the contract aside on the ground of fraud, (b) the seller's lien for the purchase money, (c) right of stoppage in transit; rights of the purchaser, (a) to demand goods of a certain quality, (b) warranty of the purchaser's title.

Sixteen lessons (two university credits). Fee, \$8.00. SMILEY.

NOTE: See also Course 10 under "Economics."

## ECONOMICS

1. **ELEMENTS OF ECONOMICS, PART I.** Price under competition and under monopoly; the factors of production and the principles determining the reward that the factors get in the shape of wages, rent, interest, and profit; principles of trade, including consideration of relative merits of free trade and protection; money; banks and banking; immigration; trade unions; stock exchange; concentration of industry; insurance; the economic functions of the state.

This course is designed to give a general understanding of our economic order. Special attention is given to a consideration of basic principles and to descriptive accounts of economic institutions.

Twenty-four lessons (three university credits). PATON.

2. **ELEMENTS OF ECONOMICS, PART II.** This course undertakes a more intensive study of the principles of price determination than was possible in course 1, especially as related to the problem of distribution. Further attention will be given certain important economic questions, such as the business cycle, the tariff problem, corporation finance, monopoly, public utility regulation, and projects of economic reform. Course 1 or its equivalent is a prerequisite.

Twenty-four lessons (three university credits). PATON.

3. **LABOR PROBLEMS, PART I.** Modern labor problems; woman and child labor, industrial education, unemployment, poverty, industrial hygiene, welfare work. Lecture, textbooks, assigned readings.

Twenty-four lessons (three university credits). PHELAN

- LABOR PROBLEMS, PART II.** Profit sharing, coöperation, labor unions, strikes, boycotts, conciliation and arbitration; immigration; causes, effects, remedies. Lectures, textbooks, assigned readings.

Both courses must be completed before credit is given for either.

Twenty-four lessons (three university credits). PHELAN.

4. **ECONOMIC DEMOCRACY.** Aristocracy versus democracy in economics; competition, socialism, and state regulation plus education as means of achieving economic justice; special attention to socialism as a philosophy of industrial evolution and a program of economic reform, and to the alternative of adequate, reasonable, and efficient public regulation of private economics: Lectures and assigned readings.

Twenty-four lessons (three university credits). PHELAN.

5. **MAN AND HIS LIVING.** A general course in the activities, relations, and phenomena that result from human effort to make a living and to live. How to weigh and study the facts of life; the aim and goal of economic progress; economic change; economic development in the United States; the language of economics; the factors of production; business organization; value and price; monopoly; money

and banking; foreign economic relations; sharing the product; rent, wages, interest, profits; transportation; insurance; city and country; the state and our money.

Designed to appeal to all who desire to maintain a broad view of life and to be ripe for active citizenship; also to the teacher who means to enliven and enforce his or her teaching by bringing it into relation with life outside of the school.

Twenty-four lessons (three university credits). PHELAN.

6. **ECONOMIC DEMOCRACY.** The beginning of American Democracy; modern ideas in the utopian philosophers; the beginnings of modern socialism; the People's Great Britain; social democracy in France; German social democracy; the social movement in Belgium, Austria, Italy, Switzerland, Russia; the general strike; anarchism; communism and socialism in the United States; the single tax; public regulation of business; criticisms of socialism, an alternative. Emphasizes reform through public regulation and education.  
A course on constructive citizenship.

Twenty-four lessons (three university credits). PHELAN.

7. (160) **LABOR AND LIFE (LABOR PROBLEMS).** The rise of the modern labor problem; woman labor; the minimum wage; child labor; vocational guidance; mothers' pensions; unemployment; industrial accidents; occupational disease; poverty.

Twenty-four lessons (three university credits). PHELAN.

Teachers, employers, employees, social workers, and active citizens should find much of interest and profit in this and the two following courses.

8. (161) **LABOR AND THE PUBLIC (LABOR PROBLEMS).** Strikes and their prevention; boycotts; injunctions; labor doctrines and theories; types of labor unions; of employers' associations; profit-sharing and cooperation; scientific management; old age pensions.

Twenty-four lessons (three university credits). PHELAN.

9. **IMMIGRATION.** The making of America; causes of immigration; effects of immigration on native population; effects on American institutions; effects on labor; the effects on Europe; immigration administration; what shall be done about immigration?

Twenty-four lessons (three university credits). PHELAN.

10. **BANKING.** The subject-matter of this course constitutes the necessary basis of a thoro understanding of the principles of currency, banking, and finance. The lessons will survey all the practical operations of modern banks with chief emphasis upon commercial banking and with some attention to the legal problems to be met with in dealings

between banks and their customers. Beginning with a description of the development of commercial banking, of savings banks and trust companies, the course will be developed under the following topics: how to organize a commercial bank; shareholders, directors and officers, their duties, powers, and liabilities; deposits, depositors and the receiving teller; the paying teller and checks; the bank reserve; national bank notes; clearing houses; collections and domestic exchange; foreign exchange; loans and discounting, credit departments and how they judge credit; collateral loans; statements of condition; bank policy; supervision and examinations; analyzing depositors' accounts, central banks of England, France and Germany, the Federal Reserve System of the United States, and rural credits.

Twenty-four lessons (three university credits). EBERSOLE.

## EDUCATION

### 1. INTRODUCTORY PSYCHOLOGY

See Course 1 under Philosophy and Psychology.

### 2. EDUCATIONAL PSYCHOLOGY

See Course 2 under Philosophy and Psychology.

3. HISTORY OF ANCIENT AND MEDIEVAL EDUCATION. An introductory study in the history of education, with special attention to the education of Greece, Rome, and the early Christian centuries, to the development of different types of schools in medieval times, and to the rise of the universities and of the humanistic schools of the Renaissance. The course is designed to arouse an interest in educational problems, to secure some perspective for use in current investigation, and to give some command of the facts of educational history and some facility in the methods of historical investigation. An attempt is made to bring out education as one phase of civilization and to show the connection of schools with other social institutions.

Twenty-four lessons (three university credits). SWIFT.

4. HISTORY OF MODERN EDUCATION. A somewhat intensive study of the periods in the history of modern education, with special reference to the development of the various national systems of public instruction. Different types of educational theory are considered in connection with a study of the men who first advanced them and of the schools in which they were first put into effect. This course is a direct preparation for an understanding of the educational systems, theories, and practices of the present.

Twenty-four lessons (three university credits). One credit toward History of Education on the State Professional Teachers' Certificate. SWIFT.

5. **RURAL EDUCATION.** This course is intended to give the student a comprehensive understanding of rural life in its economic and social aspects so that he may, with better intelligence, organize the rural school and make it a power in the community for coöperation with all other constructive forces, and a factor in the promotion of leadership among the country people themselves. It is not a narrow academic course, but a broad, popularly arranged course that any intelligent person can pursue with satisfaction and profit.

*Gillette's Constructive Rural Sociology*, *Carver's Principles of Rural Economics*, supplemented by a number of rural surveys and pamphlets on various special topics, are the required texts in the course.

Twenty-four lessons (three university credits). RANKIN.

6. **THE MODERN HIGH SCHOOL.** A brief review of its evolution to date will be followed by a thoro consideration of its place and function, especially its increasing usefulness in a democracy; its curriculum, particularly with reference to needed reconstruction of courses; the better organization of the high school to meet the demands of adolescence; relation of the high school to other parts of the system; the larger problems of organization and management, especially as these things affect the work of the regular teacher. In a word, this course is intended to give those who work in high schools the point of view that will insure the best results.

Much of the material of the course is drawn from practical observation and actual surveys. *Johnston's The Modern High School* is used as the fundamental text.

Twenty-four lessons (three university credits).

7. **INDUSTRIAL EDUCATION.** The principles fundamental to vocational training in the public school system as affecting the arrangement of school years, the course of study, and the methods of teaching.

Twenty-four lessons (three university credits). RANKIN.

8. **PHILOSOPHY OF EDUCATION.** An endeavor to correlate the various educational ideals drawn from biological and psychological studies, with special consideration of recent social phases of education. An attempt to answer the question, "What does education mean to-day?"

Twenty-four lessons (three university credits). One-half credit toward General Pedagogy on the State Professional Teachers' Certificate. ALEXANDER.

9. **THEORY OF TEACHING.** An introductory course in educational theory, including a somewhat detailed study of the principles on which is based the present practice in teaching, with an interpretation of the fundamental facts of psychology as applied to the problems of education.



Twenty-four lessons (three university credits). One-half credit toward General Pedagogy on the State Professional Teachers' Certificate. ALEXANDER.

10. **SCHOOL ORGANIZATION AND LAW.** A comprehensive course in the organization and management of schools in American communities, with special reference to the duties of school boards and school superintendents, principals, and teachers, to the methods and equipment proper to schools of various grades, and to the main facts in the school law of Minnesota.

Twenty-four lessons (three university credits). Credit for School Organization and Law on the State Professional Teachers' Certificate. RANKIN.

11. **SCHOOL SANITATION.** This course is designed for those who are concerned with schools of any and all grades. It deals with conditions affecting the health of school children of all ages. School architecture, courses of study, and the discipline of the school will be considered as well as all other questions affecting the well-being of pupils.

Twenty-four lessons (three university credits). RANKIN.

## ENGINEERING

1. **SHOP MATHEMATICS, PART I.** This course will include mathematics from the elements through proportion, and will also include certain problems in areas, volumes, weights of materials, etc., and the fundamental elements of machines, such as levers, pulleys, inclined plane, etc.

Twenty-four lessons (no university credit). EDWARDS.

2. **SHOP MATHEMATICS, PART II.** This work will be in advance of Part I and will take up algebra, geometry, and trigonometry from a practical shop standpoint. A thoro working knowledge of formulae will be given. Each lesson in both Parts I and II will have numerous practical problems to be worked by the student.

Twenty-four lessons (no university credit). EDWARDS.

3. **MECHANICAL DRAWING, PART I.** The course includes the use of instruments, lettering, simple projections with sections and developments, working drawings of details of tools, machines, and structures. Geometrical problems and exercises will be studied in connection with their application. An elementary course designed to meet the needs of beginners.

Twenty-four lessons (no university credit). KIRCHNER and assistants.

4. **MECHANICAL DRAWING, PART II.** A continuation of Part I. (A complete outfit for these courses can be purchased for as little as six dollars. Set No. 1, \$6.00; Set No. 2, \$8.00; Set No. 3, \$10.00.)  
Twenty-four lessons (no university credit). KIRCHNER and assistants.
5. **FREEHAND LETTERING.** This course is especially adapted for the use of teachers of drawing in high schools, manual training instructors, rural teachers, draftsmen, highway and county engineers. Capitals, lower case, numerals, and other symbols will be thoroly treated. Explanatory notes, dimensions, and title layouts will be illustrated.  
Sixteen lessons (no university credit). Fee, \$8.00. ZELNER.
6. **ELECTRICITY AND MAGNETISM.** An elementary study of magnetism and electricity. Simple laws of magnetism, and the relation of magnetism to direct current electricity will be developed. Series and parallel circuits, combinations of both, simple wiring and armature winding will be taken up. A knowledge of arithmetic and algebra would be helpful, but is not required.  
Twenty-four lessons (no university credit). EDWARDS.
7. **HEATING AND VENTILATION.** The course is intended to meet the needs of those who wish to know about the principles and installation of heating and ventilating apparatus. The work will include an introduction and study of heat, heat losses, loss of ventilation, ventilation practice, air conditioning, heating systems—steam and hot-water, direct and indirect, use of exhaust steam, thumb rules, warm-air systems, fan systems—plenum and exhaust systems, vacuum systems, piping systems, central-station heating and heating accessories.  
Twenty-four lessons (no university credit). MARTENIS.
8. **STRENGTH OF MATERIALS.** An elementary course on the strength of materials in common use. Properties of materials, stress and strain, elastic limit, ultimate strength, deformation, deflection, principle of moments, moments of inertia, and the general elementary theory of beams, columns, and shafts will be taken up. The student should have the equivalent of Shop Mathematics, Parts I and II.  
Twenty-four lessons (no university credit). EDWARDS.
9. **ELEMENTARY MECHANICS.** A short, practical course in elementary mechanics designed to meet the needs of students who have had a limited training in mathematics. Numerical calculation, simple graphical calculations, forces, simple machines, velocity, acceleration, impulse, momentum, work, power, and energy.  
Twenty-four lessons (no university credit). BROOKE.

10. **LUMBER AND ITS USES.** Structural and physical properties of wood, standard grades and sizes, structural timbers, seasoning and preservation, paints and stains, lumber prices, cost of wood construction, specific uses of woods and selection of materials.

Ten lessons (no university credit). Fee, including text material, \$6.00. CHEYNEY.

11. **PUBLIC ROADS AND HIGHWAYS.** This course has been designed for public officials and members of semi-public organizations interested in good roads.

The cost and economy of various types of roads, methods of administration, construction of earth, gravel, concrete and bituminous surfaces, of bridges and culverts will be successively studied.

In coöperation with the State Highway Commission, Minnesota materials and standards of construction will be given particular attention.

Twenty-four lessons (no university credit). BASS.

## ENGLISH

1. **HISTORY OF ENGLISH LITERATURE I.** A general survey of English literature from the earliest times to 1700, with a good deal of emphasis upon the historical setting. Extensive readings from volumes of examples of the most famous poetry and prose. When feasible, the special study of the work of one of the major authors is recommended to be done at the same time as an intensive offset to so much rather sporadic reading.

Twenty-four lessons (three university credits). Credit for English Literature on the State Professional Teachers' Certificate. NORTHROP.

2. **HISTORY OF ENGLISH LITERATURE II.** A general survey of English literature from 1700 to the present time.

Twenty-four lessons (three university credits). Credit for English Literature on the State Professional Teachers' Certificate. NORTHROP.

3. **AMERICAN LITERATURE—GENERAL SURVEY.** A study of American literary development, with particular attention to the influence of English literature and the effect of our own national history upon the progress of thought and expression in the United States. The student must read extensively from American authors and answer questions which will call for constructive criticism and independent estimates. Textbook comments will not be accepted.

Twenty-four lessons (three university credits). Credit for American Literature on the State Professional Teachers' Certificate. NORTHROP.

## CORRESPONDENCE COURSES

4. **THE ENGLISH NOVEL.** An elementary course in the principles of fiction with the careful study of seven novels, selected to represent various aspects of the history of English prose fiction; also the study of a contemporaneous novel with an attempt to ascertain its literary value and its relationship to the masterpieces of the past. The consecutive study of the novels will be accompanied by selected assignments from Bliss Perry, *Study of Prose Fiction* and W. L. Cross, *The Development of the English Novel*. Prerequisite for credit, Courses 1 and 2 above.

Twenty-four lessons (three university credits). CRAIG.

5. **THE ROMANTIC MOVEMENT.** Poets and prose writers of the late Eighteenth Century and early Nineteenth Century with particular stress upon Wordsworth, Byron, and Shelley, and a consideration of the influence upon English literature of the revolution in France. Prerequisite for credit, Courses 1 and 2 above.

Twenty-four lessons (three university credits). CRAIG.

## GEOLOGY

1. **GENERAL GEOLOGY.** A general course, including a study of natural forces and phenomena, plants and animals as geologic agents, structural geology, physiographic geology, and an outline of historical geology.

Twenty-four lessons (three university credits). One-half credit toward Geology and Physiography on the State Professional Teachers' Certificate. LEHNERTS.

2. **PHYSICAL GEOGRAPHY.** A college course in the essentials of Physical Geography and Physiography, with special application of the conditions of surface and climate to human occupation and economic and national development.

Twenty-four lessons (three university credits). One-half credit toward Geology and Physiography on the State Professional Teachers' Certificate. LEHNERTS.

## GERMAN

1. **BEGINNING GERMAN A.** Grammar and easy composition.

Forty lessons (six university credits). Open to all who have had no German. BUBKHARD.

2. **BEGINNING GERMAN B.** Grammar and composition continued; selected readings in easy prose and verse.

Forty lessons (six university credits). Both A and B must be completed before credit is given for A. BUBKHARD.

3. INTERMEDIATE GERMAN A. Selections from modern narrative and descriptive prose, selected lyrics and ballads. Review of the morphology of grammar.  
Twenty-four lessons (three university credits). Open to those who have completed Courses 1 and 2 or their equivalent. GEISSENDOERFER.
4. INTERMEDIATE GERMAN B. A drama of Lessing, Goethe, or Schiller.  
Twenty-four lessons (three university credits). Both A and B must be completed before credit is given for A. Students who obtain credit for these courses can not receive credit also for Courses 5 and 6. GEISSENDOERFER.
5. PROSE AND POETRY A. Spanhoffd's *Aus Vergangener Zeit*; selected lyrics and ballads. Geography, history, legend. Review of the morphology of grammar.  
Twenty-four lessons (three university credits). Open to students with two years of preparatory German. MYERS.
6. PROSE AND POETRY B. Lyrics and ballads continued. Goethe's *Hermann und Dorothea*. Review of syntax.  
Twenty-four lessons (three university credits). These courses not open to those who have obtained credit in Courses 3 and 4. Both A and B must be completed before credit is given for A. MYERS.
7. ELEMENTARY COMPOSITION A. Translation of short English selections. Paraphrasing of simple poems. Free narration. Exercises based on topical grammar review.  
Sixteen lessons (two university credits). Open to those who are taking or have taken Courses 3 and 4 or 5 and 6. Fee \$8.00. MYERS.
8. ELEMENTARY COMPOSITION B. Translation and grammar review continued. Simple description. Letter writing.  
Sixteen lessons (two university credits). Both A and B must be completed before credit is given for A. Fee \$8.00. MYERS.
9. DRAMA A. Study of the present-day drama in Germany. Selected plays of Hebbel, Hauptmann, or Sudermann, with assigned readings and reports.  
Twenty-four lessons (three university credits). Open to those who have completed Courses 1 and 2 and 3 and 4, or 5 and 6. DAVIES.
10. DRAMA B. Study of the German drama of the eighteenth century and through the classic period. Selected plays of Lessing, Goethe, or Schiller, with assigned readings.  
Twenty-four lessons (three university credits). DAVIES.

11. SURVEY OF GERMAN LITERATURE TO THE CLASSIC PERIOD. A study of the development of German literature from the earliest times through Lessing. Selected readings from representative works supplement the course. Prerequisite for credit, Courses 9 and 10 above.  
Twenty-four lessons (three university credits). BURKHARD.
12. SURVEY OF GERMAN LITERATURE SINCE THE CLASSIC PERIOD. A study of the development of German Literature from Goethe through the Romantic movement and the most prominent writers of the nineteenth century. Selected readings from representative works supplement the course. Prerequisite, Course 11 above.  
Twenty-four lessons (three university credits). BURKHARD.

## GREEK

1. BEGINNING GREEK A. The declensions and conjugations and the simpler rules of syntax, together with sentences based on the vocabulary of the *Anabasis*, and translation into Greek of idiomatic English sentences based upon the same text.  
Forty lessons (five university credits). Open to those qualified, who have had no Greek. Both A and B must be completed before credit is given for Course A. SAVAGE.
2. BEGINNING GREEK B. The *Anabasis* itself, an amount equivalent to about a book; Hadley's *Greek Grammar*; etymology reviewed and syntax studied sufficiently to enable the student to proceed confidently in the translation of the text; translation from English into Greek continued.  
Forty lessons (five university credits). SAVAGE.
3. ESSENTIALS OF NEW TESTAMENT GREEK. An elementary course in beginning Greek based on the New Testament. Open to those who desire to be able to use the New Testament in the original. No previous knowledge of Greek is required.  
Twenty-four lessons (three university credits). HUTCHINSON.
4. ELEMENTARY COURSE IN HOMER  
Open to those who have read in Greek prose the equivalent of at least three books of the *Anabasis*. Twenty-four lessons (three university credits). HUTCHINSON.
5. ELEMENTARY COURSE IN THE DRAMA  
Open to those who have read at least two books of Homer in addition to the prose equivalent of at least three books of the *Anabasis*.  
Twenty-four lessons (three university credits). SAVAGE.

## HISTORY

1. ANCIENT HISTORY, PART I—GREEK. This course includes a brief preliminary survey of Egypt and Babylonia, showing their influence on later civilizations, followed by a study of Greek history, with special stress on the development of Sparta and Athens, the Persian Wars, the Age of Pericles, the interrelation of politics with the artistic and literary development and finally the conquests of Alexander and the diffusion of Greek civilization over the East.

Twenty-four lessons (three university credits). One-half credit toward Ancient History on the State Professional Teachers' Certificate. DAVIS.

2. ANCIENT HISTORY, PART II—ROMAN. A course in Roman history, including the rise of Rome from a petty city to the position of mistress of the ancient world, the great struggle with Carthage, the causes that led to the fall of the Republic, the transition to the Empire, and its decline and fall, with special emphasis on the effect of imperial institutions on modern civilization.

Twenty-four lessons (three university credits). One-half credit toward Ancient History on the State Professional Teachers' Certificate. DAVIS.

3. MEDIEVAL AND MODERN HISTORY, PART I. A study of European history from the time of Charlemagne to the close of the Thirty Years War (800-1648 A. D.)

Twenty-four lessons (three university credits). One-half credit toward Modern History on the State Professional Teachers' Certificate. KREY.

4. MEDIEVAL AND MODERN HISTORY, PART II. A study of European history from the close of the Thirty Years War to the present (1648-1914).

Twenty-four lessons (three university credits). One-half credit toward Modern History on the State Professional Teachers' Certificate. KREY.

5. UNITED STATES HISTORY, PART I. This is the first half of a comprehensive course in American history. About two thirds of Part I is devoted to the colonial period, the remainder to the Revolution and the closing years of the eighteenth century. The work consists of a study of the text, supplemented by a considerable amount of source study and collateral reading. The student is required to prepare written answers to questions based on the text and on the supplementary readings.

Twenty-four lessons (three university credits). One-half credit toward United States History on the State Professional Teachers' Certificate. STEVENS.

6. UNITED STATES HISTORY, PART II. A continuation of Part I, devoted mainly to a study of the period from the beginning of the nineteenth century down to 1861, with a brief survey in conclusion of the principal events from that time to the present.  
Twenty-four lessons (three university credits). One-half credit toward United States History on the State Professional Teachers' Certificate. STEVENS.

## LATIN

1. ORATIONS OF CICERO A. Two orations, study of the life of Cicero and Latin composition.  
Twenty-four lessons (three university credits). Open to those who have completed two years of preparatory Latin. GRANRUD.
2. ORATIONS OF CICERO B. Four orations, study of the times of Cicero and Latin composition.  
Twenty-four lessons (three university credits). Open to those who have completed Course I. GRANRUD.
3. VIRGIL'S AENEID A. The course will cover the first two books of the *Aeneid* and include the study of the life and times of Virgil, the principles of Latin prosody, the literary style of the *Aeneid*, and, to a limited extent, Roman mythology.  
Twenty-four lessons (three university credits). Open to those who have completed three years of preparatory Latin. PIKE.
4. VIRGIL'S AENEID B. Books 3, 4, 5, 6 of the *Aeneid*. Textbooks: *Virgil's Aeneid* by Charles Knapp, Bennett's *Latin Grammar*. The student will, besides, be expected to read and report on Sellar's *Virgil*.  
Twenty-four lessons (three university credits). Open to those who have completed Virgil's Aeneid A. PIKE.
5. LIVY, BOOK I. The work will comprise the study of the text, the life, times, and literary style of Livy, and, in some measure, early Roman institutions, and, lastly, Latin composition: Textbooks: Westcott's *Livy*, Book I, Bennett's *Latin Grammar*, and White's *Latin-English Lexicon*. The student will also read and report on Ihne's *Early Rome*.  
Twenty-four lessons (three university credits). Open to those who have completed four years of preparatory Latin. PIKE.
6. PLAUTUS AND TERENCE: SELECTIONS. The course will consist of a study of the texts, the literary styles of Plautus and Terence, and an outline of the history and technique of the Roman drama. Textbooks: *Plautus' Menaechmi* by Fowler, *Terence's Phormio* by Elmer, and



White's *Latin-English Lexicon*. The student will also be required to read and report upon Sellar's "Plautus and Terence" in *The Roman Poets of the Republic*.

Twenty-four lessons (three university credits). Open to those who have completed Course 5. PIKE.

### MATHEMATICS

1. **ELEMENTARY ALGEBRA I.** This course covers the ground given in the average high school in the first half year of algebra.  
Twenty lessons (no university credit). Fee, \$10.00. MIKESH.
2. **ELEMENTARY ALGEBRA II.** This course covers the ground given in the average high school in the second half year of algebra up to and including quadratics.  
Twenty lessons (no university credit). Fee, \$10.00. MIKESH.
3. **PLANE GEOMETRY I.** This course covers the ground of the average high-school course as given in first half year of plane geometry.  
Twenty lessons (no university credit). Fee, \$10.00. KIRCHNER.
4. **PLANE GEOMETRY II.** This course covers the ground of the average high-school course as given in the second half year of plane geometry.  
Twenty lessons (no university credit). Fee, \$10.00. KIRCHNER.
5. **SOLID GEOMETRY.** This course is designed not only to give a knowledge of the standard theorems and exercises of the text, but to develop the student's own imagination and initiative and give a well-rounded view of the subject by practice in special proofs and original exercises.  
Twenty-four lessons (no university credit). Credit for Solid Geometry on the State Professional Teachers' Certificate. KIRCHNER.
6. **HIGHER ALGEBRA, PART I.** A comprehensive study of the elements of the subject, with more difficult problems and demonstrations than in the elementary course, covering the fundamental rules, factoring, highest common divisor, lowest common multiple, fractions, involution, evolution, surds, imaginaries, simple equations with one, two, or more unknown quantities, ratio, proportion, variation, and progressions.  
Forty lessons (five university credits). One-half credit toward Higher Algebra on the State Professional Teachers' Certificate. MIKESH.
7. **HIGHER ALGEBRA, PART II.** A continuation of Part I, including a study of variation, quadratic equations, special higher equations, simultane-

ous equations of the second degree, maxima and minima of functions, logarithms, theory of equations, and solution of numerical higher equations.

Twenty-four lessons (three university credits). One-half credit toward Higher Algebra on the State Professional Teachers' Certificate. MIKESH.

8. **TRIGONOMETRY.** A course in plane and spherical trigonometry, designed to meet the needs of beginners and to include the subject usually considered in the ordinary college course. The solution of triangles is treated quite fully, but not to the exclusion of analytical trigonometry.

Twenty-four lessons (three university credits). Credit for Trigonometry on the State Professional Teachers' Certificate. BROOKE.

NOTE: See also Courses 1 and 2 under "Engineering."

### MUSIC

1. **HARMONY.** Will begin with scales, major and minor; intervals; formation of triads, their inversions; the dominant seventh chord, its inversions; modulation; suspension; organ-point, etc.

Twenty-four lessons (three university credits). SCOTT.

2. **HISTORY OF MUSIC.** A general survey of the development of music, from the earliest times to the present; primitive scale-forms, Greek theory, changes due to Christian practices, the development of polyphony, the monodic revolution and the growth of opera, the rise of instrumental music and instrumental forms, leading to a historical view of present-day music and musical tendencies. Considerable attention will be given to parallel movements and conditions in literature and history, the aim of the course being to present music as a literature.

Twenty-four lessons (three university credits). FERGUSON.

### PHILOSOPHY AND PSYCHOLOGY

1. **GENERAL PSYCHOLOGY I.** The purpose of this course is to acquaint the student with the general characteristics and laws of mental life and with the aims and methods of modern psychology.

Twenty-four lessons (three university credits). One-half credit toward Psychology on the State Professional Teachers' Certificate. KANTOR.

2. **GENERAL PSYCHOLOGY II.** The study of mental development in its relation to heredity and training, with an investigation of the facts and theories of childhood and adolescence with special reference to their bearing on education.

Twenty-four lessons (three university credits). One-half credit toward Psychology on the State Professional Teachers' Certificate.  
DASHIELL.

3. INTRODUCTION TO PHILOSOPHY. A survey course in philosophy, in which the main fields of investigation are mapped out, the permanent problems indicated, and the chief methods employed in their solution are discussed. The course leads up to an outline of the idealistic view of the world, with practical applications to conduct and religion.  
Twenty-four lessons (three university credits). LODGE.
4. LOGIC. A study first of the nature and place of thinking in human life, followed by some notice of points in logical theory. Main emphasis then to be laid upon the methods that naturally arise in human thinking, studying their technical developments with the Greeks, the Schoolmen, and the modern scientists.  
Twenty-four lessons (three university credits). LODGE.
5. ETHICS. A study mainly of morality as a phase of the developing life of peoples. Some attention to individual morality, but especially to contemporary social problems.  
Twenty-four lessons (three university credits). LODGE.
6. ANCIENT AND MEDIEVAL PHILOSOPHY. A general survey of the philosophical problems that arose in the Greek period, and their development through the Middle Ages. The philosophical problems will be considered as representing the fundamental attitudes of the particular periods toward experience. These fundamental attitudes will be studied in the formulations of the individual philosophers. The work of Plato and Aristotle will be particularly stressed.  
This course will give credit only to those having six credits or their equivalent in the Department of Philosophy. Text: Rogers' *Students' History of Philosophy*, and readings in Plato and Aristotle.  
Twenty-four lessons (three university credits). KANTOR.
7. MODERN PHILOSOPHY. A continuation of the previous course. This course is intended to cover the reconstruction of the problems of human experience, and their intended solution. The traditions of Rationalism and Empiricism will be traced down to the Kantian Philosophy. As in the previous course, the special authors will be studied. Rogers' *Students' History of Philosophy*, with special readings, will be used. Same prerequisite as Course 6.  
Twenty-four lessons (three university credits). KANTOR.

## PHYSICS

1. GENERAL PHYSICS. Mechanics of solids and fluids, sound, and heat. An elementary university course in the fundamental principles of the subject.  
Twenty-four lessons (three university credits). DIETERICH.
2. GENERAL PHYSICS. Electricity, magnetism, and light. A continuation of General Physics I.  
Twenty-four lessons (three university credits). DIETERICH.

## POLITICAL SCIENCE

1. AMERICAN GOVERNMENT. An elementary course in American Government and Politics intended as a preparation for teaching in secondary schools and for good citizenship. The course deals with the national government, treating its nature and origin. Special attention will be given to the organization of the executive, legislative, and judicial branches of the government, together with the various powers and duties of each department; to the conduct of foreign affairs; and the Federal Trade Commission. The textbooks are *American Government and Politics*, by C. A. Beard, and *The New American Government* by J. T. Young.  
Twenty-four lessons (three university credits). VIESSELMAN.
2. STATE AND LOCAL GOVERNMENT. The constitutional basis of state government; relation of the states to the United States and to the local units of government; recent experiments, such as the initiative and referendum, the recall, and primary systems in nominating. Three text-books are required: *American Government and Politics*, by Charles A. Beard; *The New American Government and Its Work*, by J. T. Young; and *Government of Minnesota*, by J. S. Young.  
Twenty-four lessons (three university credits). YOUNG.
3. AMERICAN MUNICIPAL ADMINISTRATION. A study of the city problem in the United States. Organization, functions, and administration. Forms of charters. Commission and manager plans. Home rule. Inefficiency, corruption. Civil service and other reform measures. Finance, health, police, education, and other activities. Prerequisite for credit, Course 1 above.  
Twenty-four lessons (three university credits). ANDERSON.
4. INTERNATIONAL LAW. Recognition, extinction, and succession of states. Inviolability of territory; freedom of the seas. Declaration of war; rules of war on land and on sea. Neutrality and neutral rights; blockade, contraband, unneutral service, visit and search. Mediation, arbitration, and judicial settlement of international disputes.

A world court. Prerequisite for credit, Course 1 above.

Twenty-four lessons (three university credits). ANDERSON.

### RHETORIC

1. RHETORIC, PART I. This course is designed to give practical training in composition as well as a knowledge of rhetorical principles. Aside from the study of the text it includes practice in the analysis of the best specimens of English prose, and the writing of papers, mainly expository in character.

Twenty-four lessons (three university credits). One-half credit toward Rhetoric on the State Professional Teachers' Certificate. VIETS.

2. RHETORIC, PART II. A continuation of Part I, with more advanced work in analysis, and practice in writing narration, description, and informal argument.

Twenty-four lessons (three university credits). One-half credit toward Rhetoric on the State Professional Teachers' Certificate. VIETS.

3. EXPOSITION. A study of the principles of paragraph-structure, sentence-structure, and diction, in so far as these apply in the field of exposition. Prerequisite Rhetoric, Part I and Part II.

Twenty-four lessons (three university credits). HERRICK.

4. NARRATION AND DESCRIPTION. General rhetorical principles particularly applied to narration and description. Prerequisite for credit, Course 3 above.

Twenty-four lessons (three university credits). HERRICK.

5. VERSIFICATION. A study of the nature of poetry, and a detailed analysis of English meters and the various English verse forms. The theory accompanied by criticism of current poetry and practice in writing verse.

Twenty-four lessons (three university credits). Open for credit to those who have completed the equivalent of freshman and sophomore rhetoric (Courses 1, 2, 3, 4, above). Open to others without credit. NICHOLS.

6. BUSINESS ENGLISH. See Course 2 under Business Courses. VIETS.

### ROMANCE LANGUAGES

#### FRENCH

1. BEGINNING FRENCH A

Forty lessons (six university credits). SIRICH.

## CORRESPONDENCE COURSES

2. BEGINNING FRENCH B. French grammar and reader; modern texts.  
Both courses must be completed before credit is given for the first course. Forty lessons (six university credits). SIRICH.
3. INTERMEDIATE FRENCH A  
Twenty-four lessons (three university credits). FRELIN.
4. INTERMEDIATE FRENCH B. Prose composition; modern texts, including some of the works of Coppée, Daudet, Scribe, *et al.*  
Twenty-four lessons (three university credits). Open to those who have completed Courses 1 and 2 or their equivalent. Both courses must be completed before credit is given for the first course. FRELIN.

## SPANISH

1. BEGINNING SPANISH A  
Forty lessons (six university credits). SIRICH.
2. BEGINNING SPANISH B. Spanish grammar and reader; modern texts.  
Forty lessons (six university credits). Open to all who have had no Spanish. Both courses must be completed before credit is given for Course 1. BARRETT.
3. INTERMEDIATE SPANISH A  
Twenty-four lessons (three university credits). SIRICH.
4. INTERMEDIATE SPANISH B. Reading of modern Spanish texts.  
Open to those who have completed Courses 1 and 2. Both courses must be completed before credit is given for the first course. Twenty-four lessons (three university credits). BARRETT.

## ITALIAN

1. BEGINNING ITALIAN. Rules of pronunciation, grammar, elementary composition and easy readings in modern prose.  
Twenty-four lessons (three university credits). PHELPS.
2. INTERMEDIATE ITALIAN. Continuation of grammar study and composition; readings in prose and verse.  
Twenty-four lessons (three university credits). PHELPS.

## SCANDINAVIAN LANGUAGES AND LITERATURES

## NORWEGIAN

1. ELEMENTARY NORWEGIAN A  
Forty lessons (six university credits). .....
2. ELEMENTARY NORWEGIAN B. Elementary study of the language, grammar, composition, select readings in easy prose and poetry.

Forty lessons (six university credits). Open to all who are qualified to take the course. Both courses must be completed before credit is given for the first course. . . . .

3. MODERN NORWEGIAN LITERATURE A

Twenty-four lessons (three university credits). BOTHNE.

4. MODERN NORWEGIAN LITERATURE B. History of Norwegian literature from 1814 to the present day.

Twenty-four lessons (three university credits). Open to advanced students. Both courses must be completed before credit is given for the first course. BOTHNE.

SWEDISH

1. ELEMENTARY SWEDISH A

Forty lessons (six university credits). STOMBERG.

2. ELEMENTARY SWEDISH B. Grammar and composition; select readings in easy prose and verse.

Forty lessons (six university credits). Open to all who are qualified to take the course. Both courses must be completed before credit is given for the first course. STOMBERG.

3. SWEDISH LITERATURE A

Twenty-four lessons (three university credits). STOMBERG.

4. SWEDISH LITERATURE B. History of Swedish literature from 1710 to the present time. History of the literature and study of modern authors, including Selma Lagerlöf, Gejerstam, Strindberg.

Twenty-four lessons (three university credits). Open to advanced students. Both courses must be completed before credit is given for the first course. STOMBERG.

SOCIOLOGY

1. RURAL SOCIOLOGY. A study of the conditions and problems of country life. Analysis of environmental, human, and general social conditions; how soil, climate, etc., the quantity and quality of the rural population, the interaction of city and country, determine the type of rural communities. Problems of sanitation, coöperation, education, religion, recreation, crime, and dependency, growing out of these conditions. Not available before September, 1916.

Twenty-four lessons (three university credits). NEERGAARD.

2. CHILD WELFARE. Study of social obligations to the child: development of the child-saving movement in the United States; infant and child mortality, recreation, education; courts, institutions, societies, and other public efforts for the child. Prerequisite for credit, one year's work in Sociology. Open to others without credit.

Twenty-four lessons (three university credits). BRUNO.

## OTHER EXTENSION ACTIVITIES

### UNIVERSITY WEEKS

For five consecutive seasons University influence and a part, at least, of the University atmosphere have been carried to the people of the State through the somewhat unique form of service called University Weeks. The University Week is a six-day program conducted in each of many towns throughout the State. During these six days the effort is to present in epitome as many as possible of the widespread activities of the University. Members of the faculty lecture on a great variety of subjects, the Glee Club gives concerts, the debating societies hold debates, the Dramatic Club gives performances of one or two plays, various musical organizations give concerts, there are talks to business men at noonday lunches, and talks to Women's Clubs in the afternoons. The ultimate purpose is to stimulate the constructive forces for each community and to produce permanent effects. It is a singularly successful way of making the people of Minnesota well acquainted with their University.

### · LANTERN SLIDES

The General Extension Division has organized a Bureau of Visual Instruction. Collections of lantern slides on subjects of interest to schools, and more especially to high schools, are procured and sent out as loans to the schools which are provided with lanterns. No charge is made for this service, the borrowing school being expected to pay only transportation charges and the cost of replacing any broken slides. The slides are sent out in collections of seventy-five or a hundred on each subject, accompanied by a lecture. Among the subjects available for 1917 are Caesar's Helvetian Campaign, Rome, the World Center of Olden Times, The Passion Play of Oberammergau, Following Great Men Through Greece, Birds of Minnesota, Insect Pests of Minnesota, India, Norway, Sweden, Philippine Islands, Switzerland, Development of Writing and Printing, Wild Flowers of Minnesota, The Aeneid, Pompeii, Transportation in Other Lands, Home Life in Different Lands, Children in Different Lands, Farming in Different Lands, Going to Church Around the World. From time to time additions to these collections will be made and offered, as the demand arises.

### EXTENSION LECTURES

Lectures, either single or in series, delivered by members of the University faculty, may be obtained by the people of the various communities of the state on very reasonable terms. These lectures attempt to present in popular form present knowledge of the various fields of research and investigation covered by the numerous departments of the



University. Some of these lectures are primarily informational, others cultural, and all, it is hoped, inspirational. These lectures afford a good opportunity for any community to keep abreast of present thought and new ideas in the various fields of the world's activity. Some of the courses of lectures given will closely parallel similar courses given each year in the classrooms of the University. In order that courses of lectures may be inaugurated and successfully prosecuted in any town, it is necessary usually that an organization be effected. This may be called the Extension Committee, and through its means business details, advertising, etc., may be attended to systematically and well.

### LYCEUM COURSES

In addition to the more strictly educational lectures offered by members of the University faculty, there are offered also professional lyceum courses of popular lectures, entertainments, concerts, and dramatics. The General Extension Division is in a position to obtain the services of the best lecturers as well as of the lyceum companies presenting entertainments, readings, and concerts, at a much lower rate than is possible for the average community. These courses are offered at cost, thereby eliminating the profits of the agent and of the middleman. In this way the lecturer will get just as much for his services while the community will obtain the same entertainment for much less money, or, better still, will obtain a very much higher order of entertainment for the same money. Only courses of lectures or of entertainments of marked merit will be sent out by the General Extension Division. It must be distinctly understood, however, that the University in offering these attractions is acting merely as a booking agency between the attractions and the public, and can not be held responsible for opinions, theories, or sentiments expressed by lecturers. A list of the lyceum attractions available for the season of 1917-1918 may be obtained on request.

### SHORT COURSES

The Agricultural Extension Division has been very useful to the people of the State through its system of short courses of one week offered in agriculture, home economics, and similar subjects. The General Extension Division now reaches another class of people in a similar way by offering one-week courses in such subjects as merchandising, retail selling, etc. These courses are of very great benefit to country merchants especially. The fourth of these short courses was offered during the first week in February, 1917, at the University. Merchants and their clerks from all over the State attended this practical school for one week. In addition to this one-week course there was given in 1916 a three-weeks' course. Experts from the best talent in the country were brought in to expound the various phases of the subject and to outline fundamental principles. In 1917 this three-weeks' course was repeated.

## MUNICIPAL REFERENCE BUREAU

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

## COMMUNITY CENTERS

There is a movement now running through the country in the interest of a wider community use of the school plant and of other public buildings. It is realized that these buildings, in which the public has a large investment, are open for the use of the people for only a fraction of the available time. There is need for a civic forum or community club house, where citizens may gather for discussion of public questions and for the expression of neighborhood civic and social life. The General Extension Division proposes to further this movement by offering guidance and cooperation, more particularly in the way of providing plans for organization, with a list of things that may be done. The Division also offers the services of an adviser on the organization and program of community and commercial clubs. Correspondence is invited from any citizen or organization of citizens interested in this subject.

## DRAMA SERVICE

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

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

AGRICULTURAL EXTENSION

Agricultural extension including lectures, demonstrations, institutes, and short courses will be carried on as usual under the direction of the Agricultural Extension Division of the College of Agriculture. Address all inquiries regarding such work to the Agricultural Extension Division, University Farm, St. Paul, Minnesota.

**Bulletin of**  
**The University of Minnesota**  
COLLEGE OF EDUCATION

**UNIVERSITY HIGH SCHOOL**

**1916-1917**



VOL. XIX. NO. 22. JUNE 1916

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1916							1917																		
JULY							JANUARY							JULY											
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## SCHOOL CALENDAR

1916-1917

1916

September	19-26	Week	Registration of pupils
September	27	Wednesday	First semester begins
November	29	Wednesday	Thanksgiving recess begins 9:00 p.m.
December	4	Monday	Thanksgiving recess ends 8:00 a.m.
December	22	Friday	Christmas vacation begins 9:00 p.m.

1917

January	3	Wednesday	Christmas vacation ends 8:00 a.m.
February	7	Wednesday	Second semester begins
February	12	Monday	Lincoln's Birthday; a holiday
February	22	Thursday	Washington's Birthday; a holiday
April	5	Thursday	Easter recess begins 9:00 p.m.
April	11	Wednesday	Easter recess ends 8:00 a.m.
June	9	Friday	Commencement



# THE UNIVERSITY HIGH SCHOOL

## FACULTY

GEORGE EDGAR VINCENT, Ph.D., LL.D., President, University of Minnesota  
CYRUS NORTHROP, LL.D., President, Emeritus  
LOTUS D. COFFMAN, Ph.D., Dean and Professor of Education  
\*....., Principal of the University High School

## INSTRUCTORS

RAY L. LELAND, B.S., History  
REWEY BELLE INGLIS, B.A., English  
WILLIAM D. REEVE, B.S., Mathematics  
ELSIE M. SMITHIES, B.A., Latin  
SOPHIA HUBMAN, M.A., German  
\*....., Science  
\*....., Assistant in English  
\*....., Assistant in Science

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\* To be appointed.



## THE UNIVERSITY HIGH SCHOOL

The College of Education of the University of Minnesota has for several years maintained a practice school. In the fall of 1914 the school was moved from its previous location and reorganized. Since that date it has been housed in a new, thoroly modern, fire-proof building, erected upon the campus of the University of Minnesota. This building is seventy feet in width, one hundred and fifty feet in length, and includes three stories. The basement floor is given over to the physics and biological laboratories, home economics, shop work, locker rooms for the High School pupils, and retiring rooms for the High School teachers. On the second floor are offices, recitation rooms, and the general assembly room. On the third floor are additional recitation rooms, offices, and lecture rooms of the College of Education, and the joint library of the College and the High School.

During the first years of this school's existence there were six years of work offered,—the last two preceding the high school and the four years of high school. For the past two years only the regular four years of high-school work have been offered. In March, 1916, the school was accredited by the North Central Association of Secondary Schools and Colleges. This fact allows the graduates of the school unquestioned admittance to any of the colleges and universities of the middle-western states.

### PRACTICE TEACHING IN THE UNIVERSITY HIGH SCHOOL

The University High School was established by the University to provide an opportunity for the study of problems of high-school instruction and administration, for the application of the most approved methods and practices of secondary instruction, and to provide opportunity for University students preparing to become high-school teachers to do practice teaching under normal high-school conditions. The purposes and organization of the school insure: first, close supervision of the work of both the instructors and the pupils; second, instructors chosen necessarily by a more critical and selective method than instructors in an ordinary high school; third, classes that are smaller than the classes of large high schools. Such conditions inevitably make for better teaching on the one hand and a better grade of work by the pupils on the other hand.

The University High School, therefore, is a school where pupils not only receive the very best of secondary advantages in teaching and in supervision but where the highest standards of student scholarship are insisted upon.

### ADMISSION REQUIREMENTS

The University High School does not admit everyone who makes application. Admissions are limited by the following conditions:

1. The applicant must not be over twenty years of age at the time of applying.
2. A person must not be a student at any other institution or in any other department of the University at the time when in attendance at the High School.
3. The applicant must present records of scholarship which show clearly that he has done satisfactory work in another institution.
4. The applicant must present satisfactory credentials with respect to his character and previous conduct.
5. The University High School will not enroll more than one hundred and fifty pupils at any one time during the year 1916-17.

The above conditions are insisted upon in order that the school may maintain itself as a high school under normal conditions of enrollment and of personnel of students, that its classes do not become crowded, and that it may protect itself against that type of applicant who is desirous of making frequent changes on account of chronic dissatisfaction with his immediate surroundings wherever he happens to be.

#### TUITION AND FEES

A tuition fee of \$5 per semester is charged every student in the High School. In addition, an incidental fee of \$1.50 a semester is due at the same time as the tuition. These fees must be paid at the office of the University Cashier before any applicant will be given admission to the classes of the High School.

No part of any tuition or fee that has been paid will be returned to any pupil who is requested to leave school at any time on account of unsatisfactory deportment or scholarship. Pupils purchase their own texts, note books, and other individual materials necessary for regular class work.

#### SCHOLARSHIPS

The Board of Regents of the University provide a limited number of service scholarships, to be awarded students on the basis of their individual need and of their individual ability. These scholarships, which are limited in number, are awarded by a committee composed of the Dean of the College of Education and the Principal of the University High School. They are granted upon the following basis: Those who wish to make application for them may do so through the Principal of the High School. A blank is provided stating the conditions which must be met by any one accepting a scholarship. These conditions in addition to certain standards of individual need and ability are: (1) maintenance of deportment and scholarship records of commendable quality; (2) not less than three nor more than five hours a week of extra time which shall be at the disposal of the school. In this extra time certain kinds of duties are to be performed in connection with the office, library, laboratories, or such other similar occupations as the principal may designate.

## GENERAL PLAN

The school year of the High School corresponds to that of the University. Classes have their first meeting for 1916-17 on Wednesday, September 27. The school year contains thirty-six school weeks. The distribution of this time may be seen by referring to the calendar on page 3. The school day begins at 8:15 and continues until 2:30. Class periods are forty minutes in length in the clear. All pupils are required to attend the entire day. During these periods when a pupil is not at some class reciting he devotes his time to study either in the assembly room or in the library.

## REPORTS TO PARENTS

The University High School insists upon high standards of scholarship among its pupils. To realize these standards the coöperation of the parents and of the home is necessary. In order that parents may know of the progress which their children are making, monthly reports are mailed to the parents. In addition parents are consulted whenever it seems desirable.

## SOCIAL ACTIVITIES

The social activities accompanying high-school attendance are frequently serious handicaps to pupils. They demand so much of the pupil's time that his work suffers. Often their financial requests are embarrassing to the pupils and unduly pressing upon the parents. The University High School is free from disadvantages of this sort. At the same time it believes in and provides for ample opportunity for spontaneous expression on the part of its pupils in various organizations. Provision is made through athletics, various clubs, debating societies, student publications, and social gatherings. Students are allowed to administer their own affairs within such bounds and under such supervision as the faculty think necessary and desirable.

## CREDITS AND GRADUATION

The requirements for graduation include the completion of an approved program of studies aggregating sixteen units of credit. One unit expresses the value of one subject having five recitations a week for a year. The combinations and sequences of subjects required are stated in connection with the course of study which follows. Inasmuch as the University High School considers its diploma an endorsement of the individual upon whom it is bestowed it will refuse to confer this diploma upon anyone who fails in character or in deportment to measure up to the standards set by the school, even tho the scholastic requirements have been met.

## CREDITS FROM OTHER SCHOOLS

Students wishing to enroll in the University High School and who

present a record of work done in other secondary schools will be given credit according to the following principles:

1. Recitations in a subject must be held an equivalent of not less than four times per week, with not less than forty minutes per period for eighteen weeks, in order for the subject to be given a semester's credit.

2. Subjects in which laboratory work is an integral part, including chemistry, physics, biology, zoology, and physiology must include in their schedule not less than two laboratory recitations weekly. Each laboratory period shall include not less than sixty minutes of work to be counted as a regular recitation period.

3. Subjects requiring laboratory or shop work mainly, that is with little or no outside preparation, such as shop work, home economics, book-keeping, typewriting, must include an equivalent of not less than eight periods of forty minutes each week, to be counted a semester unit of credit.

4. Work done in physical education shall not receive credit toward graduation.

#### PROGRAM OF STUDIES

Each student should select his program of studies with great care and with the advice of his parents and the Principal. Because the University High School provides generously for electives, it is the more necessary that each pupil think carefully before he decides what studies to take. Is he preparing for the University? For what College? Does he already know what vocation he wishes to follow? If he can not be in school four years, how long can he attend? These are some of the questions that must be answered in making an intelligent selection.

Every student who is preparing to enter the University should note that the following requirements are fixed:

1. Four years of English or three years of English accompanied by two years of two foreign languages.

2. A major series of three or more units (years) and a minor series of two or more units (years) each series chosen from foreign languages, history and social sciences, mathematics, or natural science.

- a. At least two years of mathematics are required. If one chooses the minor from the mathematics group, the major must be chosen from some other group. That is, one can not take three years of mathematics and count it as both a major and a minor.

- b. To form a language series, at least two years of the same language must be taken.

- c. In selecting the additional units to make up the fifteen required for University entrance, avoid selecting more than four from the vocational subjects, such as manual arts and home economics.

At the time of registering, each student should consult the Principal and other teachers who will be present for the purpose of helping, until he has a well-balanced program worked out for himself.

# SUBJECTS OFFERED IN THE UNIVERSITY HIGH SCHOOL

1916-17

## FIRST YEAR

*Required*

English 5  
General Science 5

Select two units

*Elective*

Mathematics I, 5  
Ancient History 5  
Drawing and Design (five double periods)  
Shop work (five double periods)  
Latin I, 5

## SECOND YEAR

*Required*

English 5

Select three units

*Elective*

Mathematics I, 5  
Mathematics II, 5  
Ancient History 5  
Modern History 5  
Latin I, 5  
Latin II, 5  
German I, 5  
General Biology 5 (and extra laboratory periods)  
Garment Making and Foods and Cookery (five double periods)  
Shop work (five double periods)

## THIRD YEAR

*Required*

English 5  
American History 5

Select three units

*Elective*

Latin 5  
German 5  
Mathematics III, 5  
Chemistry 5 (and extra laboratory periods)  
Zoology 5  
House Planning and Furnishing ½ (five double periods)  
Mechanical Drawing (five double periods)  
Physics 5 (additional laboratory periods)

## FOURTH YEAR

*Required*

English 5  
Government ½ (5)  
Economics ½ (5)

Select three units

*Elective*

Latin 5  
German 5  
Mathematics III  
Chemistry 5 (and additional laboratory periods)  
Physics 5 (and additional laboratory periods)  
Textiles, Foods, and Cookery ½ (five double periods)  
Dressmaking, House Management ½ (five double periods)

# Bulletin of The University of Minnesota

GENERAL EXTENSION DIVISION

UNIVERSITY EXTENSION LECTURES

AND

THE UNIVERSITY LYCEUM

1916-1917

WITH ANNOUNCEMENTS FOR 1917-1918



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\*Absent on leave 1916-1917



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\*Absent on leave 1916-1917

# UNIVERSITY EXTENSION LECTURES

## GENERAL INFORMATION

The University of Minnesota through its General Extension Division makes the following announcement of lectures that are available to the communities throughout the State.

The lectures here listed have a bearing on the vital social, economic, and scientific problems of life. They may be given in courses of several lectures upon the same general theme, or as single lectures.

### FEEES

There is no appropriation to cover the expense of these lectures. With only a few exceptions they are to be given by members of the faculty who have their full share of heavy work in the University and who volunteer to go out on this service simply to meet the increasing demand for this kind of educational effort.

In order that no community may be penalized because of its distance from the seat of the University, it has been determined to make a flat rate, uniform in all parts of the State, for most of the extension lectures. In pursuing the general policy to make the cost to the community as low as possible, the fee has been fixed at \$15 plus the local entertainment of the lecturer. This amount includes the lecturer's fee and traveling expenses. A few members of the faculty who are in demand on the lecture platform, and who for that reason have an established fee at a higher rate, are not included in the list of those who may be obtained at the \$15 rate. Their terms may be learned on application to this department. But generally speaking, the \$15 rate applies to the University lecturers listed in this bulletin.

### HOW TO SECURE THE LECTURERS

1. Apply to the General Extension Division, University of Minnesota, Minneapolis, for the lecture or lecturers desired.
2. Duplicate contracts covering conditions and fee will be sent you.
3. If you can meet the conditions, sign and return one copy of the contract.
4. When the lecture is delivered, you will immediately forward the fee to the Director of the General Extension Division, who will pay the money to the Comptroller and forward the receipt to you.

### HOW TO SEND MONEY

By post-office or express money order, personal check, or draft.  
Make all checks, orders, and drafts payable to the University of Minnesota.

Always address the Director of General Extension Division at the University of Minnesota, Minneapolis.

## COURSES OF LECTURES

### ANIMAL BIOLOGY

MR. SIGERFOOS

*Series of Three Each*

1. The Evolution Theory
2. The Nutrition of Animals

*Single Lectures*

1. The Evolution Theory
2. The Nutrition of Animals
3. Heredity and Environment in Animal Life
4. The Life and Work of Louis Pasteur and Human Welfare
5. The Method, Spirit, and Results of Scientific Work

MR. NACHTRIEB

*One or Three Lectures*

1. Heredity and Eugenics

### ARCHITECTURE

MR. MANN

1. Ancient Egypt
2. Ancient Greece
3. Ancient Rome
4. Gothic Architecture: The Great Cathedral Churches
5. The Renaissance in Italy

### ASTRONOMY

MR. LEAVENWORTH

1. Bird's-eye View of the Universe
  2. A Trip to the Moon
  3. The Sun
  4. Eclipses of the Sun
  5. Are Other Worlds Inhabited?
  6. Comets and Meteors
- All are illustrated with lantern slides.

MR. BEAL

1. The Stars
2. The Planets

3. Evolution of the Solar System
4. Stars and Nebulae  
All are illustrated with lantern slides.

## ECONOMICS

MR. GRAY

1. The Industrial Revolution, 1775
2. The Factory System and Its Problems
3. Regulation of Monopoly
4. The Trust Problem
5. Wealth and the Public Welfare
6. Education and Social and Economic Progress
7. Coöperation

\*MR. MITCHELL

1. Efficient Business Management
2. Wage Systems that Make Workmen Efficient: the Premium System
3. Wage Systems that Make Workmen Efficient: Task Systems

MR. EBERSOLE

1. How Prices Control Business
2. The Conservation of Human Resources
3. Principles of Sound Investment
4. Life Insurance
5. The Responsibilities of Citizenship
6. Prices and the Cost of Living
7. Our Present Monetary and Banking System
8. Rural Credits or Financing the Farmer
9. The European War and Its Economic Effects upon the United States

MR. JAMES

1. The Retail Merchant versus the Mail Order House
2. Some Methods by which Retail Merchants Have Increased Their Business
3. What it Costs the Retail Merchant to do Business
4. Opportunities for Young Men in Their Home Town in Retail Business
5. Coöperation between Manufacturer, Retailer, and Consumer to Reduce the Present Cost of Living

MR. PRESTON

1. The Problem of Retail Marketing

\*Absent on leave, 1916-1917.

## EDUCATION

MR. SWIFT

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

## LANTERN TALKS

1. Rome
2. Monasteries
3. Schools in Other Lands and Other Days
4. American Universities

## ENGINEERING

## ELECTRICAL ENGINEERING

MR. SHEPARDSON

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

## MECHANICAL DRAWING

MR. KIRCHNER

1. Significant Marks (Graphic, Theoretical, and Practical), Representation and Interpretation
2. The Science of Extension and Position (Geometry, Qualitative), Concepts of Space, and Spatial Relations
3. The World on Paper (Drawing, Mathematics, and Geography), Maps and Map Making
4. Lettering and Composition (Drawing and Design), the Alphabet: Origin, development, and application.

- 5-6-7. Design and Ornament (Fine Arts and the Industries)
- a. Design and Composition
  - b. Ornament, Symbolic and Aesthetic
  - c. Applied Design

## MECHANICAL ENGINEERING

MR. KAVANAUGH

1. Development of the Locomotive

MR. MARTENIS

1. The Heating and Ventilation of Homes and Buildings

MR. SHIPLEY

1. The Automobile

## ENGLISH

MR. BURTON

*Single Lectures*

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

*Lecture Courses*

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

MR. CRAIG

*A Course of Six Lectures on American Literature*

1. The Romantic Movement in American Literature
2. Emerson and the New England Renaissance
3. The Old South and the New
4. The Literature of the West with Special Attention to Mark Twain
5. The American Novel
6. American Drama

*Single Lectures*

1. Culture and Strenuousness
2. The South and the Nation
3. Self-Cultivation in English
4. Sohrab and Rustum
5. The Art of Reading Periodical Literature

6. Scottish Literature, mainly Burns
7. Joel Chandler Harris's "Nights with Uncle Remus"

## MR. BEACH

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

## MR. NORTHROP

*Lecture Courses*

- A course of three or six lectures on Modern Dramatics  
 A course of three or six lectures on Shakespeare

*Single Lectures*

1. Oxford and her Sons
2. The Irish Theater and the Work of J. M. Synge, W. B. Yeats, and Lady Gregory
3. A Comparison of the Problems of the Novelist and the Playwright
4. The Greatest English Diary
5. The Vocation and the Avocation

## MRS. PHELAN

1. Social Forces in the Drama
2. William Morris

## ECONOMIC ENTOMOLOGY

## MR. WASHBURN

1. The House-Fly; What It Does; and How Best to Combat It in Towns and Cities (Illustrated by lantern slides)
2. Protective Coloration and Mimicry in Insects (Illustrated by lantern slides)
3. Mill and Elevator Insects and Their Control
4. The Present Status of Economic Entomology in the United States
5. Four-footed Pests of the Farm, and Birds in Their Relation to the Farmer and Orchardist (Illustrated by lantern slides)

## MR. RUGGLES

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

## MR. HOWARD

1. Insects and Public Hygiene (Illustrated by lantern slides)
2. Fighting Insects with Insects (Illustrated by lantern slides)

## MR. MOORE

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

## FORESTRY

## MR. CHEYNEY

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

## GEOLOGY AND GEOGRAPHY

## MR. EMMONS

1. The Mineral Resources of Minnesota

## MR. GROUT

1. The Origin of Coal and Its Uses, with Special Reference to House Heating
2. The Building Materials of Minnesota

## \*MR. LEHNERTS

1. The Making of Minnesota
2. Minnesota: The Heart of Our Continent (Stereopticon Illustrations)
3. The Geology and Geography of Minnesota

Sixteen lectures, offered singly or in series, with or without stereopticon illustrations, on the geology and geography of our State, her vast natural resources and their utilization and conservation.

- (1) The Geological Story of Minnesota. (2) The Climate and Weather of Minnesota. (3) The Soils of Minnesota. (4) The Crops of Minnesota. (5) Livestock and Dairying in Minnesota. (6) Minnesota Swamp Lands and Peat Beds and Their Utilization. (7) Forests, Lumbering, and Reforestation in Minnesota. (8) Minnesota Plant and Animal Life. (9) The Building Stones and Clays of Minnesota. (10) The Iron Mines of Minnesota. (11) The Waterpowers of Minnesota: Developed and Undeveloped. (12) The Manufacturing Industries of Minnesota. (13) Transportation, Commerce, and Commercial Centers in Minnesota. (14) The People of Minnesota. (15) Immigration: Opportunities for the Immigrant and for the State. (16) Minnesota's Place in the Sisterhood of States.
4. Wonderlands of America

Fourteen lectures, offered singly or in any desired combination.

- (1) The Glacier National Park. (2) The Yellowstone National

\*Absent on leave 1916-17.



Park. (3) Cripple Creek, Pike's Peak and Vicinity. (4) The Grand Canyon of Arizona. (5) The Yosemite National Park. (6) Mt. Rainier National Park. (7) Crater Lake National Park. (8) Alaska. (9) The Canadian Rockies. (10) Northeastern Minnesota and Isle Royal. (11) North Central Minnesota and the Lake of the Woods. (12) Along the Upper Mississippi and Its Tributaries. (13) The Great Lakes. (14) The Scenic St. Lawrence and Hudson River Regions.

## MR. POSEY

1. Physical Environment as Affecting a People (Illustrated)

## GERMAN

## MR. SCHLENKER

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

## MR. BURKHARD

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

## MR. WISCHKAEMPER

1. Goethe as Scientist
2. Goethe's Mission in German Literature and Culture

## MR. KOENIG

1. Theodor Storm (in German)
2. Rheinburgen und Legenden (In German or English, Illustrated)

## MR. DAVIES

1. The Lyrics of Goethe and Heine in Musical Setting
2. German Educational Ideals

## MR. GEISSENDOERFER

1. Grillparzer: His Life and His Works

## GREEK

## MR. HUTCHINSON

1. Athens, Old and New
2. The Shrines of Greece: Delphi
3. The Shrines of Greece: Eleusis and Epidaurus

4. The Shrines of Greece: Olympia and Bassae
5. Mycenae and Tiryns
6. Cnossus and Its Palaces
7. The Acropolis of Athens and Its Buildings
8. The Parthenon

These lectures are amply illustrated by means of lantern slides. Any one of the lectures may be given separately.

MR. SAVAGE

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

HISTORY

MR. DAVIS

1. Sicily: Its Past and Present
2. The First Crusade: Its Misery and Its Triumph

A series of five talks on Martin Luther considered as a man and as the hero of Protestant Germany

MR. WHITE

1. Ireland and the Beginnings of Modern Civilization

MR. STEVENS

1. French and English Fur Traders: An account of the pelting trade in the early history of the Great Lakes' origin

HYGIENE

DR. BEARD

DIVISION I

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

DIVISION II

1. The Value of Food Stuffs
2. The Uses of Water
3. The Feeding of School Children

## PHILOSOPHY AND PSYCHOLOGY

MR. DASHIELL

1. The Psychology of Fashion
2. The Psychology of the Crowd
3. The Subconscious (One or two lectures)
4. The Place of Mind in Evolution (One or two lectures)
5. Principles of Science (One or two lectures)
6. Philosophy: Its Nature and Its Practical Value
7. The Great Problems (One lecture or series of any length)
8. The Nature of Morality (One or two lectures)
9. The Philosophy of Bergson
10. The Philosophy of Feminism
11. The Philosophy of the Present War

MR. PETERSON

1. The Walls of the Prison House
2. Human Nature and War
3. The Dangers of Group Attitudes
4. The Determination of Fitness for the Vocations
5. The Psychology of Musical Harmony
6. Incentives in Advertising
7. The Intelligence of Higher Animals
8. Changing Conceptions of Mind and Personality

## POLITICAL SCIENCE

MR. SCHAPER

1. What We Can Learn from the German Cities
2. City Government in England and in France
3. Some New Experiments in American City Government
4. The Charter Situation in Minnesota
5. The Need of a Constitutional Convention in Minnesota

MR. ALLIN

1. Australasian Experiments in Democracy
2. Democracy in Switzerland
3. Democracy in England
4. Colonial Aspects of the War

\*MR. YOUNG

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

\*Absent on leave 1916-1917.

4. The Hygiene of the Skin
5. The Uses of Clothing
6. The Ventilation of the Home

DIVISION III. PERSONAL HYGIENE

1. The Hygiene of the Human Skin
2. Pure Air in the Home
3. The Uses and Purity of Water
4. Food Values
5. The Symmetrical Development of the Human Being

DIVISION IV. THE HEALTH OF THE COMMUNITY

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

LATIN

MR. PIKE

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

MR. GRANRUD

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

COMPARATIVE PHILOLOGY

MR. KLAEBER

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

5. The Moroccan Crisis
6. The United States of the World
7. Reorganization of Our State Governments

MR. ARNESON

1. War and the Human Race
2. The Common People as Law Makers
3. Government by Commissions and Boards

RHETORIC

MR. KUHL

1. Biographies of Some Recent Great Americans
2. What Books Shall I Read to my Children?
3. What Magazines Shall I Read for
  - (a) Reviews of best books.
  - (b) For best discussions on current topics.
4. Great American Writers Since 1870

MR. COLBY

1. Literature and History
2. History of the Balkan States
3. Adventures of an American Relief Agent—What the United States is Doing for Serbia
4. The Modern Novel of Social Problems
5. Poetry of the Great War (Of all nations)
6. Does this War Mean that Christianity Has Failed and the Brotherhood of Man Become a Myth?
7. Utopias of Which Men Have Dreamed
8. Thomas Holcroft—Eighteenth Century Man of Letters and Jack-of-all-Trades
9. Theodore Winthrop—Novelist, author of "Cecil Dreeme" and first Union officer killed in the Civil War
10. The Priest Character in Fiction (Suitable for Catholic audiences)
11. The Irish Renaissance

ROMANCE LANGUAGES

MR. BARTON

1. Blasco Ibanez

MR. PLUMMER

1. Spain and the Spaniards

MR. COBURN

1. Life in Madrid
2. Life in Old Castile
3. Life in a Provincial Spanish Town

4. Life in a Provincial French Town
5. Spanish Literature
6. Spanish Music
7. Harvard University

## MR. HENRÍQUEZ

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

## MR. MORIN

1. L'exotisme dans la littérature française
2. Poètes Belges
3. Une seconde renaissance 1870-90

## SCANDINAVIAN

## MR. BOTHNE

(In English or in Norwegian)

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

## MR. STOMBERG

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

SOCIAL ECONOMICS

MR. PHELAN

CIVIC REFORM

1. The New Democracy
2. The Community Center and the Better Town

LIFE AND LIVING

3. The Shrinking Dollar
4. Population and Progress
5. Our New Neighbors

THE CHILD

6. Vocational Education and American Fair Play
7. The Child at Work
8. Child Welfare

WOMAN

9. The Changing Woman
10. The Woman with an Occupation
11. The Minimum Wage

LABOR

12. The Labor Union
13. Industrial Peace
14. The Worker Out of Work
15. Prison Labor
16. The Soldier of Industry

HEALTH

17. Disease and Occupation

BUSINESS AND JUSTICE

18. Human Dividends
19. Credit for the Farmer
20. City and Country. The reciprocal interests of city and country
21. The Single Tax as a Measure of Reform
22. Your Money and the State. Taxation with special reference to Minnesota

ECONOMIC REFORM

23. Catching Up. Modern morality as taught by Lycurgus, Plato, More, Campanello, Bacon, and Morelly
24. The Teaching Called Socialism
25. Socialism in the United States
26. Syndicalism and the United Workers of the World
27. A Message for Humanity
28. Fact and Fallacy

COMMENCEMENT ADDRESSES

1. A Star of Civilization; 2. The Passerby; 3. Human Types

## SOCIOLOGY

MR. TODD

1. Sociology and Conservation
2. Art for Man's Sake
3. Human Parasites
4. The Philosophy of Social Reform
5. The Twentieth Century Family

MR. GILBERTSON

1. The American Indian and His Contribution to Modern Civilization
2. Prehistoric Man and Civilization of Europe (If desired, the lecturer will give special attention to Scandinavia)
3. The Position and Work of Woman in Primitive Culture
4. The Mind of Primitive Man
5. The Oberammergau Passion Play (Illustrated)

## MISCELLANEOUS LECTURES

MR. ERIKSON

1. Liquid Air  
Illustrated with apparatus and experiments

MR. GLICK

1. Slaves of Tradition

*Commencement Address*

2. What Thomas Saw

MR. HERRICK

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

MR. HOWARD

1. Victoria Falls, South Africa

MR. NEWKIRK

1. The Gyroscope  
A popular presentation with apparatus.

MISS NORRIS

1. Things Women Ought to Know



## MR. PRICE

1. Personal Efficiency
2. The Need of Business Education
3. Some Educational Ideals (an address for teachers)
4. A Plan of Life (commencement address)
5. The Easiest Way (commencement address)

## MISS SANFORD

*History of Art*

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

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

*Literary Lectures*

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

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

*Readings from Shakespeare*

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

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

*Addresses for Teachers' Institutes*

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

*For Mothers' Meetings*

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

## MR. SKINNER

1. Two English Counties: Warwickshire and Devonshire
2. The English Lakes
3. The Country of Burns and Scott
4. Gothic Cathedrals

Lantern slides are available for all of these lectures

## MR. WASHBURN

1. Spain and the Spaniards from the Viewpoint of the Young Tourist

## THE UNIVERSITY LYCEUM

The General Extension Division of the University of Minnesota, in coöperation with the Extension Divisions of the Universities of North Dakota, Wisconsin, Indiana, and Kansas, has undertaken the service of supplying any community in the State with lectures, readings, recitals, and concerts suitable for lyceum courses. These entertainments are given by professionals, and are in addition to the more strictly educational lectures offered by members of the University faculty. There is in every community a demand and need for such attractions, and in furnishing them at a minimum of expense the University feels that it is rendering an educational service. The effort is made to secure attractions of merit at prices within the reach of the various communities. While avoiding the trashy and the meretricious, the aim is to offer wholesome and uplifting entertainment that shall establish standards of good taste and judgment in art, music, literature, and all other matters that affect human life. The University Lyceum is well adapted to bringing about in any community social consciousness and an effort toward solidarity and coöperation. To make a lyceum course successful, there must be a small organization of public-spirited citizens who will devote time to the work. After a course is selected, a thoro canvass should be made for the advance sale of season tickets, so that the cost of the course may be assured in advance. On request a representative of the General Extension Division will assist any community in selecting a course.

Local committees in all towns not on a railroad must provide transportation to and from the station.

Following is a list\* of the attractions available for the season 1917-18. The season runs from about October 1 to April 1. The fees for the programs will vary with the selections made, but in all cases the plan is to furnish the attractions at cost. For information regarding programs and expenses address the General Extension Division.

### ATTRACTIONS FOR 1917-18

#### MUSICAL AND ENTERTAINMENT COMPANIES

##### ARTISTS' CONCERT COMPANY

A high-grade concert company of four people. Personnel: Ignatius Tello, violinist; Charlotte Simpson, soprano; Count Bonnano, baritone; Bruce Fowler, pianist. Available February, 1918. Fee \$65.00.

\*There will probably be added to this list two lecturers of national reputation and two artist concert companies.



CATHEDRAL QUARTET

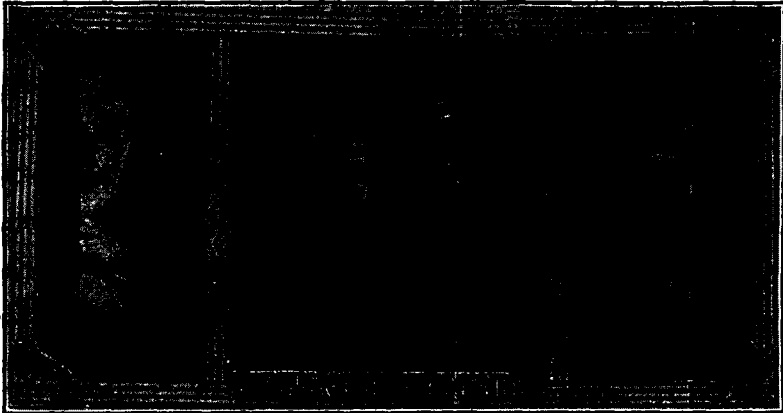
A male quartet giving popular programs of songs and entertainment numbers. Available October and December, 1917. Fee \$45.00.

CHICAGO MALE QUARTET

A quartet composed of singers with long experience in male quartet work. The members are all well-known concert artists and church soloists in Chicago. Available January, 1918. Fee \$80.00.



CHICAGO OPERATIC COMPANY



Seventh annual tour. The Chicago Operatic Company is composed of a mixed quartet, an accompanist, violinist, and cellist. The programs that will be offered are composed of the best of concert music, opera, and oratorio selections, and the instrumental parts are the best of standard

music. Personnel: John Miller, tenor, manager and organizer; Edgar Nelson, pianist; Frederica Gerhardt Downing, contralto; Leonora Antoinette Allen, soprano; G. Magnus Schutz, basso; Amy Emerson Neill, violinist; Paul Burke, cellist. Available late October. Fee \$215.00.

## CHICAGO MUSICAL CLUB



Presenting a different type of program than any lyceum orchestra of its size. Their endeavor is to present a program that will be understood by each individual in the average audience and that will still maintain such a standard of musical quality as will increase the appreciation of good music. Available November, 1917, and January, 1918. Fee \$72.00.



## FAUST OPERA SINGERS

A company of five artists offering concert programs. Available January and February, 1918. Fee \$75.00.

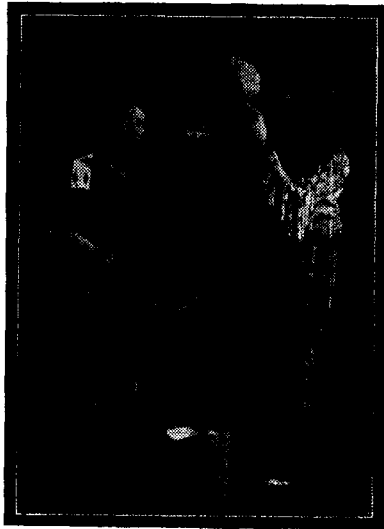
## DEL MAR QUARTET



A quartet of young women presenting popular programs of instrumental and vocal numbers. Available November, 1917, and January, 1918. Fee \$45.00.

## ALBERT AND MARTHA GALE

A program of Indian music and tales of Indian customs. Mr. and Mrs. Gale are recognized authorities in matters relating to the Indian and his folk-lore. Available November, 1917. Fee \$41.00.



## BALMER'S KAFIR BOYS



Explorer and traveler giving lecture recitals, assisted by Miss Elsie Clark and five Kafir Singing Boys. An attraction of international reputation. Available October, 1917. Fee \$105.00.

## LYRIC CONCERT PARTY



An excellent mixed quartet presenting concert programs and operettas. The company includes four vocalists, pianist, and violinist. Available early fall, 1917. Fee \$90.00.

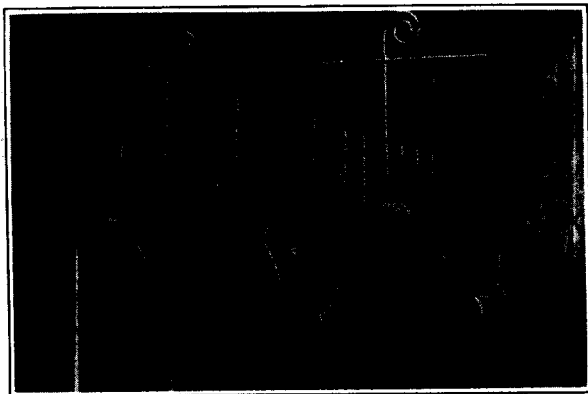
## THE UNIVERSITY LYCEUM

## THE JOHN HOWARD QUINTET



The instrumentation of this quintet,—first violin, second violin, flute, cello, and piano—makes possible the rendition of many delightful numbers. The quintet will also carry a harmonium, a type of reed organ, and when this is used in place of the piano the effect of a wood-wind section is obtained. The soloists are very capable and add delightfully to the program. Available March, 1918. Fee \$55.00.

## METROPOLITAN MALE TRIO



A company of three men presenting a musical entertainment with organ chimes. Available December, 1917, January, 1918. Fee \$35.00.

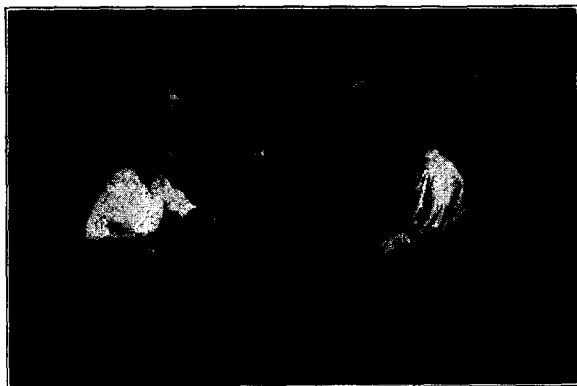


MACPHAIL ORCHESTRAL CHOIR



A company composed of nine instrumental musicians and a soprano soloist, under the direction of William MacPhail. A very high-grade organization of artists, nearly all of whom have played in well-known symphony orchestras. Available the last two weeks of October and the first two weeks of December, 1917. Fee \$150.00.

THE UNIVERSITY LYCEUM PLAYERS



A company of four actors presenting a repertoire of standard and classic drama in the form of one-act plays. Available October and November, 1917, and March, 1918. Fee \$50.00.

## THE UNIVERSITY LYCEUM

POTTER-DEPEW COMPANY

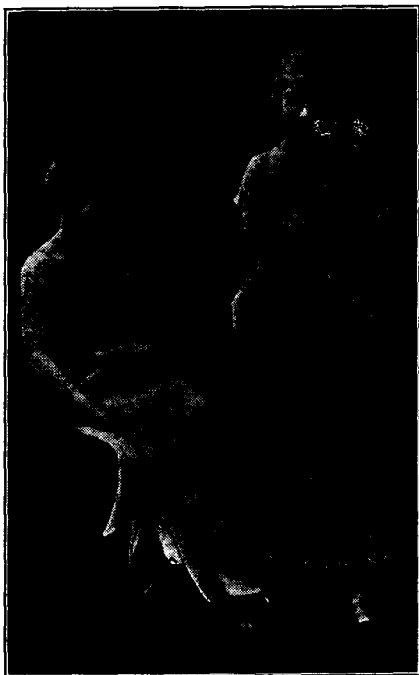


A trio offering a program of violin and cello solos, readings, and sketches. Available February, 1918. Fee \$35.00.

## SCHUBERT SEXTET



A company of young women presenting string ensemble programs. Available January, 1918. Fee \$61.00.



FLORA PRENTISS COMPANY

Two talented young women offering an entertainment program of readings, violin and piano numbers. Available December, 1917. Fee \$25.00.

TREBLE CLEF CLUB

A quartet composed of four talented young women offering vocal and entertainment numbers. Available December, 1917. Fee \$47.00.



*THE UNIVERSITY LYCEUM*

## MACPHAIL STRING QUARTET

An orchestral combination under the leadership of a well-known and accomplished violinist. This company may also be obtained with the addition of a soprano soloist or a reader. Available throughout the season. Fee \$90.00.

## MACPHAIL TRIO

A combination of the violin, piano, and a soprano soloist. Each member of the trio is an artist. Available throughout the season. Fee \$65.00.

## OTTO MEYER

Violin virtuoso assisted by Marie Meyer-TenBroeck, pianist. Available throughout the season. Fee \$45.00.

## SCHEURER TRIO

A company composed of Karl Scheurer, violinist; Henry Williams, harpist; and Oscar Koch, cellist. A combination of high artistic merit under the leadership of a well-known violinist of the Minneapolis Symphony Orchestra. Available early fall, 1917. Fee \$110.00.

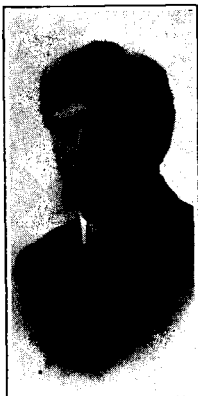
## UNIVERSITY GLEE CLUB

A Girls' Glee Club and a Men's Glee Club are offered. Each is composed of fifteen members, and an additional soloist is usually carried. Available week-ends after November 15, 1917.

## LECTURERS AND ENTERTAINERS

J. H. BALMER, F.R.G.S.

See Balmer's Kafir Boys.

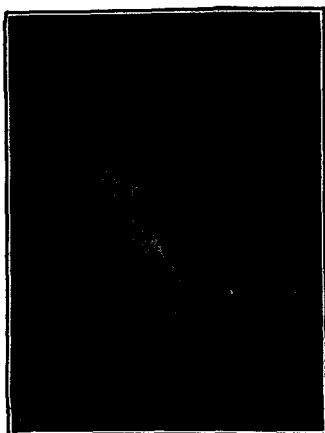


HON. HERBERT S. BIGELOW

Member of the Ohio Legislature from Cincinnati. Pastor of Vine Street Congregational, now The People's Church, of Cincinnati, for nineteen years. President Ohio State Constitutional Convention. Available January, 1918. Fee \$60.00.

*Lectures*

1. The Religion of Inspired Politics
2. The Sermon on the Mount of Fiction



CLARENCE BURGDERFER

Entertainer and impersonator, using wigs, grease paint, and costumes. Available March, 1918. Fee \$26.00.



GEORGE LAMONT COLE

Lecturer on Southwestern United States. Illustrated. Available November, 1917. Fee \$24.00.

*Lectures*

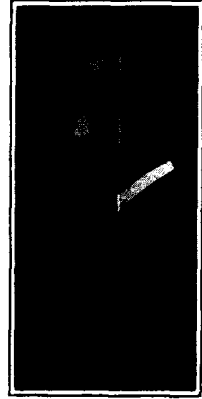
1. The Charm of the Desert
2. Before You, Who? Prehistoric Man in the Southwest.
3. The Ancient Cliff Dwellers
4. The Grand Canyon of Arizona
5. Indians of the Terraced Houses—The Pueblos
6. The Yosemite Valley

## JAMES DAVIES

Member of the Department of German, University of Minnesota. Lecturer and tenor singer. Available throughout the season. May also be booked for commencement addresses. Fee \$25.00.

*Lecture-recitals*

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



## MONTAVILLE FLOWERS

A popular lyceum lecturer, twice elected president of the International Lyceum Association. Life lectures with illustrative acting and original lectures on great world themes. Available December, 1917. Fee \$60.00.

Life lectures combine lecturing, reading, and acting.

*Life Lectures*

1. The Drama of Gold: Christmas Carol
2. The Drama of Revenge: Merchant of Venice
3. The Drama of Chastity: Hamlet
4. The Drama of Divinity: Ben Hur
5. The Drama of Life and Religion: Little Minister
6. The Drama of Conscience: Les Miserables
7. The Drama of Human Ambition: The Battle of Waterloo

*Original Lectures*

1. The Color Guard and the Picket Line: The Japanese Question
2. The Drama of Human Capabilities: Personality

## GEORGE E. GLICK

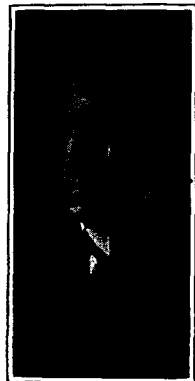
Member of faculty at University Farm School, St. Paul. Popular lyceum and chautauqua lecturer and dramatic interpreter. Available throughout the season.

*Lectures*

1. Sevenoaks
2. What Thomas Saw (commencement address)

*Lecture Recitals and Dramatic Interpretations*

1. Slaves of Tradition
2. The Fortune Hunter
3. The Melting Pot
4. The Right of Way
5. Miscellaneous readings



## HARRIET HETLAND

A clever and talented dramatic reader and impersonator. Her work is particularly suited for club, church, and school entertainments, and chautauquas. She gives complete dramas and miscellaneous programs. Available throughout the season. Fee \$25.00.

*Programs*

1. The Dawn of a Tomorrow
2. The Pigeon
3. Polly of the Circus

## BLANCHE HUTCHINSON

Interpreter of dramatic literature. Reads complete plays; also gives programs of miscellaneous readings. Popular style of delivery. Available throughout the year. Fee \$25.00.



## SIDNEY LANDON

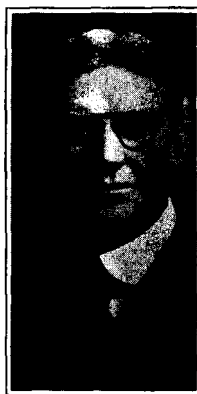
Presents a program of character studies of great literary men with the aid of wigs and paints. Available November, 1917. Fee \$45.00.

## LEE FRANCIS LYBARGER

Lawyer, author, lecturer. Member of the Philadelphia Bar. Available fall, 1917. Fee \$50.00.

*Lectures*

1. The Romance of Riches
2. The Survival of the Fittest
3. The Psychology of Success
4. The Tariff: What it is, how it works, whom it benefits
5. Are You a Christian or only Religious
6. Opening Opportunities
7. Does Trade Follow the Flag. Available, Fall 1917. Fee \$50.00.

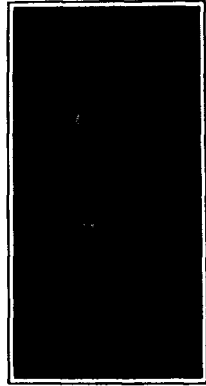
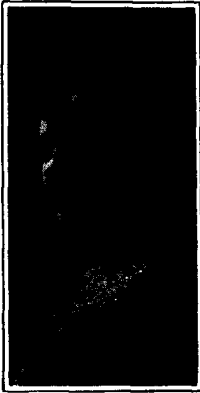


## ROBERT PARKER MILES

Dramatic lecturer of popular lyceum type. Over two thousand audiences have heard his lectures on "Tallow Dips" and "Sparks." Available November, 1917. Fee \$35.00.

*Lectures*

1. Tallow Dips
2. Sparks
3. Dawn



## HERMIONE PETERSON

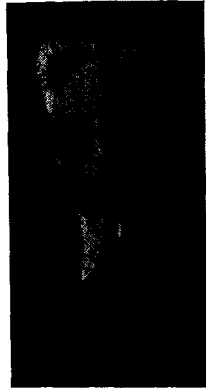
A popular and charming young reader, well known to Minnesota audiences. Presents complete plays and miscellaneous programs. Available November, 1917. Fee \$13.50.

## CHARLES A. PAYNE

"The World Traveler with a Genius for Friendship"  
Gives illustrated travelogues. Available January, 1918. Fee \$30.00.

*Illustrated Lectures*

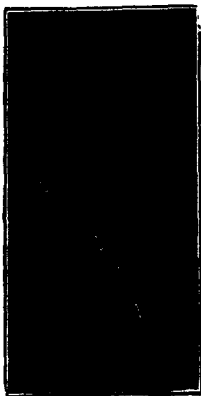
1. The Panama Canal
2. Famous Cities of Italy
3. Beautiful, Fascinating Hawaii
4. Nature's Story of World Building
5. Life Among the Mohammedans



## BURT L. NEWKIRK

Member of the Department of Engineering, University of Minnesota. Demonstrates the Gyroscope and its application. A scientific lecture given in a popular and understandable manner. Fee \$35.00.





JUDGE FRANK P. SADLER

Has presided in the Harrison Street and Desplaines Street Criminal branches of the Municipal Court of Chicago. Available January, 1918. Fee \$55.00.

*Lectures*

1. The Criminal in the Making
2. The Criminal in the Saving
3. Twentieth Century Unrest—Its Portent
4. The Value of an Ideal in Practical Life

L. B. WICKERSHAM

A lecturer who combines the arts of the actor, orator, and preacher. Well known to lyceum audiences as a return date man. Available January, 1918. Fee \$56.00.

*Lectures*

1. Day Dreams
2. Chickens Come Home to Roost
3. Blowing Him Up
4. Breaking Through the Hedge
5. Young People in Society



PAUL VOELKER

Popular lyceum lecturer, Secretary Department of Instruction by Lecture, University of Wisconsin Extension Division. Available any time. Fee \$26.00.

*Lectures*

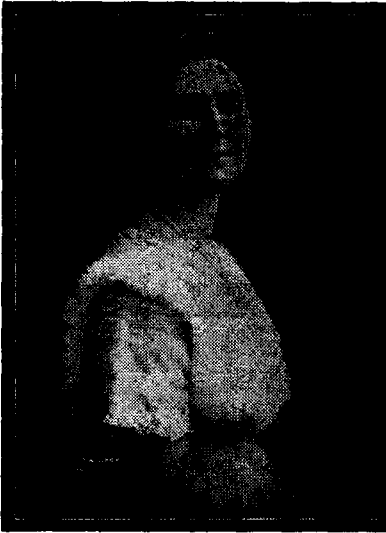
1. The Heritage of the Race—A Lecture on Instinct
2. Dr. Jekyll and Mr. Hyde—A Lecture on Habit
3. Whcels in the Head—A Lecture on Intellect
4. The Mastery of Destiny—A Lecture on Will
5. Joan of Arc—A Lecture on the Spiritual Nature

## ALBERT EDWARD WIGGAM, M.A.

Lecturer and journalist. Syndicate writer for 500 dailies in United States and Canada. Formerly editorial writer on Minneapolis Journal. Student of biology, and especially of child physiology. Worked for two years with Dr. William Richards of New York, and in numerous hospitals and surgical wards on problems of medical inspection in schools, physical defects of children, etc. Member American Association for the Advancement of Science, Eugenics Education Society (London), American Genetics Association. Available March, 1918. Fee \$40.00.

*Lectures*

1. Dollars and Sense: The Health and Wealth of the Nation
2. Forty Kinds of Fools: A Plea for Wiser Motherhood
3. Changing the Leopard's Spots: The New Hope of the Unborn
4. Marketing the Margin: Human Equipment



LOUIS WILLIAMS

Electrical entertainer. An entertaining explanation of the many applications of electricity, with the aid of apparatus. Available November, 1917. Fee \$35.00.

## SARAH MILDRED WILLMER

A well-known popular lyceum reader and interpreter of the drama. Reads complete plays such as "The Sign of the Cross." Available February, 1918. Fee \$50.00.

## OTHER EXTENSION ACTIVITIES

### UNIVERSITY WEEKS

For three consecutive seasons University influence and a part, at least, of the University atmosphere have been carried to the people of the State through the somewhat unique form of service called University Weeks. The University Week is a six-day program conducted in each of many towns throughout the State. During these six days the effort is to present in epitome as many as possible of the widespread activities of the University. Members of the faculty lecture on a great variety of subjects, the Glee Club gives concerts, the debating societies hold debates, the Dramatic Club gives performances of one or two plays, various musical organizations give concerts, there are talks to business men at noon-day lunches, and talks to Women's Clubs in the afternoons. The ultimate purpose is to stimulate the constructive forces for each community and to produce permanent effects. It is a singularly successful way of making the people of Minnesota well acquainted with their University. If any community of the State wishes to be put on one of these circuits for 1917, it should make arrangements with the General Extension Division as early as February, 1917.

### LANTERN SLIDES

A new departure for the General Extension Division is the organization of a free lantern-slide bureau. Collections of lantern slides on subjects of interest to schools, and more especially to high schools, are procured and sent out as loans to the schools which are provided with lanterns. No charge is made for this service, the borrowing school being expected to pay only transportation charges and the cost of replacing any broken slides. The slides are sent out in collections of fifty or sixty on each subject, accompanied by a syllabus or running commentary on the slides and from one to three books of reference. With some collections a complete typewritten lecture is included. Among the subjects available for 1917 are Caesar's Helvetian Campaign, Rome, the World Center of Olden Times, The Passion Play of Oberammergau, Following Great Men Through Greece, Birds of Minnesota, Insect Pests of Minnesota, India, Norway, Sweden, Philippine Islands, Switzerland, Development of Writing and Printing, Wild Flowers of Minnesota, The Aeneid, Pompeii, Transportation, Home Life in Different Lands, Children in Different Lands, Farming in Different Lands, Going to Church Around the World. From time to time additions to these collections will be made and offered, as the demand arises. Correspondence is solicited from any interested school.

## CORRESPONDENCE COURSES

For those who live away from the great centers of population and also for those who are interested in courses which are not offered in night classes, correspondence work is recommended. The lessons in these correspondence courses are prepared and taught by regular members of the University faculty and the courses offered embrace collegiate as well as professional and vocational branches. Each lesson assignment gives an outline of work, references to text-books and collateral reading, topics for study, and a list of questions, the answers to which are to be sent in. This constitutes the student's recitation. The answers thus sent in are read, corrected, and graded by the instructor with the addition of marginal notations, suggestions, advice, and explanation. The lesson sheets thus annotated are then returned to the student. Persons who have the qualities of courage, energy, and persistence can do meritorious work by this plan. It is not contended that correspondence instruction is as good as residence instruction. Nothing can take the place of the living presence of the instructor in the classroom, and the stimulus of classmates. However, where residence instruction is for any reason impossible to obtain, correspondence instruction offers a fair substitute. This applies especially to persons of initiative, and to those persons able to cultivate the spirit of self-reliance, who will often thus obtain more from the course than will the more easy-going student in residence. Many of the courses command University credit when taken by properly qualified students, and all are of University grade.

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

## SHORT COURSES

The Agricultural Extension Division has been very useful to the people of the State through its system of short courses of one week offered in agriculture, home economics, and similar subjects. The General Extension Division now proposes to reach another class of people in a similar way by offering one-week courses in such subjects as merchandising, retail selling, etc. These courses are of very great benefit to country merchants especially. The third of these short courses was offered during the second week in February, 1916, at the University. Merchants and their clerks from all over the State attended this practical school for one week. In addition to this one-week course there was given in 1916 a three-weeks course. Experts from the best talent in the country were brought in to expound the various phases of the subject and to outline fundamental principles. For 1917 it is planned to repeat this three-weeks course as well as the one-week course. It is believed that much valuable information will be obtained by any person who spends a week in this way. Persons interested in this subject are invited to address the General Extension Division.

## MUNICIPAL REFERENCE BUREAU

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

## COMMUNITY CENTERS

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

## DRAMA SERVICE

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

In addition advice is given as to costumes and also with respect to the purchase and the painting of scenery. It is hoped in the future it may be possible to send out University dramatic companies to give plays in the several communities of the State during vacations and at week-

ends. If interest in this form of service develops it may also be possible to furnish amateurs in the State the assistance of a University dramatic coach. Correspondence is invited from interested schools.

### INFORMATION

It often happens that citizens of a state are in need of information on some specific subject not to be found in the ordinary books of reference, and in such cases the average person is at a loss where to turn. The General Extension Division has as one of its functions the business of obtaining and furnishing to inquirers information on the various subjects which from time to time may be called for. This information is obtained by research and by application to the proper university source, and thereby the department acts as a clearing house of the information which is gathered and stored up through the facilities of a great university. Inquiries for information are therefore invited and so far as the means at hand will permit, the information will be found and supplied.

The various subjects mentioned in the preceding pages lie within the province of the General Extension Division and inquiries on all of them should be addressed to The General Extension Division, University of Minnesota, Minneapolis.

### AGRICULTURAL EXTENSION

Agricultural extension including lectures, demonstrations, institutes, and short courses will be carried on as usual under the direction of the Agricultural Extension Division of the College of Agriculture. Address all inquiries regarding such work to the Agricultural Extension Division, University Farm, St. Paul, Minnesota.

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# Bulletin of The University of Minnesota

COLLEGES OF SCIENCE, LITERATURE, AND THE  
ARTS, AND EDUCATION

## THE SUMMER SESSION

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# THE SUMMER SESSION

COLLEGES OF SCIENCE, LITERATURE, AND THE ARTS, AND  
EDUCATION

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

## 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 Science, Literature, and the Arts, Education, Agriculture, Engineering, Medicine, and Dentistry.

### LOCATION

These summer courses, with the exception of Agriculture, 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 courses are arranged not merely for college students, but also for the benefit of experienced teachers, particularly those who are seeking a State Professional Certificate, or are looking forward to more specialized work. Courses have been organized, therefore, in nearly all of the required and optional subjects of the State Professional Certificate, while high school teachers will find an opportunity to pursue advanced courses in the subjects of the secondary curriculum. These courses will be conducted by trained specialists.

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.

## GRADUATE WORK

Work of graduate character done in the Summer Session of the University of Minnesota under a member of the Graduate Faculty may be counted for residence credit for advanced degrees. The course work for the Master's degree may be completed in four summer sessions. The rest of the residence needed to cover in the academic year of thirty-six weeks may be completed after the thesis is begun by registering early and remaining in residence working under direction after the Summer Session has closed. Students working for the Master's degree in Summer Sessions must file the subjects for their theses before the completion of the first half of the required work.

An increasing amount of graduate work in fields of interest to graduate students in education is being offered in the Summer Session.

Students who intend to offer work in the summer for an advanced degree should register for purposes of record with the Dean of the Graduate School.

Members of the Graduate Faculty may, with the approval of the Dean, offer summer work for graduate students apart from the work regularly listed in the Summer Session bulletin. Students taking such properly authorized summer work may be allowed by the Executive Committee to substitute it for an equal amount of residence during the academic year.

## 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.

## 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, but those who desire to secure university credit are required to show credentials entitling them to college admission under the existing rules of the University.

Students desiring advanced standing will be expected to file a petition with the Committee on Relations with other Institutions showing the credits that they have earned in other institutions.

## REGISTRATION

Saturday, June 10, and Monday, June 12, are regular registration days. Students may register on any preceding day after June 1. Students should complete registration and be ready for class work before 8 a.m., Tuesday, June 13. After Monday, June 12, students will register by spe-

cial permission only. To complete registration, fees must be paid the same day.

Those who desire to enroll will secure their registration blank in the entrance lobby of the Library Building. Students are expected to 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 carry extra work or having any irregularity in the matter of entrance or courses will be expected to petition the Administrative Board for change. Those who desire credit toward the State Professional Teachers' Certificate will be careful to indicate their wish on the registration blank.

### CREDITS

Courses reciting two hours a day, four days each week, will carry three hours credit. Courses reciting one hour a day, four days each week will carry one and one-half credits. No student may secure more than six credits in the session except by special permission.

Students who do not enroll for credit will be given, on application, certificates of attendance showing the character of the work done.

### GENERAL ASSEMBLY

A General Assembly of the faculty and students will be held on Tuesdays and Thursdays, 10:00 to 10:30 a.m. The exercises will include music, readings, and short, snappy talks. On Tuesdays and Thursdays the third and fourth period classes will continue a half hour later.

### GENERAL LECTURES

A series of popular lectures open to the students, faculty, and the general public will be announced in the weekly bulletins.

### 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.

### 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, 1916 and 1917 of the University Summer School for the full term of six weeks. The work must total not less than six credits each session and must include:

1. Special study from the high-school teachers' 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 of 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 in 1916.

#### STATE PROFESSIONAL TEACHERS' CERTIFICATE

The State Professional Certificate of the first grade is issued to applicants who have secured a state first grade teachers' certificate, who have taught successfully not less than eighteen months in a public school in the State, and who have passed successfully examinations in the following studies: Psychology, General Pedagogy, History of Education, School Organization and Law; in at least two of the following: Higher Algebra, Solid Geometry, and Trigonometry; in at least two of the following: American Literature, English Literature, Rhetoric; in at least three of the following: Ancient History, Modern History, English History, United States History; in at least three of the following: Astronomy, Botany, Chemistry, Geology and Physiography, Physics, Political Science, Zoology.

Candidates for the above certificate may secure credit accepted by the State Department in Psychology, History of Education, General Pedagogy, School Organization, and in the laboratory sciences, Physics, Chemistry, Botany, and Animal Biology (Zoology). In no other subjects will credit be given directly, but the courses in the other studies required for this certificate will be planned with the idea of directly preparing students for the examinations conducted by the State Department.

Students taking subjects that may be applied towards a professional

certificate, who receive in each subject a mark of at least one grade above the minimum required for passing in such subject, will be exempt from the state examinations in these subjects. Those failing to get such mark in any subject must take the professional examination in that subject.

### EXERCISE AND RECREATION

A special feature of the Summer Session is the use of Northrop Athletic Field and the entire equipment of the university gymnasium, including the swimming pool, tennis courts, baseball field, outdoor and indoor running tracks, and basket-ball and hand-ball courts.

### FEEES

Each student pays a registration fee of \$5.00, and a tuition fee of \$2.00 for each credit hour for which he is enrolled, with an extra charge of \$1.50 for each laboratory course. Some courses require a special fee. See departmental statements. All students are required to pay a post-office box rental fee of ten cents.

### 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 at from \$4.00 to \$7.00 per week. A list of boarding places, stating location and prices, will be sent to any address on application to the Registrar. It will usually be found more satisfactory to engage accommodations after arrival than to reserve them in advance. Several good restaurants are to be found in the immediate vicinity of the University.

### SANFORD HALL

Sanford Hall is situated on the corner of Eleventh avenue and University avenue southeast. It is divided into two distinct houses, East Sanford and West Sanford. Sanford East contains 17 single and 12 double rooms, and accommodates 41 students. Sanford West 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, a dresser, study table, chair and rug for each student. Students must supply towels, bureau scarf and couch cover.

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 \$1.00 (to apply on Residence Fee) is received. A rate of \$2.00



per week is charged for each single room, and \$1.25 per week for each person occupying a double room. Room rent for the six weeks is payable in advance. Deposit fee 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. Apply to the Registrar.

### SHEVLIN HALL

The study, reception, and rest rooms of Shevlin Hall, the University club house for women students, will be open for the accommodation of young women attending the Summer Session of 1916.

Meals for both women and men will be served in Shevlin Hall.

### 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.

### SUMMER COURSES IN MEDICINE

The Medical School of the University of Minnesota announces summer courses in a special bulletin which may be secured by application to the Registrar.

### COLLEGE OF AGRICULTURE SUMMER SESSION

The College of Agriculture offers summer courses. Bulletins may be had by addressing the Registrar, University Farm, St. Paul, Minnesota.

### SUMMER COURSES IN 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 and Prosthetic Dentistry, by the College of Dentistry.

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 Registrar, University Farm, St. Paul, Minnesota.

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.

## COURSES OF INSTRUCTION

### ANATOMY

Professors CLARENCE M. JACKSON, RICHARD E. SCAMMON; Associate Professor CHARLES A. ERDMAN; Instructors WILLIAM F. ALLEN, W. E. CAMP; Assistants L. H. RUTLEDGE, C. A. STEWART, J. A. KITTELSON, J. C. MCKINLEY, FLORIEN VAUGHAN.

Lectures and laboratory instruction in the Institute of Anatomy. Laboratories open from 8 a.m. to 5 p.m.

35. GROSS HUMAN ANATOMY. Dissection (including osteology) of head, abdomen, and lower extremity. 208 hours (including 32 hours didactic). Six credits. Fee, \$40. Extra fee for dissecting material, \$20; or \$10 each, if two students work together. STEWART, RUTLEDGE, VAUGHAN.
45. GROSS HUMAN ANATOMY. Dissection of neck, thorax and upper extremity. 128 hours (16 hours didactic). Four credits. Fee, \$25. Extra fee for material, \$10; or \$5 each, if two students work together. STEWART, RUTLEDGE, VAUGHAN.
- 55-65. HUMAN ANATOMY. Equivalent to course required of dental students. Either half of course may be taken separately. 288 hours (32 didactic). Eight credits. Fee, \$60. Dissecting material, \$10; or \$5 each, if two students work together. STEWART, RUTLEDGE, VAUGHAN.
85. HISTOLOGY AND EMBRYOLOGY. Equivalent to course required of dental students. 128 hours (32 didactic). Four credits. Fee, \$25. CAMP, KITTELSON, MCKINLEY.
1015. HUMAN HISTOLOGY. Microscopic study of the various tissues and organs. Equivalent to course required of medical students. 160 hours (including 32 didactic). Five credits. Fee, \$35. CAMP, KITTELSON, MCKINLEY.
1025. HUMAN EMBRYOLOGY. A study of the development of the human body. Equivalent to course required of medical students. 96 hours (32 didactic). Three credits. Fee, \$20. CAMP, KITTELSON, MCKINLEY.
1035. HUMAN NEUROLOGY. A study of the central nervous system and sense organs. Equivalent to course required of medical students. 96 hours (16 didactic). Three credits. Fee, \$20. ALLEN.
1145. TOPOGRAPHIC ANATOMY. A study of the position and relations of the various organs, based upon cross-sections of the human body. Lectures and laboratory work. 96 hours. (16 didactic). Three credits. Fee, \$20. ERDMAN.

119S. SPECIAL DISSECTIONS. (An additional fee of from \$5 to \$25 is charged for dissecting material, according to the region selected). 96 hours (or less). Fee, \$20. ERDMAN.

201-202S. RESEARCH IN ANATOMY. Research work in anatomy, histology and embryology is offered to properly qualified students, who will be admitted only after consultation with instructors. Hours and credits to be arranged with instructor. Fee, \$5. JACKSON, SCAMMON.

Continuation courses in gross anatomy, histology, or embryology for medical or dental students may be offered during the month following the regular summer school, providing a sufficient number of students apply for such courses.

### ANIMAL BIOLOGY

Instructor GEORGE D. ALLEN; Assistant HERBERT E. METCALF

1S. GENERAL ZOOLOGY. An elementary study of homology and the classification of animals, the cell, histology, and embryology; a detailed study of representatives of the major groups of animals is begun. Equivalent to the first half of the university year course. Three credits. ALLEN.

2S. GENERAL ZOOLOGY. Continues study of representatives of the major groups of animals, with brief consideration of the more important facts and theories of evolution and heredity. Concluded by study of early embryology of the chick. Prerequisite, Course 1 or 1S. Equivalent to the second half of the university year courses. Three credits. ALLEN.

21S. COMPARATIVE MORPHOLOGY OF VERTEBRATES.

Lectures: Evolution and origin of vertebrates, development of skull and skeleton; theoretical problems, general discussion of points which can not be brought out in laboratory work.

Laboratory: Dissection of dogfish, *Necturus* or frog, cat or rat, demonstration method. Drawings required.\* Demonstrations of intermediate forms supplied and a certain amount of required work done upon them.

Quiz: Suitable written and oral quizzes.

Prerequisites: Animal Biology 1 or equivalent training. Three credits. METCALF.

80S. PARASITOLOGY. Lectures and quizzes only. I. The theoretical problems involved in parasitism, their origin, development, evolution, and status; their relations with man, and their economic importance. Full discussion of methods of cure, symptoms, and general medical importance. II. Detailed description of individual parasites, their structure, physiology, location, and life-histories. Frequent demonstrations.

\* Students are required to demonstrate all structures dissected.

Prerequisites: Animal Biology I, or equivalent training. It will be of help, however, to have had vertebrate morphology. Three credits. METCALF.

## ARCHITECTURE

Instructor J. H. FORSYTHE

The following courses in Architecture are offered primarily for the benefit of those who plan to take up the study of architecture with advanced credits in other subjects, and who would otherwise be irregular in standing by reason of deficiencies in the earlier required architectural subjects.

Ordinarily, by reason of necessary sequence, the architectural studies can not be condensed into shorter space of time than that regularly scheduled, even tho a student may have time for extra work by reason of advanced credit in other required subjects.

Students who are deficient for any reason in the subjects offered may also avail themselves of this opportunity to make up their deficiencies.

Architectural draftsmen, who find themselves unable to register for the work of the regular school year, will find this an opportunity to condense the elementary work of the architectural course into the shortest possible space of time.

31S, 32S. ELEMENTS OF ARCHITECTURE. This course covers the same ground as Architecture 31 or 32 of the regular course, architectural drawing and lectures on the elements of architecture; eighteen hours drawing and three lecture periods each week. Three credits. Fee, \$7.50. FORSYTHE.

33S or 34S. ARCHITECTURAL DESIGN. This course covers the same ground as Architecture 33 or 34 of the regular course, elementary problems in composition, drawing and rendering; twenty-four hours drawing each week. Four credits. Fee, \$10. FORSYTHE.

21S, 22S, 23S, 24S. FREEHAND DRAWING. This course covers the same ground as Architecture 21, 22, 23 or 24, twelve hours drawing each week; students who are prepared may register for any one or more of these courses. Two credits. Fee, \$5. FORSYTHE.

The courses in Architecture will be offered if there are sufficient registrations.

## ASTRONOMY

Assistant Astronomer WILLIAM O. BEAL

11S. DESCRIPTIVE ASTRONOMY. A course of lectures and recitations on the general principles of astronomy, illustrated by lantern slides and by the use of the telescope. This course carries university credit for Astronomy II. Three credits. BEAL.

## BACTERIOLOGY

Associate Professor WINFORD P. LARSON; Instructor ARTHUR T. HENRICI.

58s. **ELEMENTARY BACTERIOLOGY.** Satisfactory completion of this course will give a credit equivalent to Course 58, **General Bacteriology**, required of medical students. Four credits. 96 hours. Fee, \$8 and Laboratory fee, \$1.50. LARSON, HENRICI.

## BOTANY

Assistant DONALD FOLSOM; MISS SARAH RIVET.

121s. **TEACHERS' COURSE.** This is essentially the regular teachers' course without the practice teaching. Particular attention is given to methods of presenting the subject from the viewpoint of every-day life, and of training the student to become an independent observer and thinker. Especial emphasis is laid upon the school garden and field methods and upon the outlining of a high-school course. Teachers are urged to take School Garden Practice or Field and Garden Botany in connection with this course. Greenhouse, occasional field trips in the afternoon or on Saturday morning. This course combined with Botany 4s or 1s will meet the requirements for Botany toward the State Professional Certificate. The course carries university credit for Botany 121. Three credits. RIVET.

1s. **GENERAL BOTANY.** Laboratory, garden and field study of the forms and behavior of the common flowering plants, including the forms and functions of stems, leaves, roots, flowers, fruits, and seeds, with especial emphasis upon flower forms and family types. This course combined with the Teachers' Course will meet the requirements for Botany toward the State Professional Certificate. In special cases, it may be combined with the following course to meet the same requirement. This course carries university credit for Botany 1, and combined with the following course gives six credits for Botany 1-4. Three credits. FOLSOM.

4s. **FIELD AND GARDEN BOTANY.** Field and garden study of the classification and adaptations of flowering plants, with special training in the identification of the common plants of field, forest, and garden, and in the recognition of family types. Particular attention is paid to the adaptations of plants for propagation and pollination, and to the concrete evidences of evolution. This course may be combined with courses 121 or 1 to meet the requirements in Botany toward the State Teachers' Certificate. It carries university credit for Botany 4, and combined with the preceding gives six credits for Botany 1-4. Three credits. FOLSOM.

122s. **SCHOOL GARDEN PRACTICE.** Practice in gardening and in the management of a school garden, together with the methods of correlating

the school garden and the teaching of Botany. Practical work in the school garden of Central High School and of the University. One and one-half credits. RIVET.

### CHEMISTRY

Associate Professor EVERHART P. HARDING; Assistant Professor WILLIAM H. HUNTER; Instructors ROSS A. BAKER, GERHARD DIETRICHSON.

15. GENERAL CHEMISTRY. The equivalent of Course 1, offered during the academic year, and designed for those without preliminary training in chemistry. The fundamental laws and theories of chemistry will be developed, based primarily upon the chemistry of the important non-metals. Special emphasis will be placed upon stoichiometry. Six experimental lectures or recitations and twelve hours laboratory work per week. Three credits. BAKER.
25. GENERAL CHEMISTRY. The equivalent of Course 2, offered during the academic year, and designed for those who have had Course 1 or its equivalent. The more important elements will be studied in groups, according to their periodic arrangement. Courses 1 and 2, combined, meet the requirements in chemistry for the State Professional Certificate. Six experimental lectures or recitations and twelve hours laboratory work per week. Three credits. BAKER.
35. ADVANCED GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. The equivalent of Course 3, offered during the first semester, to students in the College of Science, Literature, and the Arts and the College of Agriculture, of Course 5 in the School of Chemistry and the School of Mines, and of Course 25 in the College of Engineering. It consists of experimental lectures, recitations and laboratory work. Includes a systematic study of the non-metals, and a thorough consideration of the fundamental laws and theories of chemistry. The applications of the latter in stoichiometrical calculations will be emphasized. Three credits. Twelve hours of laboratory work per week to be arranged. DIETRICHSON.
45. ADVANCED GENERAL CHEMISTRY AND QUALITATIVE ANALYSIS. The equivalent of Course 4 offered during the second semester, to students in the College of Science, Literature, and the Arts, and in the College of Agriculture, of Course 6 in the School of Chemistry and School of Mines, and of Course 26 in the College of Engineering. The laboratory work will consist of the qualitative analysis of the acid radicals and the metals. The lectures and recitations will include a discussion of the qualitative analysis procedures and also the descriptive chemistry of the metals. Twelve hours of laboratory work per week to be arranged. Three credits. DIETRICHSON.
115. QUANTITATIVE CHEMISTRY. Lectures and laboratory work: a general presentation of methods of gravimetric analysis; a discussion of the

- various processes in gravimetric analysis, viz., precipitation, filtration, washing, drying, and ignition; a discussion of the chemical balance including special reference to its use and care. Prerequisites: General Chemistry and Qualitative Analysis. Two credits. HARDING.
125. QUANTITATIVE CHEMISTRY. Lecture and laboratory work: a discussion of the theory of solution; of normal and standard solutions. Prerequisite: Gravimetric Quantitative Analysis. Two credits. HARDING.
135. FOOD ANALYSIS. Lectures and laboratory work: a discussion of methods used in the analysis of articles of food and in detecting preservatives, coloring matters and adulterants. Prerequisite: General Chemistry Qualitative and Quantitative Analysis. Two or four credits. HARDING.
- 155, 165. ORGANIC CHEMISTRY. This course is not intended for students who wish to specialize in chemistry, but primarily for students who wish to take in the summer work corresponding to Chemistry 13, offered during the academic year. It will take up the aliphatic series up to the carbohydrates. Daily lectures first half of summer session. In addition, two recitations and one laboratory conference per week, and laboratory work. Three credits. The laboratory work will be varied somewhat to meet the needs of the student. HUNTER.
- 175, 185. ORGANIC CHEMISTRY. Continuation of the above course, second half of Summer School. It will take up the carbohydrates and the aromatic series. Lectures, etc., as indicated above. HUNTER.
205. TEACHERS' COURSE IN CHEMISTRY. This course includes a comparison of the standard texts in High School chemistry, a study of the buying and installation of apparatus and equipment, lectures and recitations on the methods of presenting the main theories and various types of problems to elementary classes and of connecting as far as possible the study of chemistry with the common facts of every day life. Two credits. DIETRICHSON.

## ECONOMICS

Assistant Professors ROY G. BLAKEY, F. FRANKLIN EBERSOLE; Instructor HARRY G. HAYES.

35. ELEMENTS OF ECONOMICS. A study of the principles that underlie the present industrial order with reference to present-day economic and social problems. Two separate sections, each meeting eight hours per week. Three credits. This course carries university credit for Economics 3a, which is prerequisite to all other courses in Economics. BLAKEY, HAYES.



45. **ADVANCED ECONOMICS.** An advanced course in economic theory, devoted chiefly to a study of recent theories of distribution. Assigned readings, reports, and discussions. One and one-half credits. HAYES.
435. **PRINCIPLES AND PRACTICE 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. One and one-half credits. EBERSOLE.
915. **PUBLIC FINANCE.** Public expenditures, revenues, and debts with special attention to their intimate relations with modern economic and social problems. One and one-half credits. BLAKEY.
1415. **INVESTMENT AND SPECULATION.** The social progress 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. One and one-half credits. EBERSOLE.
2555. **RESEARCH PROBLEMS IN ECONOMICS.** Original investigation by each student upon practical economic topics with especial emphasis upon rural credit conditions in Minnesota. Credits to be arranged. EBERSOLE.

## EDUCATION

Professors LOTUS D. COFFMAN, MELVIN EVERETT HAGGERTY, ALBERT W. RANKIN, FLETCHER H. SWIFT; Assistant Professor RAYMOND A. KENT; Instructor JAMES W. NORMAN; Special Lecturer MABEL CARNEY.

*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 teacher's certificate.

The Department of Education requires fifteen credits of all university students who are candidates for the University State Teachers' Certificate, and that they be distributed as follows: History of Education, three credits; Principles of School Practice, three credits; The High School as a Social Institution, Its Organization and Administration, three credits; Special Methods covering at least two subjects, three credits; Practice Teaching, three credits. Reference to the courses named below, supplemented by conference with the instructors will make clear how these requirements, with the exception of Practice Teaching may be

fulfilled during the summer session. An introductory course in Psychology will be required as a prerequisite for all courses in Education.

*Candidates for State Professional Certificate*—For guidance in the selection of courses relating to this certificate, consult statement on page 8.

## EDUCATION

### I. HISTORY OF EDUCATION

- 101S. FOUNDATIONS OF MODERN EDUCATION. An interpretative historical study of those elements in modern education derived from the Hebrews, Greeks, Romans, Middle Ages, and Renaissance. Emphasis will be laid upon secondary education and the origin and results of the monopoly of the cultural conception of education and cultural studies. One and one-half credits. SWIFT.
- 102S. HISTORY OF EDUCATION FROM THE REFORMATION. Modern educational institutions, current theories and problems in the light of their history. Special emphasis upon elementary education. One and one-half credits. SWIFT.
- 104S. MODERN EDUCATIONAL CLASSICS. An intensive study of the writings of educational leaders from Rousseau to the present time. One and one-half credits. NORMAN.
- 131S. GERMAN SCHOOLS. A study of the existing school system of Germany with emphasis upon present conditions and problems. One and one-half credits. NORMAN.
- 201S. SEMINAR IN HISTORY OF EDUCATION. Problems in educational history; a seminar course for advanced students; devoted to the historical investigation of selected problems in education designed especially for those working for advanced degrees. Prerequisite: a general course in the History of Education. Open to seniors and graduates. Two credits. SWIFT.

### II. EDUCATIONAL PSYCHOLOGY

- 106S. EDUCATIONAL PSYCHOLOGY. The psychology of learning. Methods of measuring the rate of learning; study of typical learning experiments and an examination of the conditions of the most economic learning. Lectures, reading, and recitations. One and one-half credits. HAGGERTY.
- 109S. EDUCATIONAL DIAGNOSIS. A study of educational scales and standard tests for the measurement of efficiency in school subjects. The course will deal with the nature of the tests, the methods of their use and an analysis of results obtained. One and one-half credits. HAGGERTY.

- 136s. MENTAL TESTS. A study of individual differences by means of mental tests. Laboratory work in giving and taking tests introductory to the use of group tests for the measurement of age-level, etc. One and one-half credits. HAGGERTY.

### III. SCHOOL ADMINISTRATION

- 116s. EDUCATIONAL SURVEYS. A number of the most typical surveys will be studied. Particular attention will be given to the method employed in the surveys, the significance of the points of importance, and interpretation of recommendations. Prerequisites: one course in administration or sufficient administrative experience. One and one-half credits. KENT.
- 13s. SECONDARY EDUCATION MOVEMENTS. Some of the movements considered are: changed concepts of method, reorganization both as affecting the grades above the high school and the work beyond the four years of high school, supervised study, socialization of curricula, public control. Prerequisite: History of Education. One and one-half credits. KENT.
- 3as. SOCIAL ASPECTS OF EDUCATION. The social principles underlying public education. The interpretation and application of these principles in our system of education and its institutions. Prerequisite: History of Education. One and one-half credits. KENT.
- 119s. SCHOOL CURRICULA. The curriculum as related to social, industrial, and economic conditions; a survey of the grammar grades and of the high school; consideration of the possibilities of developing a curriculum better adapted to community needs. One and one-half credits. RANKIN.
- 121s. SCHOOL ORGANIZATION AND ADMINISTRATION. An introductory course in school administration for students of teaching experience and for those looking forward to work as principals and superintendents. One and one-half credits. RANKIN.
- 11s. TECHNIQUE OF TEACHING. Types of classroom instruction; preparation of lesson plans, hygiene of instruction, classroom management. One and one-half credits. COFFMAN.
- 123s. SCHOOL SUPERVISION. The problems involved in the training of teachers in service; studies of qualities of merit in teachers; factors in selecting teachers; the distribution of subject matter by grades; the time allotment of studies. One and one-half credits. COFFMAN.
- NOTE: Candidates wishing to accept positions as principals of graded schools who are enrolled in this class will be required to attend the lectures of Mr. McIntire upon Supervision and Administration with special reference to the public schools of Minnesota. Attendance upon these lectures and an examination based upon them

will be accepted as a substitute for the term paper which all other students will be required to prepare.

206S. SEMINAR IN EDUCATIONAL ADMINISTRATION. One credit. COFFMAN.

#### IV. SCHOOL SANITATION

141S. SCHOOL SANITATION AND PUBLIC HEALTH. A course in school hygiene in its broader aspects; designed for all teachers and supervisors who are responsible for the health of school children; treats of medical supervision and other problems arising from school environment. One and one-half credits. RANKIN.

126S. METHODS IN EDUCATIONAL RESEARCH. A study of statistical and other methods as applied to educational investigation. This course is ordinarily required of all candidates for advanced degrees. One credit. COFFMAN, KENT.

#### VIII. MANUAL TRAINING

Lecturer in Manual Training RAY L. SOUTHWORTH.

The following courses are offered for those who intend to teach or to supervise in manual or vocational education.

As. METHODS AND ORGANIZATION OF THE INDUSTRIAL ARTS. This course is for teachers, supervisors and principals. It deals with the organization and method of courses of study for school systems in which manual training extends through the elementary and the high schools, or where such work is given only in the high school. Two credits. SOUTHWORTH.

Bs. ELEMENTARY MECHANICAL DRAWING. Methods and content of mechanical drawing for public schools from the seventh to the ninth years, inclusive. Students furnish their own materials and drafting tools. SOUTHWORTH.

Cs. ADVANCED MECHANICAL DRAWING. Methods and content of mechanical drawing for public schools from the tenth to twelfth years, inclusive. Students furnish their own materials and drafting tools. SOUTHWORTH.

Note: For teachers' courses in wood work and metal work see courses 2s and 4s listed under the department of Engineering Shop Work.

#### V. HIGH-SCHOOL TRAINING TEACHERS

Attention is called to the fact that Course 5s on the "Problems of the Training Department" is required by the High-School Board of all teachers entering normal work next year for the first time. Course 6s entitled "The Rural School and Community," is offered for experienced teachers

and others, but it is optional. Among the other courses especially recommended for training teachers are the following:

Each training teacher will do well to consult with the supervisor before enrolling, however, so that her individual needs may be carefully provided for.

In addition to the above courses and others, special conferences for the free exchange of ideas and the general discussion of training problems will be held on Monday and Thursday evenings. These conferences will be open to all training teachers, superintendents, and others interested.

#### VI. PRINCIPALS OF GRADED SCHOOLS

1. The High-School Board will insist that all candidates wishing to accept positions as principals of graded schools, who lack experience in supervisory positions, be required to attend the Summer Session at the University of Minnesota. The State Department of Education will require evidence of such attendance before issuing certificates to inexperienced applicants for graded school principalships, and in no instance will applicants be excused from attendance at the summer session unless they have had equivalent training elsewhere, and then the request for an excuse must be submitted to the State Department of Education.

2. All students expecting to qualify for principalships of graded schools will be required to take the course in Supervision. This course is number 123s. Such students will be expected to attend a special course of lectures given by Mr. McIntire upon the Supervision and Administration of the Public Schools, with special reference to the Minnesota system. These students will be excused from preparing a term paper required of all other students registered in Course 123s.

3. In addition to the course in Supervision, students will be privileged to enroll for regular college work as offered in the regular summer school classes maintained on either campus.

#### VII. METHODS

1. General Method—See above, Education 11s. Technique of Teaching.

2. Special Methods of Teaching High School Subjects. A full description of each course appears elsewhere in this bulletin in connection with the work of the department concerned. Special attention is called to the recent ruling of the State Department of Education which requires courses in special methods of at least two different high school subjects and totaling at least three credits for all applicants for the State Professional Teachers' Certificate.

Department	Course No.	Credits	Instructor
Botany . . . . .	121s	3	Rivet
Chemistry . . . . .	20s	3	Dietrichson
English . . . . .	80s	1½	Thomas
French . . . . .	1s	3	Olmsted
Geography . . . . .	55s	2	Posey
German . . . . .	60s	3	Schlenker
History and Government . . . . .	56s	2	Krey
Latin . . . . .	55s	2	Eastman
Manual Training . . . . .	As	2	Southworth
Mathematics . . . . .	54s	3	Reeve
Metal Work . . . . .	4s	4	Shipley
Music . . . . .	27s	3	Giddings and Baker
Physics . . . . .	89s	1	Klopsteg
Wood Work . . . . .	2s	4	Richards
Metal Work . . . . .	4s	4	Shipley

VIII. HIGH-SCHOOL TRAINING TEACHERS

5s. PROBLEMS OF THE TRAINING DEPARTMENT. A general course in the organization and management of training departments for all teachers inexperienced in training work. The chief problems and topics considered will be: the history, status and tendencies of training work in Minnesota; how to establish a training department; equipment required; organization and program; the course of study and its content and presentation; practice teaching; observation work; lesson plans and plan-writing; criticism and its presentation; rural demonstration schools and how to conduct them; social and extension activities; the supervision of department graduates during their first year of teaching; coöperation and relationships of the training teacher; miscellaneous problems; rural teacher-training throughout the United States and a comparison of the Minnesota high-school system with that of other states. Two credits. CARNEY.

6s. THE RURAL SCHOOL AND COMMUNITY. This course will consider: 1. The conditions and needs of the average rural community as presented in the Report of the Country Life Commission, through various rural surveys, and through the personal experiences of class members. 2. The adaptation and development of the country school to meet the needs of rural communities as formulated above. Two credits. CARNEY.

IX. PUBLIC SCHOOL MUSIC

Lecturer THADDEUS P. GIDDINGS; EARL L. BAKER.

27s. PUBLIC SCHOOL MUSIC. This course is for supervisors of music, for students who wish to become supervisors, for teachers who wish to

specialize in music. The work in each grade and in the high school will be taken up with reference to material used, methods of presentation and results to be required. The care, growth, and proper use of the child voice will receive careful attention. Testing of voices in the upper grades will be demonstrated. A comparative study of the different prevailing methods of school music teaching will be a part of the course. This course carries university credit for Course 27 in Education. Three credits. GIDDINGS, BAKER.

#### X. EDUCATIONAL COURSES IN OTHER COLLEGES AND DEPARTMENTS

##### *Agricultural Education*

All courses dealing with agricultural and rural education except the course in Rural Sociology named below will be offered at the Agricultural College. For complete description consult the Agricultural College Summer Session Bulletin, which may be secured by writing to the Registrar, University Farm, St. Paul. For complete description of the course in Rural Sociology, see Department of Sociology, page 38 of this bulletin.

##### *Home Economics*

The courses in Home Economics are offered at the Agricultural College. For complete description consult the Agricultural College Summer Session Bulletin.

#### ENGINEERING DRAWING AND DRAFTING

Assistant Professor FRANK B. ROWLEY.

- 2s. ENGINEERING DRAWING. The elements of drafting; drawing as a language; lines, views, sections, dimensions, standards, signs, abbreviations, and explanatory notes; sketching, lettering, tracing, and blue printing; details of machines and structures; interpretation of working drawings. This course carries credit for the second semester of the required work of the freshman year in the Engineering course, Drawing 2. One and one-half credits. ROWLEY.
- 8s. DRAFTING. A continuation of Course 7s. Two credits. ROWLEY.
- 5s. DRAFTING. General problems; applications of descriptive geometry; structural drawing, details, assembly drawings, bills of material; drafting room methods and systems. This course carries credit for the first semester of the required work of the sophomore year in the Engineering course, Drawing 5. Two credits. ROWLEY.
- 7s. DRAFTING. Graphics; working drawings of machinery; assembly drawings, outline drawings, diagrammatic drawings, layout drawings, and detail drawings; instruction in drafting room methods and systems. This course carries credit for the first semester of the re-

quired work of the sophomore year in the Engineering course, Drawing 7. These courses will be given if there is sufficient registration. Two credits. ROWLEY.

### ENGINEERING SHOP WORK

Assistant Professor S. CARL SHIPLEY; Instructor WILLIAM H. RICHARDS.

18. **WOOD WORK.** Carpentry, joinery, pattern making, wood working, use of tools, lathe and bench work; foundry practice applied to making simple patterns, core boxes for cast iron, brass and aluminum castings. Maximum four credits. RICHARDS.
28. **TEACHERS' COURSE IN WOOD WORK.** Carpentry, joinery, and wood carving. Care and adjustment of tools and wood working machines; wood finishing, polishing and varnishing; wood turning. This course is designed with special reference to the needs of teachers of manual training. Maximum four credits. RICHARDS.
38. **MACHINE WORK.** Machine and bench work with tool and machine construction. Engineering sophomores and juniors or teachers of manual training who have had previous experience in machine shop work, may select from this course such work as may be required up to a maximum of four credits. Maximum four credits. SHIPLEY.
48. **TEACHERS' COURSE IN METAL WORK.** Elementary machine and bench work, including soldering, brazing and autogenous welding, arranged to meet the needs of teachers of manual training. The course will include: bench and vise work in metal chipping, filing, scraping, and fitting; machine tool work in metals, including turning, planing, threading, drilling, and milling. Maximum four credits. SHIPLEY.

NOTE: Each of the above subjects will require forty-eight hours actual shop practice for one credit. Students taking machine work for credit in the Engineering College will be given lectures throughout the course, which are included in the forty-eight hours specified.

### ENGLISH

Professors HARDIN CRAIG, JOSEPH M. THOMAS; Assistant Professor GEORGE N. NORTHROP; Instructor C. A. HERRICK.

18. **GENERAL SURVEY OF ENGLISH LITERATURE** (from beginning to Steele). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for more minute study of special methods. This course in combination with the other three parts of the General Survey listed below gives direct preparation for the examinations on English Literature towards the State Professional Certificate. This course carries university credit for the first half of English 1. Open to sophomores, juniors, and seniors. One and one-half credits. NORTHROP.



15. GENERAL SURVEY OF ENGLISH LITERATURE (from Steele to Wordsworth). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for a more minute study of special periods. This course in combination with the other three parts of the General Survey herewith listed gives direct preparation for the examinations on English Literature towards the State Professional Certificate. This course carries university credit for the second half of English 1. Open to sophomores, juniors, and seniors. One and one-half credits. THOMAS.
25. GENERAL SURVEY OF ENGLISH LITERATURE (from Wordsworth to Carlyle). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for a more minute study of special periods. This course in combination with the other three parts of the General Survey herewith listed gives direct preparation for the examinations on English Literature towards the State Professional Certificate. This course carries university credit for the first half of English 2. Open to sophomores, juniors, and seniors. One and one-half credits. CRAIG.
25. GENERAL SURVEY OF ENGLISH LITERATURE (from Carlyle to the present time). Lectures, recitations, and assigned readings covering the whole period in historical outline, and preparing for a more minute study of special periods. This course in combination with the other three parts of the General Survey listed above gives direct preparation for the examinations in English Literature towards the state teachers' certificate. This course carries university credit for the second half of English 2. Open to sophomores, juniors and seniors. One and one-half credits. HERRICK.
- \*555. SHAKESPEARE. An introductory study of Shakespeare's development as a poet and dramatist, with reading of representative plays. This course carries university credit for the first half of English 55. Open to juniors and seniors who have completed English 1. One and one-half credits. NORTROP.
- 80s. TEACHERS' COURSE. (See statement in the Departments of Rhetoric and Education.)
- 122s. AMERICAN LITERATURE. Lectures on American Literature, with extensive readings from the principal poets and prose writers of the United States. This course carries credit for the first half of English 122. Open to juniors, seniors and graduates who have completed English 1. One and one-half credits. CRAIG.
- \*125s. BIOGRAPHY. The rise and development of English biography, with attention to journals, memoirs and letters. Open to graduates with a major in English or history and, upon approval of instructor, to seniors who have completed twelve credits in English. This course carries credit for the first half of English 125. One credit. NORTROP.

- \*130s. **THE AGE OF WORDSWORTH.** A study of special problems connected with the Romantic Movement in English Literature and the influence of the Revolution in France. Open to graduates and, upon approval of the instructor, to seniors who have completed twelve credits in English. One credit. CRAIG.

## GEOLOGY AND GEOGRAPHY

Assistant Professors CHESLEY J. POSEY, EDWARD M. LEHNERTS.

- 29s. **PHYSIOGRAPHY.** Principles of earth sculpture; physiographic changes in progress, and agencies causing them; hydrography and oceanography; planetary relations; climatology; laboratory conferences on interpretation of topographic maps; field excursions. This course is adapted to teachers who wish a detailed study of the subject and to those who wish to pursue further courses in geology. It carries university credit for Course 29. Three credits. POSEY.
- 36s. **GEOGRAPHY OF NORTH AMERICA.** The regional geography of the United States and Canada; their physiography, climate, natural resources, and people are considered. The utilization and conservation of natural resources are emphasized. A course in physiography is a desirable prerequisite. This course carries half the regular university credit for Course 36. One and one-half credits. POSEY.
- 55s. **TEACHERS' COURSE IN GEOGRAPHY.** A study of the content of grade and high school geography and of the methods of teaching it. Six credits from the Department of Geology are required as prerequisites; three being from Courses 1, 29, and 31; and three from Courses 36, 116, 118, 188. Those who have had equivalent courses elsewhere or mature teachers who take either Course 29s or 36s are considered as fulfilling the prerequisites. This course carries university credit for Course 55. Two credits. POSEY.
- 188s. **FIELD COURSE IN GEOGRAPHY.** A satisfactory report based on the field studies is required for credit. In 1916, the following field work is offered: Tour "1," Isle Royal, three credits, June 21 to July 4. Tour "2," Northeastern Minnesota, three credits, July 5 to July 18. Tour "3," Central Colorado and the Yellowstone National Park, July 25 to August 8. Tour "4," Glacier National Park, three credits, August 8 to August 21. Six credits can be earned by taking any two tours and submitting a satisfactory report. Open to sophomores, juniors, seniors, and special students. LEHNERTS.

For further information and detailed itineraries write to Mr. E. M. Lehnerts, General Extension Division, University of Minnesota, Minneapolis.

## GERMAN

Professor CARL SCHLENKER; Assistant Professors OSCAR BURKHARD, WALTER O. MYERS; Instructor THEODORE GEISSENDOERFER.

- 1S. **ELEMENTARY COURSE.** This course is designed for students who have little or no previous knowledge of German. It will be conducted in German and will include practice in speaking and reading, together with inductive instruction in the elements of German grammar. This course carries university credit for German 1. Three credits. MYERS.
- 54S. **CLASSIC PERIOD.** A historical survey of German literature with the principal emphasis upon the period of Goethe and Schiller. Lectures, assigned readings, frequent quizzes and reports. This course will be offered if there are sufficient registrations. This course carries university credit for German 54. Three credits. BURKHARD.
- 60S. **TEACHERS' COURSE IN GERMAN.** Introduction to German phonetics; elements of historical grammar, together with a survey of the more difficult points in grammar, from the teacher's point of view; discussion of methods of modern language teaching; practice lessons as far as possible in composition and reading. The course will be conducted in German. Three credits. SCHLENKER.
- 21S. **SCIENTIFIC GERMAN.** The aim of this course is to give students a reading knowledge of German for use in scientific studies. One year of German is required as a prerequisite. This course will be offered if there are sufficient registrations. Three credits. Fee, \$10. GEISSENDOERFER.
- 125S. **RESEARCH IN GERMAN.** Graduate students and seniors with the necessary preparation may undertake research in some selected field. BURKHARD, MYERS.

## GREEK

Professor CHARLES A. SAVAGE.

- 62S. **GREEK LITERATURE AND LIFE.** Deals with the literature, life, and art of the Ancient Greeks, for which no knowledge of Greek is required. Lectures and illustrative readings by instructor and assigned readings in translation and textbook work by class; conferences and informal discussions. The character and influence of Greek culture, especially along the lines of literature, philosophy, and art, will be discussed; and the whole course will be richly illustrated with the stereopticon. Especially designed for those interested in language and literature. Two credits.
- 63-64S. **GREEK MYTHOLOGY.** Lectures, readings, and textbook work dealing with the legends and myths which appear in the literature and art of ancient Greece. The stories of gods and heroes found in Homer

and the tragic and lyric poets will be presented and interpreted, and the course will be illustrated with stereopticon slides. The origin and evolution of the myth, its relation to Greek literature, philosophy, and religion, and its influence upon later literature, will also be touched upon. No knowledge of Greek required. One credit.

- 61s. THE GREEK DRAMA. The reading and interpretation of representative Greek plays, together with lectures on the origin, growth, character and influence of the Greek drama. Lectures richly illustrated with the stereopticon, portraying Greek dramatic art in its various aspects will also be given. No knowledge of Greek required. Students taking this course may not receive credit for Course 62. Two credits.
- 1s. FIRST YEAR GREEK. General principles, inflection, word-formation, syntax, elementary readings, and composition. Four credits.

### HISTORY

Professors EUGENE C. BARKER, ALBERT B. WHITE; Assistant Professor AUGUST C. KREY.

- 2s. MODERN EUROPE. Europe from the end of the Thirty Years' War to the present. This course may be taken to remove failures in either semester of History 1-2. Three credits. KREY.
- 4s. MODERN ENGLAND FROM THE SEVENTEENTH TO THE NINETEENTH CENTURY. The social, political, and institutional development of England since 1603. This course may be taken to remove failures in either semester of History 3-4. Three credits. WHITE.
- 14s. THE RENAISSANCE. The Renaissance as a general European movement, with emphasis upon the work of individual men and upon ideas rather than upon political institutions; how the mediæval world became the modern world. One and one-half credits. WHITE.
- \*56s. TEACHERS' COURSE IN HISTORY AND GOVERNMENT. Deals chiefly with the practical problems of teaching history and government in the secondary schools. Lectures, readings and directed investigation of teaching problems. Two credits. KREY.
- \*106s. FORMATION OF THE CONSTITUTION. A somewhat detailed study of the Articles of Confederation, the Federal Convention, the Constitution, the organization of the new government, and the beginning of political parties. One and one-half credits. BARKER.
- \*108s. DIPLOMATIC HISTORY OF UNITED STATES TERRITORIAL EXPANSION. The boundary in the treaty of 1783, the Louisiana Purchase, the Florida treaty, the Texas and Oregon questions. One and one-half credits. BARKER.

- \*156s. JACKSON'S ADMINISTRATION. Jacksonian democracy; war on the United States Bank; Indian policy; nullification; slavery; foreign relations, with emphasis on the Texas question and relations with Mexico. In connection with this course, graduate credit may be gained by qualified students who undertake further investigation in selected fields. Credits to be arranged. One and one-half credits. BARKER.

## LATIN

Professor FREDERICK C. EASTMAN.

- 53s. ROMAN PRIVATE LIFE. A study of the private life in Rome and Pompeii in the early Empire, amply illustrated by lantern slides. Lectures, assigned readings and reports. Among the subjects discussed will be the Roman house and villa; household furniture and utensils; wearing apparel and ornaments; the coiffure of the Roman woman; letter writing and book making; transportation; vehicles; roads; games; the Roman theatre, amphitheater and circus; the Roman baths; funeral customs, etc. This course is arranged to correlate in part with Course 55s, though either may be taken separately. Prerequisites, a minimum of two years of Latin if carried for credit. One credit. EASTMAN.
- 55s. LATIN TEACHERS' COURSE. A survey of the Latin work in the high school designed particularly for those teaching, or intending to teach, secondary Latin. The course consists of lectures, conferences, and reports, and includes a consideration of methods and principles in the teaching of First Year Latin, Caesar, Cicero, Vergil, and Latin Composition. The various problems and difficulties pertaining to the teaching of Latin in its several phases in the high school courses are discussed and methods that have been found most efficient are exemplified. The intent is to make the course as practically helpful as possible. Special conferences will be arranged as occasion requires. Prerequisites, a minimum of five years of Latin if carried for credit. Two credits. EASTMAN.
- 203s. GRADUATE SEMINAR IN ROMAN SATIRE. The work in this course may be varied, as may be decided upon by conference, to accord with special needs of students. EASTMAN.

## MATHEMATICS

Professors GEORGE N. BAUER, WILLIAM E. BROOKE, WILLIAM KIRCHNER; Assistant Professor ROYAL R. SHUMWAY; Instructors JAMES S. MIKESH, GEORGE C. PRIESTER, WALTER D. REEVE.

- 1s. HIGHER ALGEBRA, PART I. The fundamental rules, factoring, highest common divisor, lowest common multiple, fractions, involution, evolu-

tion, surds, simple equations with one, two and several unknown quantities, inequalities, ratio and proportion, arithmetical and geometric progressions, quadratic equations and numerous problems requiring both simple and quadratic equations. This course will be credited either for university entrance or for Mathematics 1, the first semester of the freshman year. Three credits. REEVE.

- 3s. HIGHER ALGEBRA, PART II. The first three days given to review of factoring, highest common divisor, least common multiple, fractions, surds and the theory of exponents. The course proper will include the following topics: Quadratic equations, equations in quadratic form, graphical representations, graphical solution of quadratics, simultaneous quadratics with graphs, progressions, mathematical induction with the binomial theorem, permutations and combinations, simple determinants, theory of equations, and the process of finding irrational roots by graphic methods. This course is the equivalent of Mathematics 3, usually taken in the first semester of the freshman year and in combination with the preceding offers a direct preparation to candidates for the examination in Higher Algebra toward the State Professional Certificate. Three credits. MIKESH.
- 4s. TRIGONOMETRY. This course covers the ordinary work in logarithms and plane trigonometry and is the equivalent of Mathematics 4, ordinarily taken in the second semester of the freshman year. This course offers a direct preparation to candidates for the examination in Trigonometry towards the State Professional Certificate. It also gives university credit. Three credits. BAUER.
- 6s. SOLID GEOMETRY. This course includes the subject matter of Books VI, VII, VIII and IX of the American texts in solid geometry and covers the study of points and lines in space, polyhedrons, cylinders and cones and the sphere. This course is intended for those who are preparing for the examination in Solid Geometry towards the State Professional Certificate. It also meets the entrance requirements of the university. KIRCHNER.
- 7s. PLANE ANALYTICAL GEOMETRY. Rectilinear and polar coördinates, producing equations of given loci, discussion of equations and construction of their loci, transformation of axes, properties of straight line, the conic sections and certain higher plane curves by means of their equations. This course carries university credit for Mathematics 7. Three credits. BAUER, MIKESH.
- 72s. ANALYTICAL GEOMETRY AND CALCULUS. Parametric equations of loci, intersections of curves, graphical solutions of equations, tangents and normals, construction of conics, equations and properties of conics, empirical equations; coordinates in space, locus of an equation in three variables, surfaces of revolution, plane and straight line, quadric surfaces, differentiation and integration of simple forms with applications. This course is the equivalent of the second semester of

freshman mathematics in the College of Engineering. Five credits.  
PRIESTER.

- 74S. DIFFERENTIAL AND INTEGRAL CALCULUS. Differentiation and integration, geometrical applications, curve tracing, maxima and minima, relative rates, velocities, accelerations, definite integrals, integration as a process of summation, areas, lengths, volumes, center of gravity, moments of inertia, liquid pressure, approximate integrations, infinite series, expansion of functions by Maclaurin's and Taylor's series, indeterminate forms, partial derivatives, some simple differential equations with applications. This course is the equivalent of the second semester of sophomore mathematics in the College of Engineering. Five credits. BROOKE.
- 1-3S. DESCRIPTIVE GEOMETRY AND DRAWING. An introductory course covering systems of representation, methods, loci, and constructive geometry. Recitations and drawing room exercises. This course carries credit for the first semester of the required work of the freshman year in the Engineering course, Drawing 1 and Drawing 3. Three credits. KIRCHNER.
- 4S. DESCRIPTIVE GEOMETRY AND DRAWING (continued). This course includes central projections and special cases; principles and applications; representations of lines, planes and solids and of their relations; tangencies, intersections and developments. Recitations, lectures, and the solution of problems. This course carries credit for the second semester of the required work of the freshman year in the Engineering course, Drawing 2 and Drawing 4. Three credits. KIRCHNER.

The courses in Descriptive Geometry and Drawing may be completed in three weeks by adding afternoon work. See the instructor before registering.

- 54S. TEACHERS' COURSE IN SECONDARY MATHEMATICS. This course deals with the mathematical curriculum of the secondary schools and the methods of teaching the several subjects. The current high school courses will be examined in the light of modern educational aims and principles. Constructive criticism will be offered on these courses of study. Methods will be discussed in connection with the relevant subject-matter and sufficient practice will be given by way of exercises and problems fully to illustrate the methods recommended. The student will be expected to do research readings and to take part in the daily discussion of assigned topics. A text-book will be recommended to serve as the permanent outline and to help in unifying the course. The leading subjects, Algebra and Geometry, will be given special consideration under the following topics: Aims in the study of the subject; subject-matter-development and classification; methods of teaching—origin and application; relation to other mathematical subjects and to other studies; educational values belonging to the

subject. This course carries university credit for Mathematics 54. Three credits. REEVE.

- 62s. THEORY OF EQUATIONS. Algebraic solution of cubic and quartic equations, properties of roots of an equation, solution of numerical equations, complex numbers, determinates, discriminant resultants. Texts and lectures. This course will not be given if less than six students register for it. One and one-half credits. SHUMWAY.
- 60s. CRITICAL REVIEW OF SECONDARY MATHEMATICS. Axioms and postulates of elementary geometry. Systems of fundamental assumptions. Properties of algebraic numbers. Theory of limits. Ruler and compass constructions. Lectures, assigned readings, and problems. This course will not be given unless at least six students register for it. SHUMWAY.

### MUSIC

Instructor DONALD FERGUSON; Special Instructors EARLE L. BAKER, THADDEUS GIDDINGS, MAXIMILIAN DICK, GERTRUDE HULL.

- 1s. HARMONY. The study of chords, their construction, relations, and progressions. Written exercises on basses, the harmonization of given melodies. Three credits. FERGUSON.
- 17s. PIANOFORTE. Open to students who have mastered technical difficulties of the degree of Czerny's School of Velocity, and the easier Haydn and Mozart Sonatas. One and one-half credits. Fee, \$24. (Two lessons per week.) FERGUSON.
- 19s. VIOLIN. Open to students who are qualified to plan the first ten of Kreutzer's Forty Etudes, and the easier Handel and Mozart Sonatas. One and one-half credits. Fee, \$24. (Two lessons per week.) DICK.
- 21s. VOICE CULTURE. While the individual ability varies greatly, all students may learn to use their voices correctly, through proper 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. One and one-half credits. Fee, \$24. (Two lessons per week.) HULL.

### PHILOSOPHY AND PSYCHOLOGY

Instructors AUSTIN S. EDWARDS, J. F. DASHIELL.

- 1s. GENERAL PSYCHOLOGY, FIRST HALF. The aims and methods of psychology; the facts, laws and functions of mental life. This course carries credit for the first half of Philosophy 1-2 and also one-half credit toward the requirements for the State Professional Certificate



and toward the University Teachers' Certificate. Three credits. EDWARDS.

- 106s. CHILD DEVELOPMENT. A study of the stages of development from infancy through adolescence for those interested in parenthood and education. One and one-half credits. EDWARDS.
- 9s. LOGIC. The nature of knowledge, the laws of reasoning, the principles and methods of scientific proof. This course carries university credit for Philosophy 9. Three credits. DASHIELL.
- 13s. INTRODUCTION TO PHILOSOPHY. A study of the aims, methods and child problems of philosophy, designed for those who wish a brief survey of the subject. One and one-half credits. DASHIELL.

### PHYSICS

Assistant Professor LOUIS W. MCKEEHAN; Instructors E. O. DIETERICH,  
PAUL E. KLOPSTEG.

No student will be permitted to register for more than Courses 7 and 9, or 8 and 10.

- 7s. GENERAL PHYSICS. Mechanics of solids and fluids, sound and heat. The requirement for this course is a working knowledge of algebra. Familiarity with the common trigonometric functions is desirable. The course is designed to give the student a general information about the fundamental laws and their applications. This course is completed during the six weeks' session. It carries university credit for Course 7 and in combination with Course 8 meets the requirements for Physics towards the State Professional Certificate. Courses 7, 8, 9, 10s meet the requirement in Physics in the pre-medical and engineering courses. Four credits. MCKEEHAN.
- 8s. GENERAL PHYSICS. Light, electricity and magnetism. This course has Course 7s as a prerequisite and continues the study of the fundamental laws and their application. This course is completed during the six weeks' session. It carries university credit for Course 8 and in combination with Course 7 meets the requirements for Physics towards the State Professional Certificate. Four credits. KLOPSTEG, DIETERICH.
- 9s. GENERAL LABORATORY PRACTICE. Physical measurements in the mechanics of solids and fluids, sound and heat, giving the student a knowledge of experimental methods and an acquaintance with the fundamental facts of the subject. One credit. No charge is made for this course except the usual laboratory fee, if taken in conjunction with Course 7s. MCKEEHAN, DIETERICH.
- 10s. GENERAL LABORATORY PRACTICE. Physical measurements in electricity, magnetism and light, giving the student a knowledge of the ex-

perimental methods and an acquaintance with the fundamental facts of the subject. One credit. No charge is made for this course except the usual laboratory fee, if taken in conjunction with Course 8. MCKEEHAN, DIETERICH.

- 89s. **TEACHERS' COURSE IN HIGH SCHOOL PHYSICS.** This course includes a brief history of the teaching of Physics; its present status; function of class room work, of laboratory, and methods in each; criticism of high school texts and manuals; selection, purchase and care of apparatus; laboratory organization; reports and quizzes; foundation in nature study, influence of general science, correlation with other branches. This course carries university credit for Physics 89. One credit. KLOPSTEG.
- 191s. **RESEARCH.** Students who satisfy the instructor in advance by personal conference or by mail will be guided in their research. Of the above courses only 7 and 9 or 8 and 10 may be carried at the same time. Credits to be arranged. MCKEEHAN.

### PHYSIOLOGY

Associate Professors RICHARD O. BEARD, FREDERICK H. SCOTT; Instructor FRANCIS B. KINGSBURY.

Laboratories open from 8 a.m. to 5 p.m. daily, excepting Saturdays, when they close at noon.

- 3s. **ELEMENTARY PHYSIOLOGY.** 90 hours. Offered to teachers, home economics students and others who desire a general knowledge of the subject. Three credits. Fee, \$6; laboratory fee, \$1.50. BEARD and Assistants.
- 4s. **GENERAL PHYSIOLOGY.** 112 hours. Offered to dental students. Four credits. Fee, \$25; laboratory fee, \$5. SCOTT and Assistants.
- 6s. **PHYSIOLOGIC CHEMISTRY.** 80 hours. Offered to dental students. Three credits. Fee, \$20; laboratory fee, \$5. KINGSBURY and Assistants.
- 102s. **PHYSIOLOGIC CHEMISTRY.** 128 hours. A study of the components, foods, secretions, digesta and excreta of the human body. Five credits. Fee, \$25; laboratory fee, \$5. KINGSBURY and Assistants.
- 103s. **PHYSIOLOGY OF CELLS, MUSCLE AND NERVE, BLOOD, CIRCULATION AND DIGESTION.** 128 hours. Four credits. Fee, \$25; laboratory fee, \$5. SCOTT and Assistants.
- 104s. **PHYSIOLOGY OF RESPIRATION, NERVOUS SYSTEM AND SPECIAL SENSES; SECRETION AND METABOLISM.** 128 hours. Four credits. Fee, \$25; laboratory fee, \$5. SCOTT and Assistants.

- 113s. **ADVANCED PHYSIOLOGY.** Study of special problems, offered to properly qualified students. Hours to be arranged with instructors; fee arranged with the Dean of the Medical School.
- 153s. **ADVANCED PHYSIOLOGIC CHEMISTRY.** Study of special problems, offered to properly qualified students. Hours to be arranged with instructors; fee arranged with the Dean of the Medical School.

### POLITICAL SCIENCE

Professor JEREMIAH S. YOUNG and RASMUS S. SABY.

- 1s. **AMERICAN GOVERNMENT.** A preparation for the advanced courses in Political Science, for teaching in secondary schools, and for good citizenship. Organization and actual workings of the National Government. Some attention will be given to the recent tariff act, the new financial and banking legislation and the Trades Commission Act. This course carries university credit for Political Science 1a. Courses 1s and 3s in Political Science and Course 1s in Economics prepare for the examination in Political Science toward the State Professional Certificate. Three credits. YOUNG.
- 6s. **AMERICAN MUNICIPAL ADMINISTRATION.** A study of the organization and chief functions of the American cities; their growth, relation to the state, forms of charters, inefficiency and corruption, reform measures, and the administration of finance, police, health and other activities. Three credits. SABY.
- 3s. **COMPARATIVE GOVERNMENT.** A study of the government and politics of the leading countries in modern Europe. This course carries one-half university credit for Political Science 3. One and one-half credits. SABY.
- \*51s. **BUSINESS LAW.** A study of contracts—the fundamental subject in business law. Essentials in the formation, classification, interpretation, breach, discharge and the practical application of contracts. Special attention given to the teaching of Business Law in the high schools. This course carries part credit for Political Science \*51. One and one-half credits. YOUNG.

### RHETORIC

Professor JOSEPH M. THOMAS; Assistant Professor DANIEL FORD; Instructor C. A. HERRICK.

- 1s. (Double course) **COMPOSITION AND RHETORIC.** Practical training in the art of writing, study of the principles of structure, and analysis of specimens of good prose. This course carries university credit for Rhetoric I, first semester. Three credits. FORD.

25. (Double course) **COMPOSITION AND RHETORIC.** This course is a continuation of the preceding course. It carries university credit for Rhetoric 1-2, second semester. Three credits. HERRICK.
115. (Single course) **EXPOSITION.** Analysis of specimens of exposition; short daily themes and longer essays, with emphasis on planning and amplification. Open to those who have credit in Rhetoric 1-2. This course carries university credit for the first half of the semester's work in Rhetoric 11. One and one-half credits. FORD.
- 80s. (Single course) **TEACHERS' COURSE IN ENGLISH.** An analysis of some of the problems in the teaching of English literature and composition with suggestions toward their solution. This course carries university credit for the first half of Education 130. Open to all juniors and seniors who have credit for English 1-2, and Rhetoric 11-12, or 15-16. One and one-half credits. THOMAS.
- 119s. **RESEARCH AND SPECIAL WORK.** Hours and credits to be arranged. Graduate students and seniors with the necessary preparation may undertake research in some selected field. THOMAS.

## ROMANCE LANGUAGES

### FRENCH

Professor EVERETT W. OLMSTED; Instructor EDWARD H. SIRICH.

15. **BEGINNING COURSE.** This course is intended for beginners in French and for teachers of the language who desire to follow the course for method. Particular attention will be given to the teaching of pronunciation by the aid of phonetic symbols, to a systematic presentation of grammar, to conversation and to reading. A modified direct method will be used throughout the course. Three credits. OLMSTED.
55. **ADVANCED COURSE.** A study of French literary development, beginning with the classic movement of the seventeenth century. This course is designed especially for teachers and for those who may wish to review and strengthen their acquaintance with modern French literature by a historical survey coupled with a critical study of some of the most important works. Facility in reading French is a prerequisite. This course gives university credit for French 5. One and one-half credits. OLMSTED.
- 111s. **RESEARCH IN ROMANCE LANGUAGES.** Graduate students with necessary preparation may undertake research in some selected field. Hours and credits to be arranged. OLMSTED, SIRICH.

### SPANISH

Instructor EDWARD H. SIRICH.

- 31s. **BEGINNING COURSE.** This course is intended for beginners in Spanish. Especial attention will be given to pronunciation, through gram-

mar drill and reading of selected prose. A part of each hour will be taken up in the idiomatic use of Spanish.

- 35s. **INTERMEDIATE COURSE.** This course is intended for those who have finished a grammar course in Spanish. Its object is to aid the student to acquire a practical reading knowledge of the language. The direct method will be largely used. One and one-half credits. **SIRICH.**

### SCANDINAVIAN

Assistant **JENS H. HJELMSTAD.**

- 3s. **NORWEGIAN.** A course in reading of prose and poetry with exercises in composition and conversation. Review exercises in grammar. This course carries university credit for Scandinavian 3. Three credits. **HJELMSTAD.**

### SOCIOLOGY AND ANTHROPOLOGY

Professors **CHARLES G. BAIRD** (Amherst College), **MANUEL C. ELMER** (Fargo College)

- 1s. **INTRODUCTION TO SOCIOLOGY AND ANTHROPOLOGY.** A study of the origin and development of human societies; the various agencies which have determined the type of social life; social organization, social institutions, social progress; the individual and the group; the bearing of Sociology upon other social sciences and arts. Open to sophomores, juniors, and seniors. Three credits. **ELMER.**
- 6s. **PROBLEMS IN PRACTICAL SOCIOLOGY.** A study of such concrete social problems as child welfare; accident and sickness prevention and insurance; organized charity; juvenile delinquency; housing; the city; community surveys. Open to sophomores, juniors, and seniors. One and one-half credits. **ELMER.**
- 14s. **THE RURAL COMMUNITY.** A complete survey of the field of Rural Sociology; description of the various social interests of the rural community; an analysis of the fundamental problems of rural life; nature and influence of the rural environments; characteristics of the rural mind. Open to juniors and seniors. Three credits. **BAIRD.**
- 15s. **RURAL ORGANIZATION.** A study of the organized agencies by which rural communities carry on their various forms of associated life; the field of rural social service and the problem of leadership; rural community building; the farmer and his relation to local, state, and national government; governmental aid to agriculture in the United States; relation of the various national commissions and agencies to rural welfare; the problem of conservation. Open to juniors and seniors. One and one-half credits. **BAIRD.**

1005. INDIVIDUAL RESEARCH ON SPECIAL PROBLEMS IN SOCIOLOGY. ELMER, BAIRD.

This course will be open only to selected seniors and graduates after consultation with and approval of instructors. It is designed to offer the opportunity for investigation of special problems under supervision. Credit will be assigned according to the amount and quality of work done.

#### LIBRARY TRAINING SCHOOL

MISS BALDWIN  
MISS WILSON

College of Education, III, 113, 204.

The course in library training is under the direction of the Minnesota Public Library Commission and the Department of Education. It is intended for librarians of small public libraries and school libraries and assistants in larger libraries, who are not able to attend a regular library school. Its object is to prepare the students for better work in their present positions, and not to provide a substitute for regular library school training.

The course is open only to those holding library positions, or under definite appointments to such positions, and to teachers in charge of school libraries. The work will require the entire time of the student, who may not register for other courses in the Summer School.

The course includes instruction and practice work in classification, cataloging, book-selection, reference work, administration of public and school libraries. A special course in children's literature will be offered this year by Mrs. Gudrun Thorne-Thomsen, Riverside, Ill.

For further information regarding the outline of work, program, fees, etc., address Miss Clara F. Baldwin, Secretary, Public Library Commission, St. Paul, Minn.

**Bulletin of**  
**The University of Minnesota**  
THE MEDICAL SCHOOL

**SUMMER SESSION**  
**CIRCULAR OF INFORMATION**  
**1916**



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# SUMMER SESSION

## ANNOUNCEMENT

In the summer session of 1916, the courses heretofore given for practitioners of medicine will be discontinued. Graduates of any recognized institution who are licensed to practice in any state may avail themselves of opportunities of study in the laboratories and clinics by personal arrangement with instructors who may be in residence, as at any other season of the year.

The work to be regularly offered in the summer school of 1916 is for undergraduate students who desire to secure advanced standing or to remove inequalities of progress. The courses offered will bear an equivalence to those of the regular session. No student will be permitted, excepting in Anatomy, to register for more than thirty hours' work in each week.

## REGISTRATION

To register for the summer session: (1) Apply to the office of the Assistant Dean, Room 118, Millard Hall, for the arrangement of scheduled courses; (2) submit schedule to the Registrar for registration and certification of fees; (3) pay fees to the University Accountant. Registration day, June 12, 1916. The session will continue for six weeks from this date.

## FEEES

A deposit of \$5 is required of those taking laboratory courses to cover breakage or loss of glassware, apparatus, etc. This is subject to refund, minus breakage and loss charges. Tuition and laboratory fees are indicated in the schedule of courses.

## CLINICAL OPPORTUNITIES

The Departments of Medicine, Surgery, Obstetrics, Pediatrics and Ophthalmology and Oto-laryngology will maintain daily clinics during the summer in the outpatient department of the University Hospitals. Undergraduate students of the fifth and sixth years may arrange for any required or elective clinical courses that are available.

Visiting physicians and upper undergraduate classmen will be welcome to attend University Hospital rounds at stated hours, but will not receive credit for such attendance.

Clinical courses at the Minneapolis City Hospital and at the City and County Hospital in St. Paul, covering stated hours, may be taken for credit. The schedule of fees for these courses will be arranged in the Deans' offices.



## COURSES OF INSTRUCTION

### DEPARTMENT OF ANATOMY

Laboratories open from 8 a.m. to 5 p.m.

- 3s. GROSS HUMAN ANATOMY. 208 hours. Lectures, 32 hours. Dissection, including osteology, of head, abdomen, and lower extremity. 8 to 12 a.m. Fee, \$40; dissecting material, \$20, or \$10 each if two students work together. STEWART, RUTLEDGE, VAUGHN.
- 4s. GROSS HUMAN ANATOMY. 128 hours. Lectures, 16 hours. Dissection of neck, thorax and upper extremity. 8 to 12 a.m. Fee, \$25; dissecting material, \$10, or \$5 if two students work together. STEWART, RUTLEDGE, VAUGHN.
- 5-6s. HUMAN ANATOMY. 288 hours. Lectures, 32 hours. Equivalent to course required of dental students. Either half of course may be taken separately. 8 to 12 a.m. Fee, \$60. Dissecting material in one half of course, \$10, or \$5 each if two students work together. STEWART, RUTLEDGE, VAUGHN.
- 8s. HISTOLOGY AND EMBRYOLOGY. 128 hours. Lectures, 32 hours. Equivalent to course required of dental students. 1 to 5 p.m. Fee, \$25. CAMP, KITTELSON, MCKINLEY.
- 101s. HUMAN HISTOLOGY. 160 hours. Lectures, 32 hours. Microscopic study of the various tissues and organs. Equivalent to course required of medical students. 1 to 5 p.m. Fee, \$35. CAMP, KITTELSON, MCKINLEY.
- 102s. HUMAN EMBRYOLOGY. 96 hours. Lectures, 32 hours. A study of the development of the human body. Equivalent to course required of medical students. 2 to 4:30 p.m. Fee, \$20. CAMP, KITTELSON, MCKINLEY.
- 103s. HUMAN NEUROLOGY. 96 hours. Lectures, 16 hours. A study of the central nervous system and sense organs. Equivalent to course required of medical students. 2 to 4:30 p.m. Fee, \$20. ALLEN.
- 114s. TOPOGRAPHIC ANATOMY. 96 hours. Lectures, 16 hours. A study of the position and relations of the various organs, based upon cross-sections of the human body. Lectures and laboratory work. 8 to 12 a.m. Fee, \$20. ERDMANN.
- 119s. SPECIAL DISSECTIONS. 96 hours, or less. 8 to 12 a.m. Fee, \$20. Additional fee for dissecting material \$5 to \$25 according to region selected. ERDMANN.

201s. RESEARCH IN ANATOMY. Research work in anatomy, histology and embryology offered to properly qualified students, who will be admitted only after consultation with instructors. Hours and credits to be arranged with instructor. Fee, \$5. JACKSON, SCAMMON.

Continuation courses in gross anatomy, histology or embryology for medical or dental students may be offered, during the month following the regular summer school, provided a sufficient number of students apply for such courses. Additional fees for continuation courses.

#### DEPARTMENT OF PHYSIOLOGY

Laboratories open from 8 a.m. to 5 p.m. daily, excepting Saturdays, when they are open until noon.

- 3s. ELEMENTARY PHYSIOLOGY. 90 hours. Offered to teachers, home economics students and others who desire a general knowledge of the subject. Daily, excepting Saturdays. 9 to 12 a.m. Fee, \$8; laboratory fee, \$1.50. BEARD and Assistants.
- 4s. GENERAL PHYSIOLOGY. 112 hours. Offered to dental students. Daily, including Saturdays. 9 to 12 a.m. Fee, \$25; laboratory fee, \$5. SCOTT and Assistants.
- 6s. PHYSIOLOGIC CHEMISTRY. 80 hours. Offered to dental students. 2 to 4:30 or 5 p.m. Fee, \$20; laboratory fee, \$5. KINGSBURY and Assistants.
- 102s. PHYSIOLOGIC CHEMISTRY. 128 hours. A study of the components, foods, secretions, digesta and excreta of the human body. 1 to 5 or 5:30 p.m. Fee, \$25; laboratory fee, \$5. KINGSBURY and Assistants.
- 103s. PHYSIOLOGY OF CELLS, MUSCLE AND NERVE, BLOOD, CIRCULATION AND DIGESTION. 128 hours. Daily, including Saturdays. 8 to 11:30 a.m. Fee, \$25; laboratory fee, \$5. SCOTT and Assistants.
- 104s. PHYSIOLOGY OF RESPIRATION, NERVOUS SYSTEM AND SPECIAL SENSES; SECRETION AND METABOLISM. 128 hours. Daily, including Saturdays. 8 to 11:30 a.m. Fee, \$25; laboratory fee, \$5. SCOTT and Assistants.
- 113s. ADVANCED PHYSIOLOGY. Study of special problems offered to properly qualified students. Hours to be arranged with instructors; fee arranged with the Dean.
- 153s. ADVANCED PHYSIOLOGIC CHEMISTRY. Study of special problems, offered to properly qualified students. Hours to be arranged with instructors; fee arranged with the Dean.

#### DEPARTMENT OF PHARMACOLOGY

- 4s. GENERAL PHARMACOLOGY. 32 hours. Lectures, demonstrations and recitations. Offered to dental students. 1 to 2 p.m. Fee, \$10. BROWN, HALL.

- 52s. GENERAL PHARMACOLOGY. 32 hours. Lectures and recitations. 1 to 2 p.m. Fee, \$10. BROWN, HALL.
- 54s. EXPERIMENTAL PHARMACOLOGY. 48 hours. Laboratory exercises, Tuesdays, Wednesdays and Thursdays. 2 to 4:30 or 5 p.m. Fee, \$10; laboratory fee, \$5. BROWN, HALL.
- 107s. RESEARCH IN PHARMACOLOGY. A study of special problems; offered to properly qualified students. Hours to be arranged with instructors. Fee arranged with the Dean. BROWN, HALL.
- 109s. TOXICOLOGY. 24 hours. A study of poisons and their antidotes. Elective. Mondays and Fridays; 2 to 4 p.m. BROWN, HALL.

DEPARTMENT OF PATHOLOGY, BACTERIOLOGY, AND PUBLIC HEALTH

- 6s. ELEMENTARY BACTERIOLOGY. 96 hours. Lectures, demonstrations and laboratory exercises. Offered to home economics students and others. 9 to 12 a.m. Fee, \$8; laboratory fee, \$1.50. LARSON, HENRICI.
- 51s. GENERAL PATHOLOGY. 96 hours. A study of the principles governing pathologic changes, including disturbances of circulation and metabolism, inflammation, regeneration and repair and tumor formation. 8 to 11 a.m. Fee, \$20; laboratory fee, \$5. BARRON.
- 55s. CLINICAL PATHOLOGY. 64 hours. Lectures and laboratory exercises in methods of examination of urine, blood, digesta, feces, sputum, etc. Mondays, Wednesdays and Fridays, 2 to 5:30 p.m. Fee, \$15; laboratory fee, \$5. POTTER.
- 58s. GENERAL BACTERIOLOGY. 96 hours. Lectures, demonstrations and laboratory work. Course equivalent to course 58, required of medical students. 9 to 12 a.m. Fee, \$20; laboratory fee, \$5. LARSON, HENRICI.
- 63s. CLINICAL PATHOLOGY. 54 hours. Practical work in clinical diagnosis in the University Outpatient laboratory. 1 to 2:30 p.m. Fee, \$10. WARWICK.
- 101s. PATHOLOGIC TECHNIQUE. 48 hours. Practical work in methods for preparation of gross and microscopic specimens; including practice with freezing microtome, embedding methods, general and special stains, and preparing museum specimens. Limited to ten students. Mondays, Wednesdays and Fridays, 2 to 5 p.m. Fee, \$10; laboratory fee, \$5. ROBERTSON.
- 105s. IMMUNITY. 48 hours. Lectures and laboratory work on serum reactions, the Wasserman test, agglutinin and precipitin tests, vaccines,

etc. Mondays, Wednesdays and Fridays. 8 to 11 a.m. Fee, \$10; laboratory fee, \$5. LARSON.

1095. AUTOPSIES. Attendance upon, and participation in selected post-mortem examinations, with training in autopsy technique and demonstrations in gross pathology. Hours announced. Fee to be arranged. Staff.

# Bulletin of The University of Minnesota

DEPARTMENT OF AGRICULTURE

SUMMER SESSION

1916



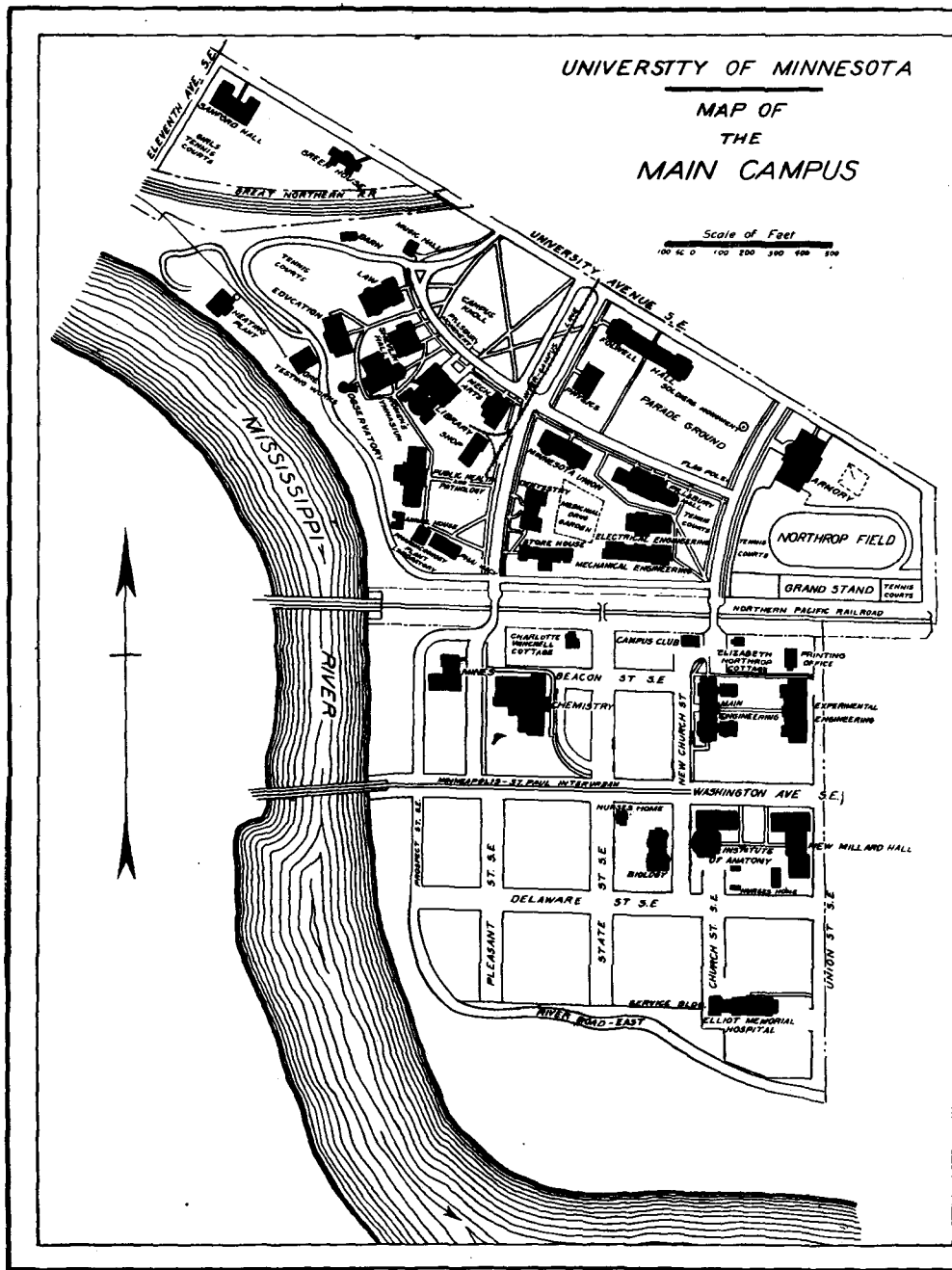
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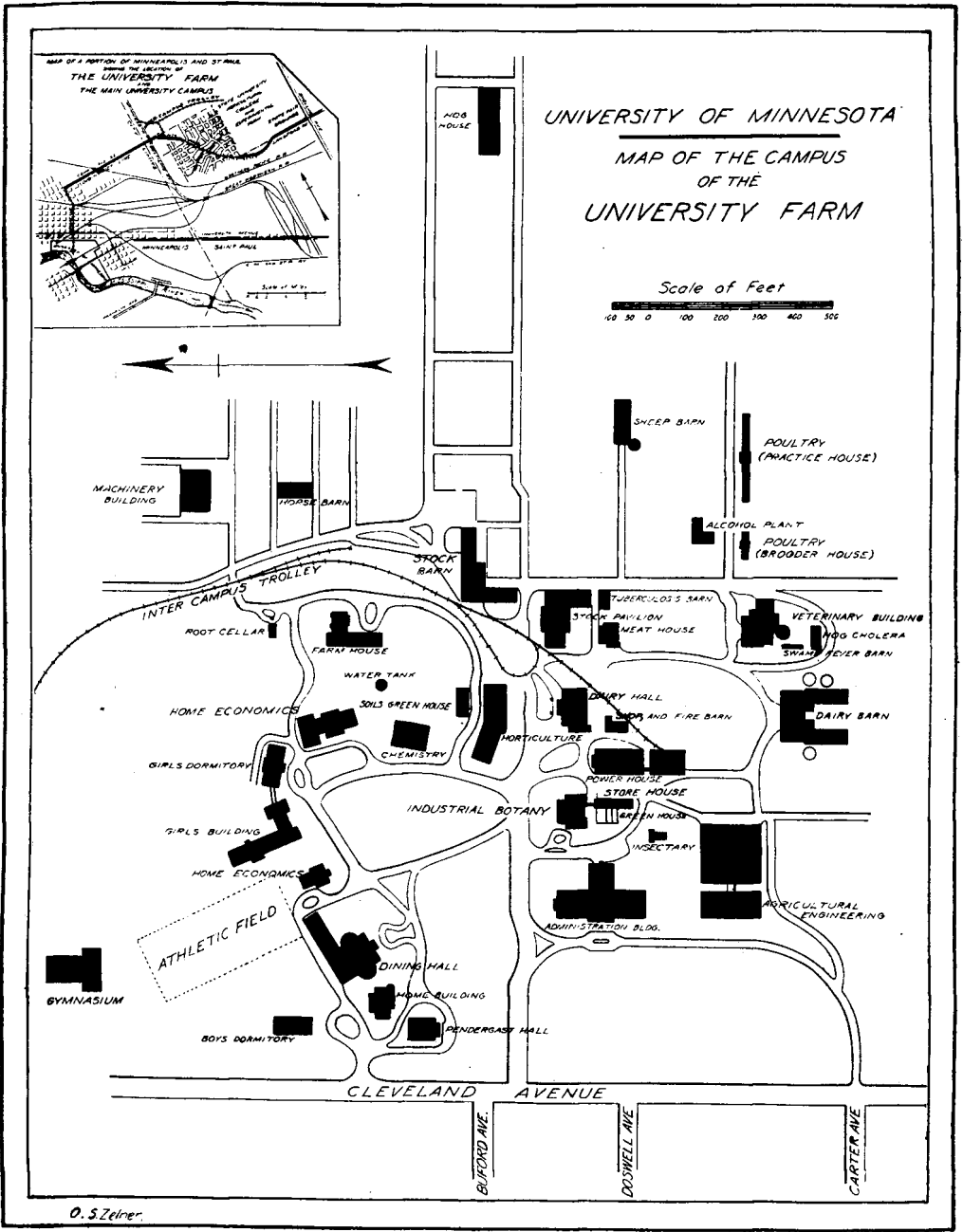
UNIVERSITY OF MINNESOTA

MAP OF  
THE  
MAIN CAMPUS

Scale of Feet  
100 200 300 400 500



Area of Main Campus, 108.5 acres



Area of University Farm, 422.56 acres



#### OFFICERS OF ADMINISTRATION

GEORGE E. VINCENT, Ph.D., LL.D., President

ALBERT F. WOODS, D.Agr., Dean

EDWARD M. FREEMAN, Ph.D., Assistant Dean

ASHLEY V. STORM, M.A., Director

RODNEY M. WEST, B.A., Secretary



# SUMMER SESSION

## DEPARTMENT OF AGRICULTURE

### FACULTY

- GEORGE EDGAR VINCENT, Ph.D., LL.D., President  
1005 5th St. S. E., Minneapolis
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- EDWARD M. FREEMAN, Ph.D., Assistant Dean 2196 Carter Ave., St. Paul
- ASHLEY V. STORM, M.A., Director of Summer Session  
1827 4th St. S. E., Minneapolis
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1386 Grantham St., St. Paul
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2115 Dudley Ave., St. Paul
- ROBERT C. ASHBY, M.S., Assistant Professor of Animal Husbandry  
1423 Chelmsford St., St. Paul
- WILBUR H. BENDER, M.Di., Ph.B., Associate Professor of Agricultural  
Education 2121 Como Ave. W., St. Paul
- ALVA H. BENTON, M.S., Assistant Professor of Farm Management  
2256 Commonwealth Ave., St. Paul
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2176 Scudder Ave., St. Paul
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and Surgery 2227 Knapp St., St. Paul
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2128 Knapp St., St. Paul
- LE ROY CADY, B.S. in Agr., Associate Professor of Horticulture  
2121 Doswell Ave., St. Paul
- LLOYD V. FRANCE, B.S.A., M.S.A., Instructor in Beekeeping  
2309 Pricilla, St. Paul
- GUSTAV W. GEHRAND, Ph.B., Assistant Professor of Dairy Husbandry  
946 15th Ave. S. E., Minneapolis
- H. PRESTON HOSKINS, V.M.D., Assistant Professor of Veterinary Medi-  
cine and Surgery 2195 Doswell Ave., St. Paul
- CHARLES W. HOWARD, B.A., M.S., Assistant Professor of Entomology  
319 12th Ave. S. E., Minneapolis
- FRANCIS JAGER, Professor of Bee Culture, Vendome Hotel, Minneapolis
- WILLIAM F. LUSK, Ph.B., Assistant Professor of Agricultural Education  
1453 Hythe St., St. Paul

- DEXTER D. MAYNE, Professor of Agricultural Pedagogics  
1403 Cleveland Ave., St. Paul
- JOSEPH S. MONTGOMERY, B.S. in Agr., Assistant Professor of Animal Husbandry  
1391 Raymond Ave., St. Paul
- WILLIAM MOORE, B.A., Assistant Professor of Entomology  
2295 Doswell Ave., St. Paul
- PETER J. OLSON, M.S., Assistant Professor of Agronomy  
2125 Como Ave. W., St. Paul
- WIELAND L. OSWALD, Assistant Professor of Agricultural Botany  
2274 Carter Ave., St. Paul
- THOMAS G. PATERSON, B.S. in Agr., Assistant Professor of Animal Husbandry  
1343 Cleveland Ave., St. Paul
- MYRON H. REYNOLDS, B.S.A., D.V.M., M.D., Ph.G., Professor of Veterinary Medicine and Surgery  
2145 Knapp St., St. Paul
- ARTHUR G. RUGGLES, M.A., Associate Professor of Entomology  
1465 Raymond Ave., St. Paul
- ARTHUR C. SMITH, B.S., Professor of Poultry Husbandry  
2095 Commonwealth Ave., St. Paul
- ELVIN C. STAKMAN, Ph.D., Assistant Professor of Plant Pathology  
2138 Knapp St., St. Paul
- MABEL B. TRILLING, B.S., Assistant Professor of Textiles and Clothing  
2077 Commonwealth Ave., St. Paul
- FREDERICK L. WASHBURN, M.A., Professor of Entomology  
1112 6th St. S. E., Minneapolis
- MARION WELER, A.B., Assistant Professor of Textiles and Clothing  
2176 Scudder Ave., St. Paul
- GRACE I. WILLIAMS, B.S., Assistant Professor of Foods and Cookery  
2101 Knapp St., St. Paul
- GEORGE H. NESOM, B.A., Instructor in Soils  
2104 Scudder Ave., St. Paul
- CHARLES C. PALMER, D.V.M., Instructor in Veterinary Science  
1520 Hythe St., St. Paul
- ETHEL L. PHELPS, B.S., Instructor in Textiles and Clothing
- ELIZABETH VERMILYE, B.A., Instructor in Foods and Cookery  
2116 Knapp St., St. Paul

## GENERAL INFORMATION

The work of the Land Grant Colleges of the United States is now finding expression in three great fields of educational activity, viz., Instruction, Experimentation, and Extension.

Two of these, Experimentation and Extension, are serving the people throughout the entire year, and the conviction is growing that the great plant, equipment, organization, and faculty of these institutions should likewise be utilized for instruction during more than the nine months of the college year.

In response to this demand the Summer Session is established in order that the field plots, live stock, libraries, laboratories, orchards, 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 and the Special Conference of Agricultural Instructors mentioned elsewhere, add to the Session features of great value.

## COURSES AND CREDITS

The courses offered are selected from those offered during the regular college year in which the same amount of work will be done and for which the same credit will be given.

As the Summer Session (six weeks) is one third the length of a regular college semester (eighteen weeks), the number of recitations and amount of work will be approximately *three times that required during the college year*. Sixteen hours per week constitutes standard work and gives six semester hour credits.

## FACULTY

The Summer Session Faculty will consist of members of the regular college faculty aided by specialists from other institutions who are of known efficiency in their fields of labor.

## COURSES OFFERED

Preparations have been made to offer such of the following courses as are applied for by a sufficient number of students, six regular students being the minimum.

Agronomy and Farm Management 1, Farm Crops 1  
 Agronomy and Farm Management 102, Farm Management II  
 Agronomy and Farm Management 104, Grain and Corn Judging  
 Agricultural Education 131, Methods  
 Agricultural Education 141, Teaching  
 Agricultural Education 151, Organization and Management  
 Bee Culture 2, Practical Beekeeping  
 Dairy and Animal Husbandry 1, Breeds and Types of Live Stock  
 Dairy and Animal Husbandry 11, Poultry  
 Dairy and Animal Husbandry 18, Dairy Stock Judging  
 Dairy and Animal Husbandry 26, Elements of Dairy Husbandry  
 Dairy and Animal Husbandry 30, Incubating and Brooding  
 Economic Zoology 3, Economic Entomology  
 Home Economics 1, Textiles  
 Home Economics 11, Garment Making  
 Home Economics 13, Dressmaking  
 Home Economics 17, Clothing Economics  
 Home Economics 21s, Foods and Cookery  
 Home Economics 22s, Food Economics  
 Home Economics 34, Home Management, Lectures  
 Home Economics 35, Home Management, Laboratory  
 Horticulture 71, Landscape Gardening  
 Horticulture 90, General Horticulture  
 Soils 3, Soil Physics and Management  
 Plant Pathology and Botany 1, Plant Pathology  
 Plant Pathology and Botany 9, Seed Testing  
 Veterinary Science 6, Veterinary Medicine  
 Veterinary Science 12, Common Diseases of Domestic Animals  
 Veterinary Science 14, Hog Cholera

## FEES

A registration fee of \$5 is charged for registration. In addition, \$2 is charged for each credit hour for which the student registers and a further \$1.50 for each laboratory course.

A deposit of \$5 is also required to cover unusual breakage and safe return of apparatus and books. This deposit will be returned at the close of the session, less charges for breakage and losses. All fees are payable at the time of completing registration.

The five-dollar registration fee is not refunded under any conditions. Students cancelling their registration during the first week of the session may receive a pro rata refund of the credit hour and laboratory fees. Such refund shall not exceed five-sixths of the amount paid on

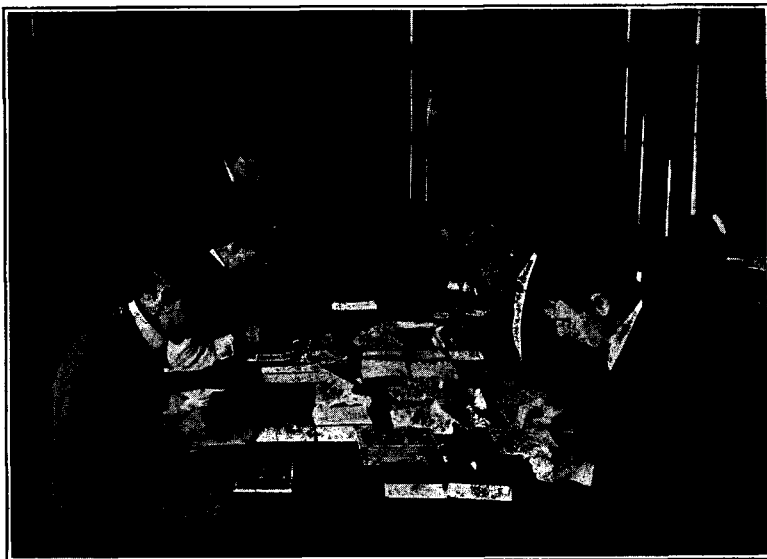
these items and must be approved by the Director of the Summer Session.

No refunds whatsoever shall be made to students who attend more than one week.

### 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,



An Agricultural Botany class testing seeds. Practical work can be done in weeds and seeds during 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 will be furnished by the Secretary, University Farm, St. Paul.

### REGISTRATION

Saturday, June 10 and Monday, June 12, are regular registration days. Students may register on any preceding day after May 22. Students should complete registration and be ready for class work before 8 a.m. Tuesday, June 13. After Monday, June 12, students will register by special permission only.

## LOCATION

From St. Paul or Minneapolis, take a Como-Harriet or Como-Hopkins car to University Farm. One fare (5 cents) takes you 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 Intercampus cars, which take you, for an additional fare, into the University Farm grounds. Walk west to the Administration Building, the third on your left.

Although 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 in 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 other 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 their rooms outside the dormitories. Good board and rooms may be obtained within a short distance from the school for \$5 per week and upward. Dormitories and dining hall will be opened Saturday, June 10.

## EXPENSES IN DORMITORIES

Fee for upkeep of dormitory rooms.....	\$1.00
Charge for postoffice box, room rent, use of bedding, and laundry of same .....	6.10
Regular board at dining hall, at \$3.50 per week.....	21.00
<hr/>	
Total.....	\$28.10

Entire amount to be paid in advance at time of registration.

Students who for any cause leave the school before the end of the term will have returned to them for the portion unused a pro rata amount of the total paid for board or room. Those leaving board or room, but not leaving the school before the end of the term, will have three-fourths of the pro rata amount returned.

No rebate will be made for occasional absences.

A cafeteria with reasonable charges is maintained on the campus for those who prefer that form of service, or for those who are not prompt in attendance at regular meals.

#### 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 amount of 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 postoffice, 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.

#### LIBRARY

Good library facilities, including books, bulletins, reports, and papers on Agriculture and Home Economics, will be available to all students in the library of the College in the Administration Building.

#### EXCURSIONS

The vicinity of the Twin Cities abounds in objects of geologic and physiographic interest, in rock formation, 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 a short opening exercise, 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 chapel during this period

## SPECIAL WEEK FOR AGRICULTURAL INSTRUCTORS

Many of the instructors in agriculture in Minnesota high schools are from other states and only partially familiar with Minnesota conditions. All instructors have found during the past year need for special study and conference. Some men will come into the State for their first work this fall. To help all of these men a special program has been prepared for the week of the Summer Session, July 24-28.

This is the time of the Rural Life Conference held annually at University Farm for which a special bulletin is issued. The agricultural men will combine with the other rural leaders in many exercises but will hold some separate conferences on topics of special interest to themselves.

The agricultural men's former summer conferences have been handicapped somewhat by occurring during the summer session and state teachers' training school. Their conference this year will be held the week following the close of these summer schools which will increase the scope and success of the work they will be able to accomplish.

Definite, condensed instruction will be given by the principal members of the faculty on problems found to be most valuable to these teachers, and conferences will be held in which the experience and advice of each will be made available to all.

Suggestions are now being gathered from the men themselves to guide in arranging the program of work.

Details will be furnished later to those interested.

## CONSULTATION

Opportunity will be given for conference with the members of the faculty on subjects of special interest to the individual students.

## STATE TEACHERS' TRAINING SCHOOL

Beginning and closing at the same time as does the Summer Session of the College of Agriculture, there will be held at the same place (University Farm, St. Paul) the State Teachers' Training School, wherein courses will be offered in methods of teaching and school organization and management; also review and credit work in subjects required for common school certificates and in non-college credit work in Agriculture, Manual Training, Home Economics, Drawing, and Music. For bulletin, address Secretary, University Farm, St. Paul.

*For Principals of Consolidated Schools.*—Special non-college credit courses in Agriculture and other industrial subjects will be offered to those who have served, or who will serve next year, as principals of consolidated schools under the Holmberg Act. The courses will be progressive in character and will afford special opportunities 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 the consolidated school principals will be held from time to time to deal with problems peculiar to their work.



## ENTERTAINMENT

From time to time throughout the term evening entertainments will be given in the large 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 the play grounds to teach and supervise the various activities in these directions. The classes and teams will be organized to suit the convenience of the members wishing to participate in gymnasium drill, tennis, base ball, 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 of the same may be made if desired.

## SWIMMING POOL

The swimming pool in the new gymnasium will be open to the use of men and women during stated periods throughout each week at 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.

#### ADVANCED COURSES AT THE UNIVERSITY

The University of Minnesota offers advanced courses in the Colleges of Science, Literature, and Arts, and of Education for college credit or for the state professional certificate and also courses in the College of Medicine and the College of Dentistry during the summer season. Those interested may obtain information from Registrar, University of Minnesota, Minneapolis.

#### SPECIAL INFORMATION

Inquiry concerning courses, and scope of the work in the Summer Session of the College of Agriculture, or in the State Teachers' Training School, should be addressed to A. V. Storm, University Farm, St. Paul.



Star of the North, Grand Champion in Carcass Contest, International Live Stock Exposition, Chicago, fed and exhibited by the College of Agriculture, University of Minnesota.

## DESCRIPTION OF COURSES

*Note.*—Since there are only one third as many weeks in the Summer Session, each course will require approximately three times as many hours per week as in a regular semester.

### AGRICULTURAL EDUCATION

131. METHODS IN TEACHING PUBLIC SCHOOL AGRICULTURE. Fundamental elements of method in teaching as related to teaching agriculture in high school. Organizing subject matter of daily work; selection and manipulation of devices. Classroom and laboratory method. Specific plans for teaching secondary agriculture. Offered to juniors and seniors. Prerequisite, six hours in Agricultural Education, three of which must be course 11a or 11b. Three credits.
141. TEACHING. Observation of regular classes; interpretation of class practices; preparation of lesson plans and actual teaching of classes under careful supervision in recitation and laboratory; criticism and discussion of plans, methods, and results of student's teaching. Offered to seniors. Prerequisite, 11a or 11b and 131a or 131b. Three credits.
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. Offered to seniors. Three credits.

### AGRONOMY AND FARM MANAGEMENT

1. FARM CROPS I. 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. Offered to freshmen in Agricultural Course. Three credits.
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. Offered to seniors in Agronomy and Farm Management. Prerequisite: Econ. 3; Farm Crops 1. Three credits.
104. GRAIN AND CORN JUDGING. A study in detail of representative samples of the leading varieties of grains and corn and grass seeds, with score card practice in comparative judging of grain, corn, and grass seed. Offered to juniors and seniors specializing in Agronomy and Farm Management. Prerequisites: Botany 1 and Farm Crops 1. Three credits.

## BEE CULTURE

2. PRACTICAL BEEKEEPING. Hives, tools and their uses. Bee carpentry. Handling of bees. Management of the bee-yard for comb and extracted honey production. Running extractor and rendering wax. Offered to sophomores, juniors and seniors. Three credits.

## DAIRY AND ANIMAL HUSBANDRY

- I. BREEDS AND TYPES OF LIVE STOCK. A study of the types and breeds of beef cattle, swine, sheep, and horses with special reference to the origin and leading characteristics of each of the important breeds. Offered to freshmen and sophomores in Agricultural Course. Three credits.
11. 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 same. Offered to all. Three credits.
18. DAIRY STOCK JUDGING. Practice work in judging animals of the leading dairy breeds. Herds in the vicinity of the Twin Cities are visited. Offered to juniors. Prerequisite. Dairy and Animal Husbandry 26. Two credits.
26. ELEMENTS OF DAIRY HUSBANDRY. Origin, characteristics, and adaptation of the dairy breeds of cows; particular attention is given to feeding followed by the study of the chemical and physical constituents of milk. Practice work in butter-making, and milk testing required. Offered to freshmen in Agricultural and Home Economics Courses. Three credits.
30. INCUBATING AND BROODING. Includes instruction and practice in incubation and brooding, selection of breeding stock and eggs for hatching, and feeding young chicks. Of practical value to teachers of agriculture and poultry-raisers. Offered to all. Two credits.

## ECONOMIC ZOOLOGY

3. ECONOMIC ENTOMOLOGY. A consideration of the most important insect pests; methods of control; insecticides and insecticidal apparatus; beneficial insects. All students entering this course make a collection of insects. Offered to juniors in Agricultural Course. Prerequisite: Animal Biology 3 and 4. Three credits.

## HOME ECONOMICS

1. 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. Offered to freshmen. Two credits.

11. **GARMENT MAKING.** Instruction and laboratory practice in hand sewing; in the reading and adaptation of commercial patterns; in the construction and use of the sewing machine; in designing, cutting, and making simple outer garments from washable materials. Offered to freshmen. Three credits.
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. Offered to juniors. Prerequisite: I and 11. Three credits.
17. **CLOTHING ECONOMICS.** General consideration of economic function of woman; history of woman's place in home and industry with reference to clothing and textiles; study of clothing budgets, hygiene and standardization of dress. Laboratory problem in costume modeling. Offered to seniors. Prerequisites: Home Economics 13 and 53. Three credits.
- 21s. **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. Prerequisites: Chemistry 3 or 33. Two credits.
- 22s. **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. Prerequisite: Home Economics 21 or equivalent. Two credits.
34. **HOME MANAGEMENT: OPERATION AND MAINTENANCE, LECTURES.** The family budget for varying incomes, and for the "Home Management House"; household accounts. Offered to seniors. Prerequisite: Home Economics 22. Two credits.
35. **HOME MANAGEMENT: OPERATION AND MAINTENANCE, LABORATORY PRACTICE.** (a) Nine weeks' experience as manager and helper in a household of twenty members. (b) A dietary study covering a period of one month in the above household. Offered to seniors. Prerequisite: Home Economics 22. Three credits.

## HORTICULTURE

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. Offered to sophomores, juniors and seniors. Three credits.

90. GENERAL HORTICULTURE. A general survey of horticulture with a consideration of the elementary principles of fruit-growing, vegetable gardening, floriculture, landscape gardening, plant breeding, plant forcing, and plant propagation. Offered to all. Prerequisite: 1 yr. Botany. Three credits.

#### SOILS

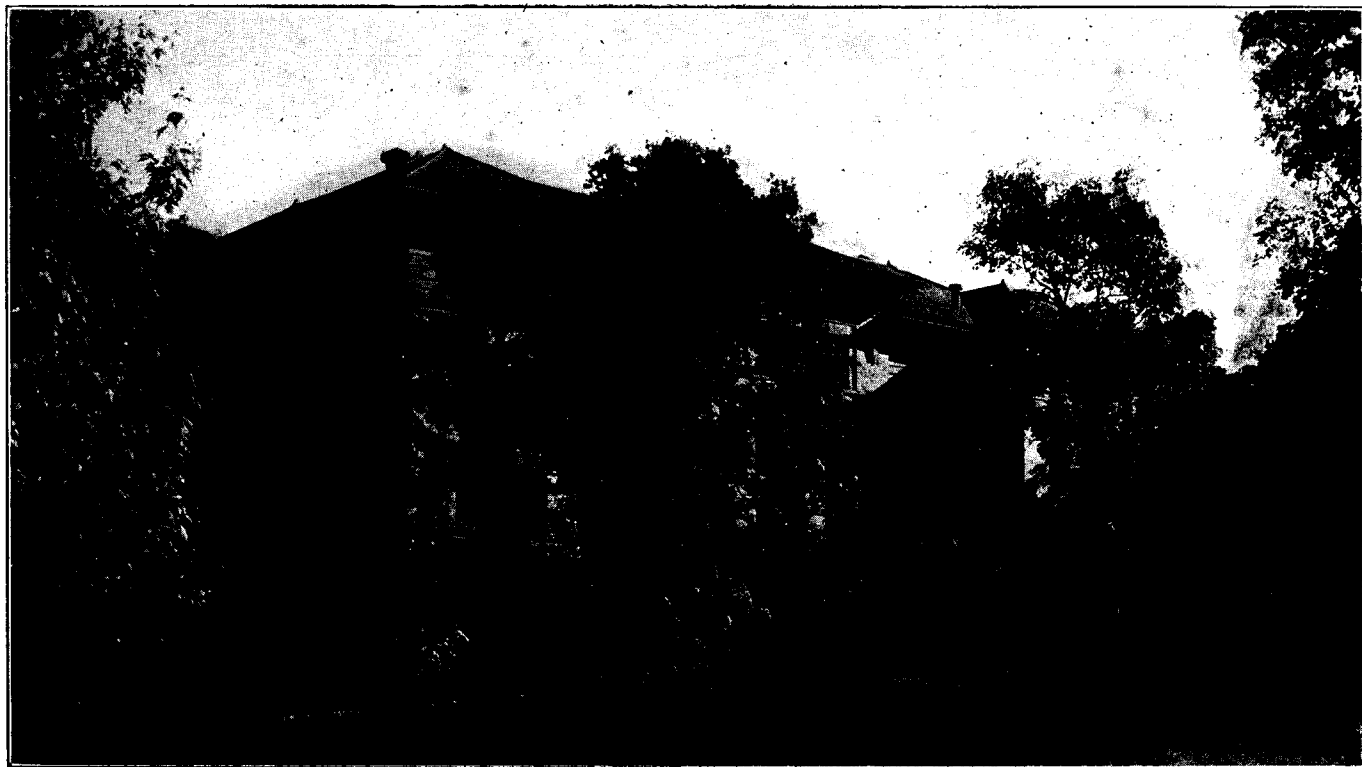
3. SOIL PHYSICS AND MANAGEMENT. Origin, mechanical composition, classification, and physical properties of soils; tillage operations in relation to moisture supply, micro-organisms of the soil. Lecture, laboratory and field work. Offered to juniors in Agricultural Course. Prerequisite: 1 yr. Chemistry. Three credits.

#### PLANT PATHOLOGY AND BOTANY

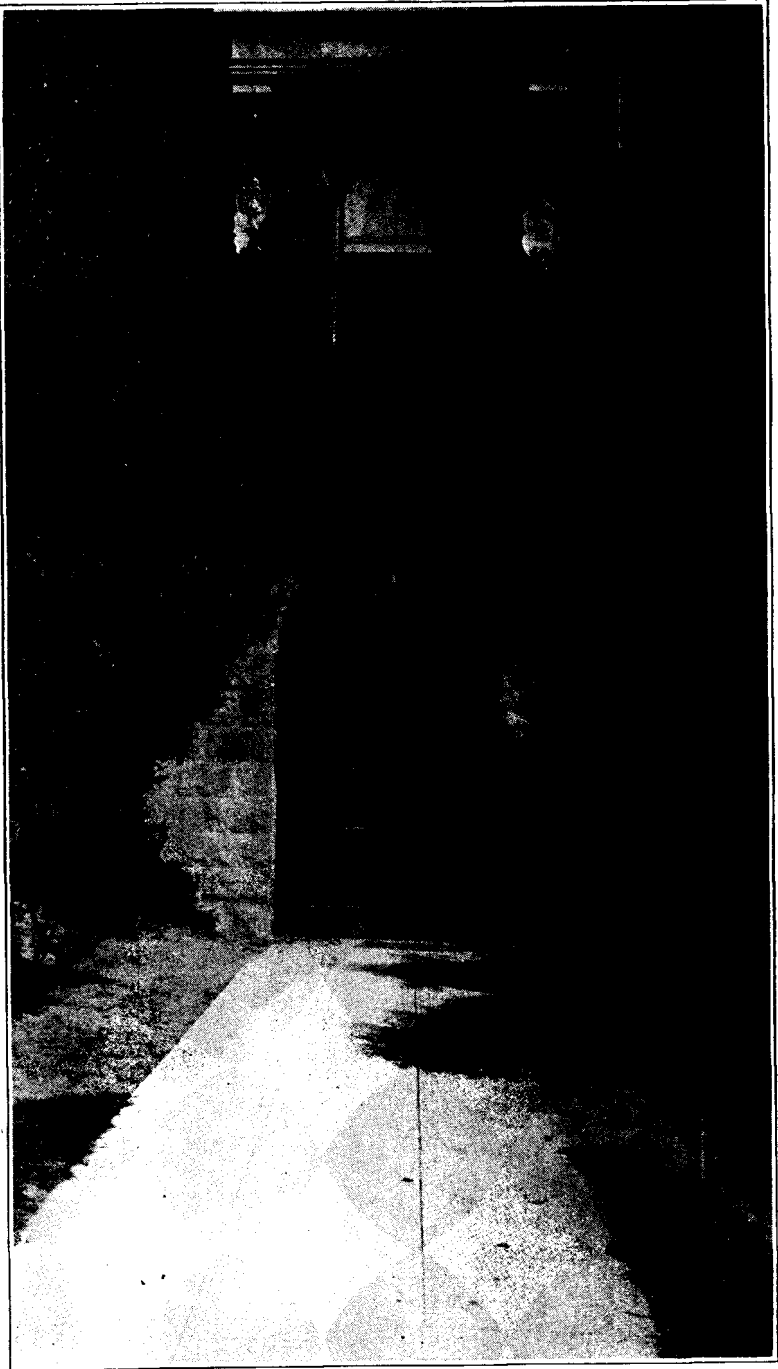
1. PLANT PATHOLOGY. Elementary study of plant diseases due to fungi bacteria and slime molds; life-histories and preventive methods. Lecture, laboratory, and reference. Offered to juniors in the Agricultural Course. Prerequisite: Botany I. Three credits.
9. AGRICULTURAL BOTANY. Detailed study of weeds and of seed testing methods and seed legislation. Weed and crop seeds studied with special reference to identification. Offered to sophomores, juniors and seniors. Prerequisite: Botany I. Three credits.

#### VETERINARY SCIENCE

6. VETERINARY MEDICINE. Anatomy, animal physiology and veterinary pathology in relation to common diseases. Causes and prevention of diseases. Elements of diagnosis. Common Medicines. Lameness and unsoundness. Common infectious diseases. Offered to juniors. Three credits.
12. COMMON DISEASES OF DOMESTIC ANIMALS. Cause, diagnosis, prevention, and treatment of common diseases capable of easy diagnosis and either prevention or simple treatment. General principles of diagnosis are reviewed; also preparation and administration of common medicines. Offered to seniors. Prerequisite: Veterinary 6. Three credits.
14. HOG CHOLERA. A detailed study of various phases of hog cholera and the use of serum. Lectures and laboratory work. Course intended especially for students specializing in Animal Husbandry and Agricultural Education. One credit.



One of the dormitories at University Farm where students in the State Teachers' Training School and Summer Session of the College of Agriculture will have their rooms during the summer of 1916. There are several such dormitories.



One of the beauty-spots at University Farm.



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

THE GRADUATE SCHOOL

GRADUATE WORK IN MEDICINE

IN

THE MEDICAL SCHOOL AND

THE MAYO FOUNDATION



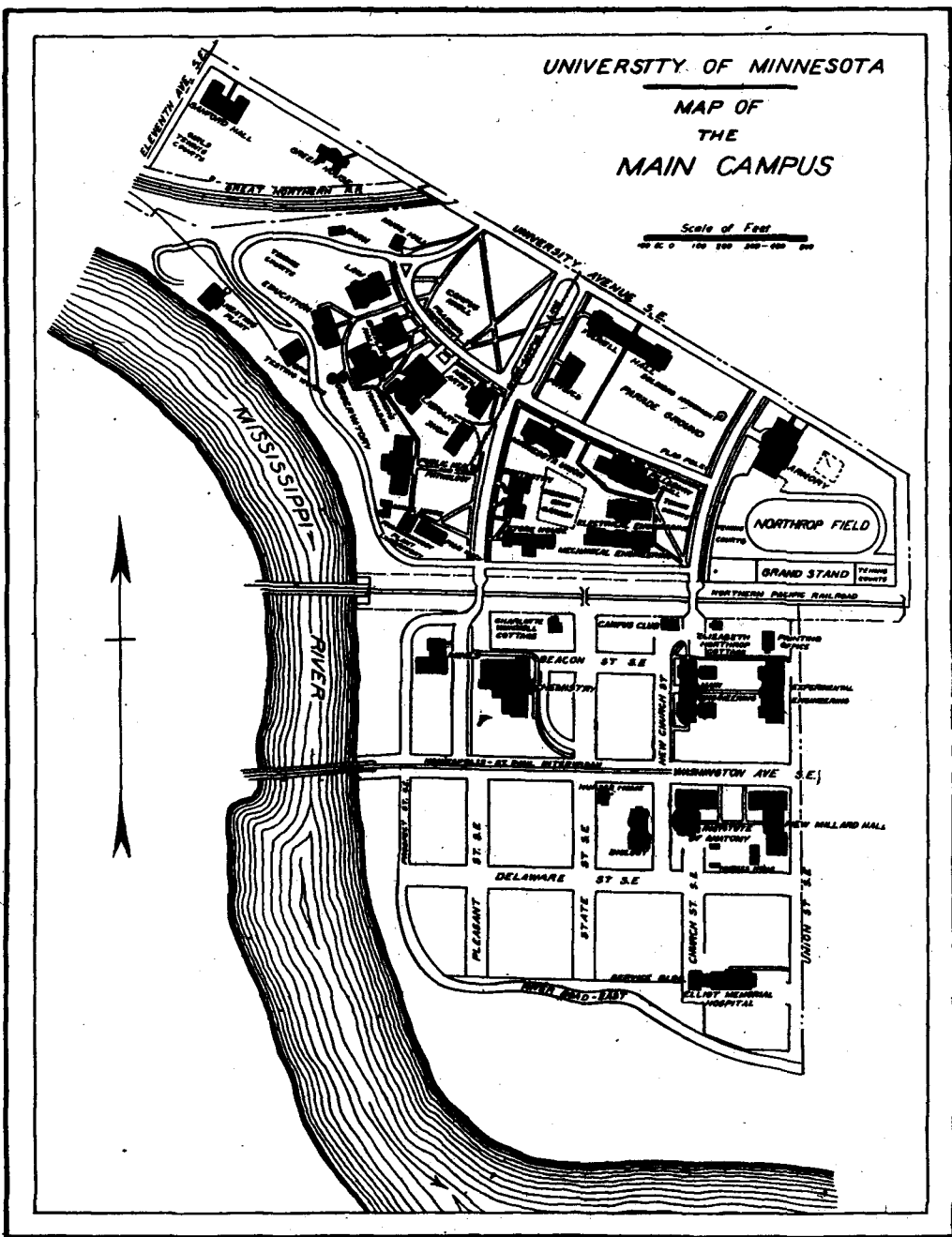
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August 1916

UNIVERSITY OF MINNESOTA

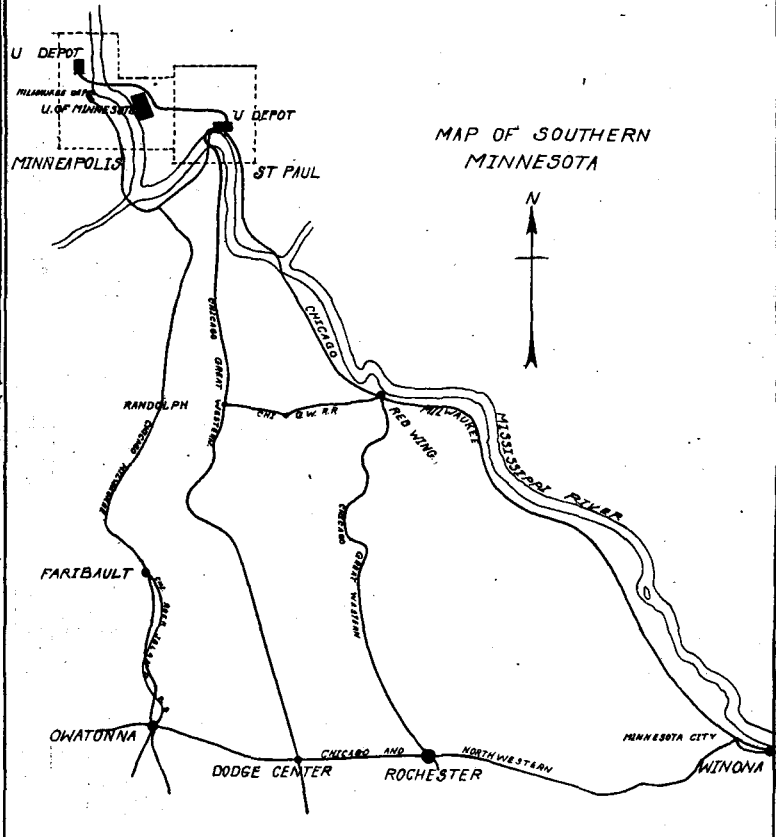
MAP OF  
THE  
MAIN CAMPUS

Scale of Feet  
0 100 200 300 400 500



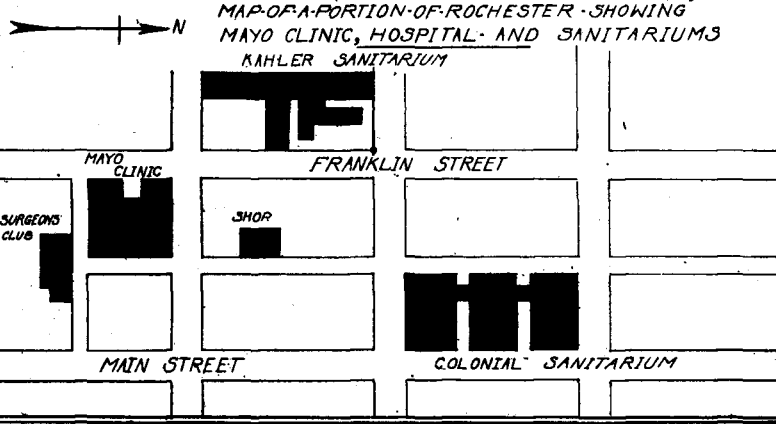


ST. MARY'S HOSPITAL



MAP OF SOUTHERN MINNESOTA

ZUMBRO STREET (9 BLOCKS)



MAP OF A PORTION OF ROCHESTER SHOWING MAYO CLINIC, HOSPITAL AND SANITARIUMS KAHLER SANITARIUM

MAYO CLINIC

FRANKLIN STREET

SURGEONS CLUB

SHOR

MAIN STREET

COLONIAL SANITARIUM

1916							1917													
<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	..	1	2	3	4	5	6	1	2	3	4	5	6	7
2	3	4	5	6	7	8	7	8	9	10	11	12	13	8	9	10	11	12	13	14
9	10	11	12	13	14	15	14	15	16	17	18	19	20	15	16	17	18	19	20	21
16	17	18	19	20	21	22	21	22	23	24	25	26	27	22	23	24	25	26	27	28
23	24	25	26	27	28	29	28	29	30	31	..	..	..	29	30	31	..	..	..	..
30	31	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>AUGUST</b>							<b>FEBRUARY</b>							<b>AUGUST</b>						
..	..	1	2	3	4	5	..	..	..	..	1	2	3	..	..	..	1	2	3	4
6	7	8	9	10	11	12	4	5	6	7	8	9	10	5	6	7	8	9	10	11
13	14	15	16	17	18	19	11	12	13	14	15	16	17	12	13	14	15	16	17	18
20	21	22	23	24	25	26	18	19	20	21	22	23	24	19	20	21	22	23	24	25
27	28	29	30	31	..	..	25	26	27	28	..	..	..	26	27	28	29	30	31	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>SEPTEMBER</b>							<b>MARCH</b>							<b>SEPTEMBER</b>						
..	..	..	..	..	1	2	..	..	..	..	1	2	3	..	..	..	..	..	..	1
3	4	5	6	7	8	9	4	5	6	7	8	9	10	2	3	4	5	6	7	8
10	11	12	13	14	15	16	11	12	13	14	15	16	17	9	10	11	12	13	14	15
17	18	19	20	21	22	23	18	19	20	21	22	23	24	16	17	18	19	20	21	22
24	25	26	27	28	29	30	25	26	27	28	29	30	31	23	24	25	26	27	28	29
..	..	..	..	..	..	..	..	..	..	..	..	..	..	30	..	..	..	..	..	..
<b>OCTOBER</b>							<b>APRIL</b>							<b>OCTOBER</b>						
1	2	3	4	5	6	7	1	2	3	4	5	6	7	..	1	2	3	4	5	6
8	9	10	11	12	13	14	8	9	10	11	12	13	14	7	8	9	10	11	12	13
15	16	17	18	19	20	21	15	16	17	18	19	20	21	14	15	16	17	18	19	20
22	23	24	25	26	27	28	22	23	24	25	26	27	28	21	22	23	24	25	26	27
29	30	31	..	..	..	..	29	30	..	..	..	..	..	28	29	30	31	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>NOVEMBER</b>							<b>MAY</b>							<b>NOVEMBER</b>						
..	..	..	1	2	3	4	..	..	1	2	3	4	5	..	..	..	..	1	2	3
5	6	7	8	9	10	11	6	7	8	9	10	11	12	4	5	6	7	8	9	10
12	13	14	15	16	17	18	13	14	15	16	17	18	19	11	12	13	14	15	16	17
19	20	21	22	23	24	25	20	21	22	23	24	25	26	18	19	20	21	22	23	24
26	27	28	29	30	..	..	27	28	29	30	31	..	..	25	26	27	28	29	30	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>DECEMBER</b>							<b>JUNE</b>							<b>DECEMBER</b>						
..	..	..	..	1	2	..	..	..	..	..	1	2	..	..	..	..	..	..	..	1
3	4	5	6	7	8	9	3	4	5	6	7	8	9	2	3	4	5	6	7	8
10	11	12	13	14	15	16	10	11	12	13	14	15	16	9	10	11	12	13	14	15
17	18	19	20	21	22	23	17	18	19	20	21	22	23	16	17	18	19	20	21	22
24	25	26	27	28	29	30	24	25	26	27	28	29	30	23	24	25	26	27	28	29
31	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..

## UNIVERSITY CALENDAR

(As applicable to graduate work in medicine)

1916-1917

The University year for Fellows doing graduate work in medicine looking toward an advanced degree covers a period of fifty-two weeks, less two or three weeks' vacation to be arranged by the head of the department in which the student is working. In the fundamental laboratory branches in the Medical School, the academic year of nine months is followed.

1916			
August	1	Tuesday	First semester begins for the Mayo Foundation. Nominations of Fellows on the Mayo Foundation, service to begin February 1, 1917.
September	13	Wednesday	Registration closes except for new students.
September	19-26	Week	Registration of new students and payment of fees.
September	27	Wednesday	First semester begins at the Medical School.
October	3	Tuesday	Nominations of Fellows on the Mayo Foundation, service to begin May 1, 1917.
November	15	Wednesday	Last day for filing at the Dean's office all thesis subjects, as approved by the Department Committees.
December	9	Saturday	Last day for final examinations, in the field of the minor, of candidates for the Doctor's degree.
1917			
January	24	Wednesday	Registration for second semester closes, except for new students.
February	1	Thursday	Last day for filing at the Dean's office notice of candidacy for the Doctor's degree.
February	6	Tuesday	Nominations of Fellows on the Mayo Foundation, service to begin August 1, 1917.
February	7	Wednesday	Second semester begins.
March	1	Thursday	Last day for filing applications for the Shevlin Fellowship in Medicine.
April	2	Monday	Nominations of Teaching Fellows in the Medical School, service to begin November 1, 1917.

May	1	Tuesday	Nomination of Fellows on the Mayo Foundation, service to begin November 1, 1917.
May	17	Thursday	Last day for written examinations, in the field of the major, of candidates for the Doctor's degree.
May	17	Thursday	Last day for filing at the Dean's office three copies of all theses submitted for the Doctor's degree.
May	31	Thursday	Last day for final oral examination of candidates for the Doctor's degree.
June	13	Wednesday	Alumni Day.
June	14	Thursday	Forty-fifth annual commencement.

## GRADUATE WORK IN MEDICINE

### ORGANIZATION

The graduate work in medicine in the Medical School and the Mayo Foundation is a part of the work of the Graduate School of the University. Its management is entrusted by the Board of Regents to a committee composed as follows:

The President of the University, GEORGE EDGAR VINCENT, Ph.D., LL.D.  
The Dean of the Graduate School, GUY STANTON FORD, Ph.D.  
The Dean of the Medical School, ELIAS POTTER LYON, Ph.D., M.D.  
JAMES E. MOORE, M.D., of the Medical School.  
CLARENCE MARTIN JACKSON, M.S., M.D., of the Medical School.  
JENNINGS C. LITZENBERG, B.S., M.D., of the Medical School.  
LOUIS BLANCHARD WILSON, M.D., of the Mayo Foundation.  
WILLIAM FREDERICK BRAASCH, B.S., M.D., of the Mayo Foundation.  
MELVIN STARKEY HENDERSON, M.D., of the Mayo Foundation.

### FACULTY

GEORGE EDGAR VINCENT, Ph.D., LL.D., President  
GUY STANTON FORD, Ph.D., Dean of the Graduate School  
DONALD C. BALFOUR, M.B., M.D., Associate Professor of Surgery (Mayo Foundation)  
RICHARD O. BEARD, M.D., Associate Professor of Physiology  
EMIL H. BECKMAN, Ph.B., M.D., Associate Professor of Surgery (Mayo Foundation)  
ELEXIOUS T. BELL, B.S., M.D., Associate Professor of Pathology  
WAYNE W. BISSELL, B.S., M.D., Assistant Professor of Pathology (Mayo Foundation)  
WILLIAM F. BRAASCH, B.S., M.D., Professor of Urology (Mayo Foundation)  
EDGAR D. BROWN, Ph.D., M.D., Associate Professor of Pharmacology  
RUSSELL D. CARMAN, M.D., Professor of Roentgenology (Mayo Foundation)  
J. FRANK CORBETT, M.D., Associate Professor of Experimental Surgery  
GEORGE B. EUSTERMAN, M.D., Assistant Professor of Medicine (Mayo Foundation)  
CARL FISHER, B.S., M.D., Associate Professor of Ophthalmology and Otology (Mayo Foundation)  
EMIL S. GEIST, M.D., Assistant Professor of Orthopedic Surgery  
HERBERT Z. GIFFIN, B.S., M.D., Associate Professor of Medicine (Mayo Foundation)  
ARTHUR J. GILLETTE, M.D., Professor of Orthopedic Surgery  
CHRISTOPHER GRAHAM, B.A., M.D., Professor of Medicine (Mayo Foundation)  
ROBERT A. HALL, Ph.D., Assistant Professor of Pharmacology

- ARTHUR S. HAMILTON, B.S., M.D., Professor of Mental and Nervous Diseases
- THOMAS B. HARTZELL, D.M.D., M.D., Research Professor in Mouth Infections
- MELVIN S. HENDERSON, M.B., M.D., Associate Professor of Orthopedia (Mayo Foundation)
- ARTHUR D. HIRSCHFELDER, B.S., M.D., Professor of Pharmacology
- CLARENCE M. JACKSON, M.S., M.D., Professor of Anatomy
- JOHN B. JOHNSTON, Ph.D., Professor of Comparative Neurology
- EDWARD S. JUDD, M.D., Associate Professor of Surgery (Mayo Foundation)
- EDWARD C. KENDALL, B.S., M.A., Ph.D., Assistant Professor of Biochemistry (Mayo Foundation)
- WINFORD P. LARSON, M.D., Associate Professor of Bacteriology
- ARTHUR A. LAW, M.D., Associate Professor of Surgery
- THOMAS G. LEE, B.S., M.D., Professor of Comparative Anatomy
- JENNINGS C. LITZENBERG, B.S., M.D., Professor of Obstetrics
- ARCHIBALD H. LOGAN, M.D., Assistant Professor of Medicine (Mayo Foundation)
- ELIAS P. LYON, Ph.D., M.D., Professor of Physiology
- JESSE F. McCLENDON, Ph.D., Assistant Professor of Physiology
- WILLIAM C. MACCARTY, M.S., M.D., Associate Professor of Pathology (Mayo Foundation)
- FRANK C. MANN, M.A., M.D., Assistant Professor of Experimental Surgery and Pathology (Mayo Foundation)
- JUSTUS MATTHEWS, M.D., Associate Professor of Rhinology and Laryngology (Mayo Foundation)
- CHARLES H. MAYO, M.A., M.D., LL.D., Professor of Surgery (Mayo Foundation)
- ALEXANDER B. MOORE, M.D., Assistant Professor of Roentgenology (Mayo Foundation)
- JAMES E. MOORE, M.D., Professor of Surgery
- WILLIAM R. MURRAY, Ph.B., M.D., Associate Professor of Ophthalmology and Oto-Laryngology
- ROBERT D. MUSSEY, M.D., Assistant Professor of Medicine (Mayo Foundation)
- GORDON B. NEW, D.D.S., M.B., M.D., Assistant Professor of Rhinology, Laryngology, and Stomatology (Mayo Foundation)
- HENRY S. PLUMMER, M.D., Professor of Medicine (Mayo Foundation)
- HAROLD E. ROBERTSON, B.A., M.D., Professor of Pathology
- SAMUEL ROBINSON, B.A., M.D., Assistant Professor of Surgery (Mayo Foundation)
- EDWARD C. ROSENOW, M.D., Professor of Experimental Bacteriology (Mayo Foundation)
- LEONARD G. ROWNTREE, M.D., Professor of Medicine
- ARTHUR H. SANFORD, M.A., M.D., Associate Professor of Clinical Bacteriology and Parasitology (Mayo Foundation)



- RICHARD E. SCAMMON, Ph.D., Professor of Anatomy  
FREDERICK H. SCOTT, Ph.D., M.B., D.Sc., Associate Professor of Physiology  
JULIUS P. SEDGWICK, B.S., M.D., Professor of Pediatrics  
WALTER D. SHELDON, B.S., M.D., Associate Professor of Medicine (Mayo  
Foundation)  
WALTER E. SISTRUNK, Ph.G., M.D., Assistant Professor of Surgery (Mayo  
Foundation)  
ARTHUR C. STRACHAUER, M.D., Assistant Professor of Surgery  
FRANK C. TODD, M.D., Professor of Ophthalmology and Oto-Laryngology  
HENRY L. ULRICH, B.S., M.D., Assistant Professor of Medicine  
S. MARK WHITE, B.S., M.D., Professor of Medicine  
LOUIS B. WILSON, M.D., Professor of Pathology (Mayo Foundation)  
FRANCIS B. KINGSBURY, Ph.D., Instructor in Physiologic Chemistry  
CHAUNCEY J. V. PETTIBONE, Ph.D., Instructor in Physiologic Chemistry

## GENERAL INFORMATION

The graduate work in medicine here outlined is not intended for those seeking brief practitioners' or review courses. Opportunities of this kind are to be found in the bulletin of the Medical School and in the announcements of medical work during the Summer Session.

### HISTORY

In the fall of 1914, the University of Minnesota began graduate work in various fields of medicine and surgery in addition to that already offered for some time in the laboratory branches. The conditions laid down for this work as regards admission, residence, thesis, and examinations were those already applied by the Graduate School in approving all candidates for the degrees of doctor of philosophy and doctor of science.

Since June, 1915, the Board of Regents have had at their command for this work, in addition to the facilities of the Medical School, the income and resources of the Mayo Foundation\* and of the staff, clinics, laboratories, library, and records at Rochester, Minnesota.

### PURPOSE

In an age of specialization and of the development of graduate work in all fields and phases of the sciences, letters, and arts, such an educational experiment needs no elaborate justification. In a subject like medicine, intimately connected with established fields of research such as biology, chemistry, anatomy, physiology, pathology, and bacteriology, the possibilities of real scientific results and of the training of scientifically-minded and -equipped specialists, investigators, and teachers are as great as in any subject and of as vital importance.

The possibilities of such work hitherto have suffered less from neglect than they have from the lack of organization, standardization, and certification by the educational institutions who have found it possible and advisable to put such applied subjects as agriculture, education, engineering, and commerce upon the basis of scientific investigation, and have freely recognized the accomplishments of trained students by the granting of higher earned degrees. In medicine, in the United States, the specialist

\* Research in pathology, clinical medicine, and surgery have been carried on at Rochester for a number of years. In 1912, definite three-year courses in these subjects for graduates in medicine were instituted. In order to perfect the organization and place the work on a permanent basis, February 9, 1915, a corporation, the Mayo Foundation for Medical Education and Research, was founded by Drs. William J. and Charles H. Mayo. On June 9, 1915, the University of Minnesota and the Mayo Foundation for Medical Education and Research entered into an agreement, by the terms of which the funds and income of the Mayo Foundation for Medical Education and Research are devoted, under the direction of the Regents of the University of Minnesota, to the promotion of graduate work in medicine and to research in this field. It supports fellowships, scholarships, special investigations, salaries and other expenses for the teaching done by graduate instructors in medicine in Rochester or elsewhere.

in practice and the trained investigator have come to us either as a development from extended practice narrowing to a particular field; by periods, long or short, of foreign study; by what has been called postgraduate or polyclinic medical courses; or by the simple and convenient method of self-proclamation. Taken as a whole, the results of such processes can hardly be called satisfactory, nor do they supply any sure protection to the public or any open avenue for the specialist to the public's confidence. And medical education, if it is to advance, must at least be able to supplement a faculty of skilled practitioners with men trained to carry forward the frontiers of medical science.

The objects of this graduate work in medicine are accordingly the training for medical practice of fully equipped and properly certified specialists and of investigators and possible teachers of medicine.

#### STANDARDS AND REQUIREMENTS

In entering upon this work the best methods for securing results and safeguarding scientific standards have, it would seem, already been indicated by the graduate work developed here and elsewhere in other pure and applied sciences. The proper development of any experiment in graduate work in medicine would then depend upon real standards of admission, qualified teachers supplied with adequate laboratory, clinical, and library equipment, and rigid tests in course and examinations in residence, together with evidence of the power of productive research on the part of the students as evidenced in a thesis.

In doing this work the University of Minnesota is not seeking to multiply the opportunities for securing simply technical training through practitioners' courses. The graduate work is definitely intended to make the three-years' work a training for the well-prepared and serious-minded student who wants to be a scientist, working in some special field of medicine or surgery. Entrance upon the work and continuance in it, as well as the holding of scholarships or fellowships in the Medical School or on the Mayo Foundation, will be strictly conditioned upon evidences of power and growth along scientific lines. The value of technical or mechanical skill as a practitioner or operator has its place, but will be subordinated to and measured by the power and product of the brain that guides the hand. From the standpoint of both the University and the prospective student it is highly important that this distinction in purpose be kept clearly in mind.

In the selection of graduate medical students, and in making appointments to Fellowships for medical graduate work, preference will be given, other things being equal, to students who have done more than the usual amount of undergraduate medical work in the fundamental medical sciences (i.e., anatomy, physiology, pathology, etc.) through which they should make their approach to the specialty which they wish to take as a major subject.

By the present arrangement of courses in arts, science, and medicine, a properly prepared student may enter the University, and in seven years

secure the usual doctorate degree in arts, in science, or in medicine. The object of the new plan is to provide three years of additional work on the basis of the degree of Doctor of Medicine, and leading to the special degree of Doctor of Science (D.Sc.) in Internal Medicine, in Surgery, in Pathology, etc.

#### LABORATORY AND CLINICAL EQUIPMENT

The laboratory and clinical equipment for the prosecution of graduate work in medicine is located in Minneapolis, St. Paul, and Rochester.

The laboratory branches are well housed and in excellently-equipped buildings on the campus at Minneapolis and in Rochester. Anatomy, chemistry, and pathology and bacteriology are in modern buildings especially designed for them. Physiology, physiological chemistry, and pharmacology are located in Millard Hall, a modern building of the best type. The laboratories for experimental medicine and surgery and extensive animal quarters are also in this building.

The University owns and controls Elliot Memorial Hospital with its service building. This provides a clinic of 200 beds, and has the accumulated hospital records of five years. The Out-Patient Department of the Hospital is housed in Millard Hall and received 14,361 new patients and 52,681 patients' visits during the year ending July 31, 1915. The University museums of anatomy, pathology, and surgery contain a large number of specimens available for teaching and study.

The State Hospital for the Crippled and Deformed at Phalen Park, St. Paul, offers the University full participation in its clinical opportunities.

The City Hospital of Minneapolis and the City and County Hospital of St. Paul, representing in all some 1,400 beds, exhibit every phase of clinical service in their wards and amphitheatres.

In Rochester, St. Mary's Hospital and the other local hospitals at the disposal of the Mayo Foundation for Medical Education and Research aggregate 800 beds. These, with the Mayo Clinic building, include a modern and extensive equipment in laboratories, museums, and examining and operating rooms with equipment for roentgenologic, cardiographic, cystoscopic, and photographic work. In the Mayo Clinic building there are twenty-four experimental and research laboratories.

During 1915, 35,417 patients were examined clinically in Rochester. More than 200,000 clinical histories are on file. During 1915, 15,903 surgical operations were performed on 13,574 patients. Of all patients dying, 94.7 per cent were examined post mortem. The working museum contains more than 57,000 pathologic specimens. All case histories and specimens are classified and arranged so as to be readily available for scientific research.

Arrangements have been made whereby fellows or other graduate students in Medicine may divide their time, part of their work being taken on the Mayo Foundation at Rochester, and part in the Medical School in Minneapolis and St. Paul.

## LIBRARIES

Besides the University Library and the departmental libraries, there are at the disposal of the student the general medical libraries in Millard Hall and the Mayo Clinic Building, and the collections of the Hennepin County and Ramsey County Medical Societies. Current issues and complete files of most important medical periodicals are available either in Minneapolis or Rochester.

## REGISTRATION AND NUMBER OF STUDENTS

Students entering upon graduate work in medicine will register with the Dean of the Graduate School. Students who begin their residence work in Rochester may fulfill the preliminary requirements by registering there with the chairman of the local committee on graduate work, Dr. Louis B. Wilson.

The number of graduate students who will be registered for work is limited to approximately sixty, most of whom will be on the list selected for fellowships on the Mayo Foundation or as teaching fellows in the Medical School. This limitation in numbers is determined by the clinical opportunities. It applies to those doing their major work in clinical medicine and surgery and not to those majoring in the laboratory departments.

## TUITION

The tuition fee for the graduate work in clinical medicine and surgery is twenty-five dollars per semester. For students in the fundamental laboratory branches, the tuition fee is fifteen dollars per semester. Extra fees may be charged to cover the cost of materials and supplies for exceptional laboratory experimentation. Fellows, scholars, and members of the teaching or scientific staff are exempt from tuition and fees.

## FELLOWSHIPS AND SCHOLARSHIPS

Teaching fellowships in the Medical School are now established as follows: in surgery, two; in internal medicine, two; in obstetrics, two; in ophthalmology and oto-laryngology, two; in mental and nervous diseases, two; and in pediatrics, two; they carry a stipend of \$500 the first year, \$750 the second, and \$1,000 the third. Teaching Fellows are required to devote their entire time (excepting an annual vacation of three weeks) to graduate work, including a small amount of teaching.

In addition, there are at Minneapolis five scholarships, without stipend, carrying free tuition with opportunity for graduate study in any of the clinical departments.

The attention of prospective medical graduate students is also called to the Shevlin Fellowship in Medicine yielding \$500 and tuition. Applications should be in the hands of the Dean of the Graduate School before March 1.

The Mayo Foundation carries the following fellowships: in clinical and experimental surgery, twelve; in clinical and experimental medicine,

three; in pathology, two; in bacteriology, two; in orthopedic surgery, urology and proctology, ophthalmology and otology, rhinology and laryngology, and roentgenology, one each. In addition there are available, without stipend, opportunities for residence work in Rochester for twelve students majoring in clinical and experimental surgery, three in clinical and experimental medicine, two in pathology, and one in bacteriology. The fellowships pay \$600 the first year, \$750 the second, and \$1,000 the third year. They require full time, with an annual vacation of two weeks.

The variation in stipend between the Foundation and Medical School is based upon the length of period per year in residence and differing opportunities to reduce the cost of living.

Nominations for fellowships upon the Mayo Foundation are made each quarter, beginning with May 1, for residence to begin six months later. In the Medical School appointments are made May 1 for residence to begin August 1.

All appointments are for one year and renewable for a period of three years upon the basis of satisfactory progress in the work pursued. Requests for blanks for application for fellowships and scholarships should be addressed to the Dean of the Graduate School, University of Minnesota, Minneapolis, Minnesota, or to the Chairman of the local committee on graduate work, Mayo Foundation, Rochester, Minn.

#### \* ASSISTANTSHIPS

A few qualified research assistants (not candidates for a degree) may be accepted at Rochester in the laboratory branches for short periods. The number is necessarily limited in order not to interfere with the work of the resident fellows, scholars, and students. Correspondence concerning this work should be directed to Dr. Louis B. Wilson, Rochester, Minnesota.

Several of the departments in the Medical School (including anatomy, physiology, and pathology) have paid assistantships which furnish means of self-support while the holder is pursuing graduate work. For further information, address the Dean of the Medical School.

#### SUMMARY OF REQUIREMENTS

For convenient reference, the various steps involved in the requirements for the degree of Doctor of Science (D.Sc.) in any one of the clinical departments are briefly summarized in the following. Further information, including the requirements for the Master's degree (not offered at present in the clinical branches), may be found in the General Graduate School Bulletin.

#### REQUIREMENTS FOR ADVANCED DEGREES IN MEDICINE

1. *Admission.*—All graduate students are admitted by the Dean of the Graduate School. Entrance upon work for the advanced degree of Doctor of Science (D.Sc.) in the clinical departments of medicine is limited

to those who have: (a) the Bachelor's degree in arts or science, or its equivalent; (b) the degree of Doctor of Medicine from acceptable institutions (i.e., those in Class "A" of the American Medical Association); and (c) one year's experience as an interne in an approved hospital or as an assistant in a laboratory in an acceptable medical school. In the fundamental laboratory sciences (anatomy, physiology, bacteriology, pathology and pharmacology) properly prepared students may be admitted without (b) and (c) as candidates for the Master's degree (not offered in clinical departments) or the Doctor's degree (Ph.D. or D.Sc.).

2. *Residence.*—For the Doctor's degree (D.Sc. or Ph.D.) at least three years of successful graduate study are required, including certain special requirements noted below. For the Master's degree (in the laboratory sciences) only one year of residence is required.

3. *Language Requirement.*—A reading knowledge of French and German must be certified by the professors in charge of these languages at least one year before the Doctor's degree is conferred. For the Master's degree (in the laboratory sciences) a reading knowledge of only one foreign language is required.

4. *Minor.*—With the approval of his adviser and the Dean of the Graduate School, each student upon entrance selects a minor, which must be logically related to his major subject, and (for the Doctor's degree) should be completed before the beginning of the third year. The minor is preferably a laboratory subject in some other department. In any case at least one-fourth of the work offered for the degree in a clinical subject should consist of graduate work in the fundamental laboratory branches which will serve as a basis for the proposed clinical specialization. This fundamental work should be concentrated in the first part of the course, so far as possible. The minor should be completed before entering on the third year of work in residence. A written examination, the "preliminary degree examination" for the minor, given by the Department Committee of the minor subject must be passed at least six months prior to the final examination for the Doctor's degree. (No special examination is required in the minor for the Master's degree.)

5. *Major.*—The major is that department in which the student desires to specialize. At least one year before attaining the Doctor's degree, the following procedure is required in order that the candidate may become eligible: The written approval of the Department Committee of the major subject, and of the Medical Graduate Committee, must be transmitted through the Dean to the Executive Committee of the Graduate School. The statement of the Department Committee should include the subject of the special problem for the thesis, and should certify as to the ability of the candidate to meet all requirements for the degree sought.

After approval of the candidate for an advanced degree by the Executive Committee of the Graduate School, the Dean, upon recommendation of the Medical Graduate Committee, will appoint a Candidate's Committee, which will have general supervision of the candidate's work, and will examine and certify as to the acceptability of the thesis.

6. *Thesis.*—Each candidate for an advanced degree must submit a thesis. The thesis must give evidence of originality and power of independent investigation, and embody results of research which form a real contribution to knowledge, as well as exhibit familiarity with the essential literature of the subject and the sources of knowledge. The matter must be presented with a fair degree of literary skill, and contain references to the essential bibliography of the subject. The thesis must be approved as satisfactory by the candidate's committee before he can be admitted to his final oral examinations. The thesis must be deposited in the Dean's office in triplicate copy, typewritten or printed in proper form, at least four weeks before Commencement. One week before Commencement, the candidate must deposit with the Registrar the original copy of the thesis, and (for the Master's degree) a fee to cover the cost of binding. In the case of theses for the Doctor's degree, a bond or sufficient sum of money must be deposited to cover the cost of one hundred printed copies for the University.

7. *Final Examinations.*—The final examinations on the major subject will be both written and oral. The written examinations will occur at least two weeks before Commencement, and will be conducted by the Department Committee of the candidate's major.

If the thesis, as well as the written examinations on the major, are adjudged to be satisfactory, and all other requirements have also been met, the candidate's committee (with additional members appointed by the Dean) will be convened by its chairman, and proceed with the final oral examination. At the conclusion of the oral examination, after the candidate has withdrawn, the committee will canvass the work of the candidate as a whole, including all of his publications or other scientific productions. In case it regards him as entitled to his degree, it will report the fact to the Dean, and transmit to him for the use of the Executive Committee two copies of thesis and the final written examination papers of the major and minor subjects, together with his registration record.

8. *Presentation to the Faculty.*—Each candidate recommended by the Executive Committee for a Doctor's degree will be presented to the graduate faculty at a special meeting. The faculty will then vote upon the candidates presented.

9. *Commencement.*—Each successful candidate is required to be present at Commencement when the degree is conferred.

#### CLINICAL AND CLASS WORK FOR VISITING OR RESIDENT PRACTITIONERS

In order that there may be no misunderstanding, it should be stated that the graduate work for a limited number described above in no way changes or modifies the opportunities for observation hitherto extended visiting surgeons by the Mayo Clinic in Rochester, or the arrangements offered in Minneapolis by the Medical School for practitioners who wish to attend such undergraduate medical classes as may be of profit to them



without interfering with the regular work of the staff and students of the Medical School. Special and review work for practitioners is also provided for in the Summer Session of the Medical School. Inquiries concerning these opportunities should be addressed to the Dean of the Medical School.

## DEPARTMENTAL STATEMENTS

The members of the faculty at Rochester (Mayo Foundation) are indicated by an asterisk (\*) in the list at the head of each departmental statement. The courses given at Rochester are grouped separately, and the numbers given the special prefix "M." In general, the odd numbers indicate first semester courses; even numbers, second semester courses. A combination (e.g., 101-102) indicates courses continuing through the year or repeated in each semester. The courses numbered between 100 and 200 are less advanced in character, and in some cases are open as electives to properly qualified undergraduates. The courses above 200 are primarily graduate in character, of the more advanced or research type.

The various divisions are grouped under the following departments:

1. Anatomy (including Histology and Embryology).
2. Physiology and Physiologic Chemistry.
3. Pathology, Bacteriology, and Public Health.
4. Pharmacology and Therapeutics.
5. Medicine (including General Medicine and Mental and Nervous Diseases).
6. Pediatrics.
7. Surgery (including General Surgery, Experimental Surgery, Orthopedic, and Genito-Urinary Divisions).
8. Ophthalmology, Otology, Rhinology, and Laryngology.
9. Obstetrics and Gynecology.
10. Roentgenology.

### ANATOMY

Professors CLARENCE M. JACKSON, JOHN B. JOHNSTON, THOMAS G. LEE,  
RICHARD E. SCAMMON.

The new Institute of Anatomy offers excellent facilities to students who wish to take advanced work or to pursue investigations in anatomy.

The prerequisite work for all students majoring or minoring in the Department of Anatomy includes general zoology (animal biology), six credit hours, and advanced zoology or elementary courses in anatomy (including histology, embryology, and neurology), six hours. In addition, each student majoring in anatomy must have had the elementary courses in that branch of anatomy in which he desires to specialize—gross anatomy, histology, embryology, or neurology. Students majoring in clinical subjects who desire a minor in anatomy must have had the courses in anatomy usually required of medical students (including courses 101, 102, and 103). A reading knowledge of German is required of students majoring in anatomy for the Master's degree, and a reading knowledge of both French and German for those who are candidates for the Doctor's degree.

## COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

101. HUMAN HISTOLOGY. A microscopic study of the various tissues and organs. 160 hours. SCAMMON.
102. HUMAN EMBRYOLOGY. The development of the human body. 96 hours. LEE, SCAMMON.
103. HUMAN NEUROLOGY. A study of the gross and microscopic structure of the central nervous system and sense organs of man. 96 hours. JOHNSTON.
- 107a,b. COMPARATIVE NEUROLOGY OF VERTEBRATES. JOHNSTON.
111. ANATOMICAL TECHNIQUE. Lectures and laboratory work upon the principles and practice of microtechnique. 96 hours. LEE.
114. TOPOGRAPHIC ANATOMY. Based upon a study of cross-sections of the human body. Lectures and laboratory work. 96 hours. JACKSON.
115. FETAL ANATOMY. Dissection of the fetus and new-born. 48 hours or more. SCAMMON.
117. IMPLANTATION OF THE OVUM IN MAN AND MAMMALS. A comparative study with laboratory work. 96 hours. LEE.
- 123-124. ADVANCED ANATOMY. Individual topics for advanced work in gross anatomy, histology, embryology, or neurology will be assigned to students who have completed the elementary courses in the corresponding subjects. Special courses are arranged for clinical graduate students. JACKSON, JOHNSTON, LEE, SCAMMON.

## PRIMARILY FOR GRADUATE STUDENTS

- 201-202. RESEARCH IN ANATOMY. Qualified students may undertake the investigation of problems in anatomy, including histology, embryology, and neurology. Special facilities are offered to graduate students in the clinical departments for work upon problems in applied anatomy. JACKSON, JOHNSTON, LEE, SCAMMON.
- 203-204. ANATOMICAL SEMINAR. Reviews of the current literature and discussion of research work being carried on in the department. Reading knowledge of French and German required. JACKSON and Staff.

## PHYSIOLOGY AND PHYSIOLOGIC CHEMISTRY

Professor ELIAS P. LYON; Associate Professors RICHARD O. BEARD, FREDERICK H. SCOTT; Assistant Professors EDWARD C. KENDALL,\* JESSE F. MCCLENDON; Instructors FRANCIS B. KINGSBURY, CHAUNCEY J. V. PETTIBONE.

The Department of Physiology is well equipped for the various types of physiologic investigation. The library facilities are good.

For a minor in physiology, general zoology, six credits, general chemistry, six credits, and college physics, are prerequisites. (In exceptional

cases high school physics may be accepted). For a major, organic chemistry is an additional prerequisite, and physical chemistry is desirable.

For a minor or major in physiologic chemistry, general and organic chemistry, twelve credits are prerequisite, and physical chemistry is desirable.

In addition, each student majoring in physiology or physiologic chemistry must have had the general courses, 102, 103, 104, in this department, or the equivalent.

Students majoring in clinical subjects, and who desire to minor in physiology or physiologic chemistry, must have had the courses in these branches usually required of medical students.

A reading knowledge of German is required of candidates for the Master's degree in this department, and a reading knowledge of both French and German, of candidates for the Doctor's degree.

#### A. COURSES OFFERED AT MINNEAPOLIS

102. **PHYSIOLOGIC CHEMISTRY.** The components of the animal body; foods, digestion, the excreta. Lectures and laboratory work. 160 hours. McCLENDON, KINGSBURY, PETTIBONE.
103. **PHYSIOLOGY OF MUSCLE, NERVE, BLOOD, CIRCULATION, AND DIGESTION.** Lectures and laboratory work. 128 hours. LYON, BEARD, SCOTT, McCLENDON.
104. **PHYSIOLOGY OF THE NERVOUS SYSTEM AND SPECIAL SENSES; RESPIRATION, METABOLISM, NUTRITION, AND EXCRETION.** Lectures and laboratory work. 128 hours. LYON, BEARD, SCOTT, McCLENDON.
111. **PHYSICAL CHEMISTRY OF CELLS.** Osmotic pressure, surface tension and electric conductivity of blood and urine; colloids; permeability of cells and tissues and changes in permeability produced by electrolytes. Prerequisites: animal biology and two courses in chemistry. 96 hours. McCLENDON.
112. **ELECTRO-PHYSIOLOGY.** The bio-electric currents and the theory of stimulation and narcosis. Hydrogen ion concentration and its relation to enzyme activity and irritability. Prerequisites: animal biology and two courses in chemistry. 96 hours. McCLENDON.
- 113-114. **ADVANCED PHYSIOLOGY.** Course arranged by instructors with qualified students. Each student will be assigned a topic for special laboratory study, leading in some cases to original investigation. 96 hours or more. LYON, SCOTT, McCLENDON.
- 115-116. **CONFERENCE COURSE IN PHYSIOLOGY; STUDENT SEMINAR.** Informal lectures and library study. Topic: first quarter, internal secretion; second quarter, digestion; third quarter, respiration; fourth quarter, the nervous system. Prerequisites: courses 102, 103, and 104. 12 hours each quarter. LYON.

131. **PHYSIOLOGY OF THE BLOOD.** Alterations due to physiologic conditions. Methods of examination. Limited to sixteen students. Second quarter. 48 hours. SCOTT.
132. **PHYSIOLOGY OF THE CIRCULATION.** Conference and laboratory work. Limited to sixteen students. Conference may be taken separately. Third quarter. 12 or 48 hours. SCOTT.
- 137a,b. **FOODS AND PRACTICAL DIETETICS.** A study of human foods and food values; principles of food selection; caloric indices and balanced dietaries. Exercises in the practical preparation of foods. Second quarter; repeated fourth quarter. Limited to twelve students. 40 hours. BEARD.
138. **PHYSIOLOGY OF DEVELOPMENT.** The physiology of the ovum, the embryo, the fetus; the functions of menstruation, ovulation, pregnancy, parturition and lactation; the functional characteristics of birth, infancy, childhood, adolescence, maturity, and old age. 32 hours. BEARD.
139. **EXAMINATION OF THE EYE AND EAR.** A study of advanced methods. Lectures, demonstrations, and laboratory exercises. Prerequisite: course 104. First quarter. 24 hours.
140. **PHYSIOLOGY OF ACCOMMODATION.** A study of optical principles and methods. Prerequisite: course 104. Lectures, demonstrations, and laboratory exercises. Fourth quarter. 24 hours.
- 151-152. **PHYSIOLOGIC CHEMISTRY.** The components of the body, foods, digestion, and metabolism. Prerequisite: organic chemistry. Open to qualified students in all divisions of the University. 96 hours each semester. KINGSBURY.
- 153-154. **ADVANCED PHYSIOLOGIC CHEMISTRY.** Course arranged by instructors with qualified students for special work. Either or both semesters may be elected. 96 hours, or more, either semester or both. KINGSBURY, PETTIBONE.
161. **URINALYSIS.** Advanced methods. Prerequisite: physiologic chemistry. First quarter. 48 hours. PETTIBONE.
163. **METABOLISM.** Students are placed on known diets and the excreta are studied chemically. Prerequisite: physiologic chemistry. Second quarter. 48 hours. PETTIBONE.
164. **QUANTITATIVE METHODS.** The estimation of certain important substances in the urine, blood and other body fluids. 96 hours. KINGSBURY.
- 201-202. **SEMINAR IN PHYSIOLOGY AND PHARMACOLOGY.** For instructors and advanced students. 16 hours each semester. LYON, HIRSCHFELDER, and Staff.
- 203-204. **RESEARCH IN PHYSIOLOGY.** LYON, SCOTT, McCLENDON.

- 205-206. RESEARCH IN PHYSIOLOGIC CHEMISTRY. KINGSBURY, PETTIBONE.  
 208. SEMINAR IN PHYSIOLOGIC OPTICS. 24 hours. Not given in 1916-17.  
 LYON.

B. COURSES OFFERED AT ROCHESTER (MAYO FOUNDATION)

- M. 251-252. PHYSIOLOGIC CHEMISTRY. Research work in problems related to metabolism; includes training in the use of methods of organic and inorganic analysis. KENDALL.

NOTE: For course in applied physiology, see announcement of the Department of Surgery.

PATHOLOGY, BACTERIOLOGY, AND PUBLIC HEALTH

Professors HAROLD E. ROBERTSON, EDWARD C. ROSENOW,\* LOUIS B. WILSON;\* Associate Professors ELEXIOUS T. BELL, WINFORD P. LARSON, WILLIAM C. MACCARTY,\* ARTHUR H. SANFORD;\* Assistant Professor WAYNE W. BISSELL.\*

Graduate students who desire to take their major or minor work in pathology or bacteriology must present credits in the following subjects: physics, eight credits; general and organic chemistry, twelve credits; zoology, six credits; and a reading knowledge of German.

In addition, students who elect their major work in pathology must present credits for the equivalent of the first two years' work of the Medical School of this University.

Students who elect their major work in bacteriology must present credits in general bacteriology or its equivalent.

A. COURSES OFFERED AT MINNEAPOLIS

101. GENERAL PATHOLOGY. General principles governing pathologic changes, including disturbances of the circulation, disturbances in metabolism, inflammation, regeneration and repair, and tumor formation. Assigned reading, didactic instruction with lantern demonstrations, and laboratory exercises upon gross and microscopic lesions. 96 hours. ROBERTSON, BELL.
102. SPECIAL PATHOLOGY. Applications of the principles of general pathology in infectious diseases, and the special pathology of lesions in the various organs and tissues. Lectures, special readings, study of museum specimens, fresh specimens, and microscopic preparations. 232 hours. ROBERTSON, BELL.
- 103-104. CLINICAL-PATHOLOGICAL CONFERENCE. Weekly conference over specimens obtained from postmortems and operations in which the clinical and pathologic features are presented by those who have personally studied the cases and the specimens. Staff.

106. **PATHOLOGIC TECHNIC.** Practical work in general and special methods for the preparation of microscopic and gross pathologic specimens. Practice with the freezing microtome, celloidin and paraffin embedding methods, general and special stains, preparation of museum specimens, etc. Limited to ten students. Prerequisite: general pathology. 48 hours. Third quarter. ROBERTSON.
108. **HEMATOLOGY.** Advanced studies in diseases of the blood, including lectures, laboratory demonstrations, and special reading, with particular attention to special technical procedures and the significance of laboratory findings. 48 hours. Fourth quarter.
- 109-110. **COURSE IN IMMUNITY.** The study of natural and acquired immunity, including experiments to show the several types of protective substances and the principles and technic of serum diagnosis. Limited to ten students each semester. 48 hours. LARSON.
112. **GYNECOLOGICAL PATHOLOGY.** Special study of pathologic conditions found in the female genital tract. Prerequisite: special pathology. Fourth quarter; 24 hours. BELL.
114. **NEUROPATHOLOGY.** Special study of pathologic conditions of the nervous tissue in lesions of the central and peripheral nervous system. Prerequisite: special pathology. Fourth quarter; 24 hours. HAMILTON, BELL.
- 115-116. **PRINCIPLES OF BACTERIOLOGY.** Preparation of cultural 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. 8 hours. LARSON.
117. **GENERAL AND SPECIAL BACTERIOLOGY.** General and special methods for the cultivation and examination of bacteria; special morphologic and biologic characters of bacteria; pathogenic bacteria; bacteriologic methods in clinical diagnosis; principles of infection and immunity; practical application of serum reactions. 160 hours. LARSON.
119. **ADVANCED BACTERIOLOGY.** An advanced course giving additional work in bacteriology and the opportunity of working out special problems. Limited to ten students. 48 hours. LARSON.
201. **SPECIAL BACTERIOLOGY OF EYE, EAR, NOSE, AND THROAT.** Laboratory investigations of special problems in the bacteriology of the organs mentioned. Only a limited number of medical graduate students, preferably those intending to specialize in this field, can be accepted. 48 hours.
- 203-204. **RESEARCH.** Graduate students of the necessary preliminary training may elect research in pathology or bacteriology, either as a major or minor subject. Hours to be arranged. ROBERTSON, BELL, LARSON.
- 205-206. **SEMINAR.** A weekly meeting of the members of the departmental staff at which the results of original investigation or reports of re-

cent literature of special subjects are presented and discussed. Open to graduate students by special permission. ROBERTSON and Staff.

#### B. COURSES OFFERED AT ROCHESTER (MAYO FOUNDATION)

The graduate course in pathology is designed to prepare selected men for diagnostic and research work in pathology. The three years' service should be prefaced by a year's intensive study of normal histology and embryology.

The graduate courses in bacteriology are open to students with previous training in bacteriology, holding only their baccalaureate or master's degrees in arts or science, as well as to graduates in medicine. They are designed to train well-equipped students for special work in bacteriologic diagnosis and research, and for the teaching of bacteriology.

The graduate courses in pathology and bacteriology are open also as minor courses to Fellows in surgery, medicine, etc.

#### M151-152. PATHOLOGIC DIAGNOSIS OF SURGICAL SPECIMENS AT OPERATION.

Gross and microscopic study of fresh tissues. MACCARTY.

#### M153-154. NECROPSY SERVICE. Junior assistant (three months); senior

assistant (three months); demonstrator of pathology in clinicopathologic conference (three months); microscopic examination of fixed tissue removed at necropsies and operation. BISSELL.

#### M155-156. CLINICAL AND BACTERIOLOGIC LABORATORY SERVICE. Routine

clinical and special research work in hematology, serology, bacteriology, and parasitology. ROSENOW, SANFORD.

#### M157-158. CLINICAL BACTERIOLOGY AND PARASITOLOGY. Making and ex-

amination of cultures; preparation and administration of autogenous vaccines; Wasserman tests; examination of stools and a study of intestinal parasites; special clinical laboratory methods, and opportunity for clinical or bacteriological research. SANFORD.

#### M225-256. SPECIAL PATHOLOGY OF THE BONES AND JOINTS. Gross and

microscopic study of lesions of bones and joints; research work on assigned problem in pathologic anatomy. WILSON.

#### M257-258. SPECIAL PATHOLOGY OF THE GENITO-URINARY ORGANS. Animal

experimentation; research on assigned problem. WILSON, MANN.

#### M259-260. SPECIAL PATHOLOGY OF THE MOUTH, NOSE, AND THROAT. Re-

search work on assigned problem in the pathology of lesions of the mouth, nose, and throat. WILSON.

#### M261-262. SPECIAL PATHOLOGY OF THE GASTRO-INTESTINAL TRACT. Re-

search work on assigned problem. WILSON.

#### M263-264. SPECIAL PATHOLOGY OF THE EYE AND EAR. Research work on

assigned topic in the pathology of diseases of the eye and ear. WILSON.



- M265-266. SPECIAL PATHOLOGY OF THE NERVOUS SYSTEM. Research work on assigned problem. WILSON.
- M267-268. RESEARCH ON ASSIGNED PROBLEMS IN GENERAL PATHOLOGY, MORPHOLOGICAL AND EXPERIMENTAL. WILSON, MANN.
- M269-270. RESEARCH STUDIES UPON THE ETIOLOGY OF NEOPLASMS. Work assigned. MACCARTY.
- M271-272. RESEARCH IN CLINICO-PATHOLOGIC STANDARDIZATION. Work assigned. MACCARTY.
- M273-274. GROSS AND MICRO-PHOTOGRAPHY FOR SCIENTIFIC AND RESEARCH PURPOSES. WILSON.
- M275-276. EXPERIMENTAL BACTERIOLOGY. Research in the bacteriology of normal and diseased tissues, the blood, secretions, and exudates. Experimental inoculation of animals and immunological studies. Study of the therapeutic value of dead bacteria. ROSENOW.
- NOTE: For course in applied pathology, see announcement of the Department of Surgery.

## PHARMACOLOGY AND THERAPEUTICS

Professor ARTHUR D. HIRSCHFELDER; Associate Professor EDGAR D. BROWN; Assistant Professor ROBERT A. HALL.

102. GENERAL PHARMACOLOGY. The principles underlying the structure, physico-chemical properties, physiologic, therapeutic and toxic actions of substances, natural or synthetic, used as medicines. At least one semester of physiology is prerequisite. 32 hours. HIRSCHFELDER, BROWN.
104. EXPERIMENTAL PHARMACOLOGY. Exercises illustrating the preparation and actions of medicine, their relation to chemical structure and their mode of administration. At least one semester of physiology is prerequisite. 48 hours. HIRSCHFELDER, BROWN, HALL.
- 105a,b. 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. 64 hours. HIRSCHFELDER, BROWN.
- 109a,b. ADVANCED EXPERIMENTAL PHARMACOLOGY. Special investigation and experimental study of one or more of the following topics: anesthetics; circulatory stimulants and depressants; drugs acting upon the kidneys; urinary antiseptics; poisons and antidotes; effects of common harmless drugs; internal secretions; action of drugs upon parasites, tumors, etc. 24 or 48 hours. HIRSCHFELDER, BROWN, HALL.
110. POISONS. Their detection, actions and antidotes. 48 hours. BROWN, HALL.

111. **PRESCRIPTION WRITING.** The principles of prescription writing; study of flavoring, coloring, and incompatibilities of drugs. 16 hours. BROWN.
112. **PRACTICAL MATERIA MEDICA.** The study of crude drugs, pharmaceutical preparations and the flavoring and compounding of prescriptions. 8 hours. BROWN.
- 113a,b. **THE PHYSIOLOGICAL AND CHEMICAL BASIS OF PHARMACOLOGY.** The relation of drug action to chemical structure; the mode of action and therapeutic application of various synthetic drugs; the study of chemotherapy. An adequate training in chemistry is prerequisite. 80 hours. HIRSCHFELDER.
- 201-202. **SEMINAR IN PHYSIOLOGY AND PHARMACOLOGY.** Reviews of recent literature bearing upon physiologic and pharmacologic subjects. Conducted by department directors, with the collaboration of the staffs and of qualified graduate or undergraduate students. 32 hours.
- 203-204. **RESEARCH IN PHARMACOLOGY.** HIRSCHFELDER, BROWN, HALL.

## MEDICINE

(Including General Medicine and Nervous and Mental Diseases)

Professors CHRISTOPHER GRAHAM,\* ARTHUR S. HAMILTON, THOMAS B. HARTZELL, HENRY S. PLUMMER,\* LEONARD G. ROWNTREE, S. MARK WHITE; Associate Professors HERBERT Z. GIFFIN,\* WALTER D. SHELDON;\* Assistant Professors GEORGE B. EUSTERMAN,\* ARCHIBALD H. LOGAN,\* ROBERT D. MUSSEY,\* HENRY L. ULRICH.

The graduate work in the department of medicine is designed to prepare students for practice of the specialty of internal medicine, research in the problems of general medicine, and for the specialty of nervous and mental diseases, as the case may be. Prospective students who have had no special work in addition to that of the undergraduate course in physiology, physiologic chemistry, therapeutics, experimental medicine or pathology are advised to devote a year or more to these subjects before entering the regular three years' graduate course. In addition, it is recommended that a minor be carried throughout the course in one or more of the following departments: Physiology, pharmacology, pathology, bacteriology and public health, and pediatrics. For students specializing in nervous and mental diseases, minors in anatomy and psychology are especially valuable, and for those desiring it, a minor could be arranged in the Department of Ophthalmology and Oto-Laryngology, giving a special opportunity to study lesions of the eye occurring in systemic disorders. In the Medical School, during at least the third year of the three-year fellowship, the fellow acts as an officer of the clinic with definite responsibility in the care of patients in the University Hospital.

A. COURSES OFFERED AT MINNEAPOLIS

- 121-122. **CLINICAL MEDICINE.** A study of physical diagnosis and the methods of investigation and recording clinical data. The laboratory of experimental medicine is open for the study of special problems arising in the investigation of cases. Emphasis placed on methods of treatment. ROWNTREE, WHITE.
- 123-124. **DISEASES OF CARDIOVASCULAR APPARATUS.** A special study of diseases of the heart and blood vessels, including the technic and application of the polygraph; electrocardiograph, and the interpretation of outlines of the heart and great vessels obtained by means of the radiogram and orthodiagram. WHITE.
125. **PATHOLOGY OF THE NERVOUS SYSTEM.** The preparation of gross and microscopic material from diseased nerve tissues; the relations existing between pathologic lesions, signs and symptoms; the chief neuron systems and principles underlying their degeneration. HAMILTON.
126. **ADVANCED NEUROPATHOLOGY.** A course consisting of several hours of demonstrations in papillo-edema and work of similar character, with study of the microscopic sections, etc. Opportunity for individual work for any desired period. HAMILTON.
- 127-128. **CLINICAL NEUROLOGY.** Advanced diagnosis of nervous diseases; practical experience in diagnostic procedures employed in the study of diseases of the nervous system. The diagnosis and treatment of syphilis of the central nervous system. HAMILTON.
- 201-202. **NEUROLOGIC RESEARCH.** HAMILTON.
- 203-204. **RESEARCH IN MOUTH INFECTIONS.** A study of dental and parodontal infections as related to systemic disease. Experimental study to determine the lesions produced in animals by bacteria from these sources. HARTZELL.
- 205-206. **MEDICAL CHEMISTRY.** Chemical and metabolic studies in nephritis, diabetes, acidosis, diseases of the liver, etc., together with research work along biochemical lines. ROWNTREE.
- 207-208. **PROBLEMS IN MEDICINE.** Specific problems in diagnosis and treatment, including problems in immunology viewed from the clinical standpoint. ULRICH.
- 209-210. **RESEARCH IN MEDICINE.** ROWNTREE, WHITE.

B. COURSES OFFERED AT ROCHESTER (MAYO FOUNDATION)

The work in diagnosis consists of history taking, physical diagnosis, the correlation of the various special examinations and the formation of an independent judgment concerning diagnosis, indications for medical and surgical treatment and recommendations, under the immediate direction of the chief of the section and his first assistant. A study of methods of investigation, the recording and tabulating of case records

for special work and the study of special laboratory problems in connection with the sectional work is encouraged.

MI51-152. HEMATOLOGY, URINALYSIS, CLINICAL BACTERIOLOGY AND PARASITOLOGY. SANFORD.

MI53-154. GASTROLOGICAL LABORATORY. GRAHAM, EUSTERMAN.

MI55-156. LABORATORY OF CLINICAL BACTERIOLOGY AND PARASITOLOGY. SANFORD.

MI57-158. LABORATORY OF HEMATOLOGY AND URINALYSIS. SANFORD.

MI59-160. PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS, with special reference to diseases of the gastro-intestinal tract. GRAHAM, EUSTERMAN.

MI61-162. PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS, with special reference to diseases of the female genito-urinary system. GRAHAM, MUSSEY.

MI63-164. PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS, with special reference to diseases of the ductless glands. PLUMMER.

MI65-166. PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS, with special reference to diseases of the esophagus. PLUMMER.

MI67-168. PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS, with special reference to diseases of the blood and blood-forming organs. GIFFIN.

MI69-170. PRACTICAL WORK IN GENERAL MEDICAL AND SURGICAL DIAGNOSIS, with special reference to diseases of the chest. LOGAN.

MI71-172. PRACTICAL WORK IN NEUROLOGY AND PSYCHIATRY. SHELDON.

M251-252. ADVANCED WORK IN ELECTROCARDIOGRAPHIC LABORATORY. PLUMMER.

For courses in pathology, physiologic chemistry, urologic diagnosis, diagnosis of diseases of the eye, ear, nose, and throat, orthopedic diagnosis, and roentgen plate reading, see announcements by the corresponding departments.

## PEDIATRICS

Professor J. P. SEDGWICK.

The graduate work of the Department of Pediatrics is arranged with the intention, (a) of preparing students to become competent pediatricists; (b) to put them in position to attack original pediatric problems; and (c) to make them competent teachers in the subject.

As a prerequisite a general understanding of physiologic and analytic chemistry and a working knowledge of French and German are essential.

Prospective students will find preparatory study in physiology and quantitative analysis of value.

Students will be encouraged to carry a minor in some of the fundamental branches.

#### COURSES OFFERED AT MINNEAPOLIS

The following electives in other departments are desirable. (For further information see description of courses under departmental headings.)

- Advanced Quantitative Analysis (Chemistry 107-108)
- Organic Chemistry (Chemistry 111-112)
- Physical Chemistry (Chemistry 121-122)
- Mental Retardation (Philosophy and Psychology 105)
- Physiologic Chemistry (Physiology 102)
- Physiology of Muscle, Nerve, Blood, Circulation, and Digestion (Physiology 103)
- Physiology of the Nervous Systems and Special Senses: Respiration, Metabolism, Nutrition, and Excretion (Physiology 104)
- Physical Chemistry of Cells (Physiology 111)
- Electro-Physiology (Physiology 112)
- Physiologic Chemistry (Physiology 151-152)
- Metabolism (Physiology 163)
- Quantitative Methods (Physiology 164)
- Human Neurology (Anatomy 103)
- Fetal Anatomy (Anatomy 115)
- General Roentgenologic Technic (Roentgenology M151-152)
- Interpretations of Roentgenologic Findings (Roentgenology M255-250)
- Hematology (Pathology 108)
- Course in Immunity (Pathology 113-114)
- The Physiological and Chemical Basis of Pharmacology (Pharmacology 113a,b.)
- Diseases of Cardiovascular Apparatus (Medicine 123-124)
- Medical Chemistry (Medicine 205-206)
- Orthopedic Service (Surgery 117-118)
- Orthopedic Diagnosis (Surgery M105-106)
- Advanced Ophthalmoscopy (Ophthalmology 138)

The following courses are offered in the Department of Pediatrics:

- 123. DISEASES OF THE NEW-BORN.
- 125. CONTAGIOUS DISEASES. The advanced study of contagious diseases, including the practice of intubation and tracheotomy, with training upon the cadaver.
- 126. THEORY AND PRACTICE OF INFANT FEEDING, including diseases of the Gastro-Intestinal Tract.
- 131. INFANT FEEDING. Lymanhurst Hospital.
- 133X. PEDIATRIC CLINIC. Out-Patient clinic; University Hospital.

- 133Y. PEDIATRIC CLINIC. Similar to 133X but largely upon school children.
142. PREPARATION OF INFANT FOODS. Practical Work.
144. CONTAGIOUS DISEASES. Advanced Study of Contagious Diseases.
- 200-201. ADVANCED STUDY IN DISEASES OF INFANTS AND CHILDREN.
- 202-203. RESEARCH IN DISEASES OF NEW-BORN. Students undertaking this work should have had the equivalent of Anatomy 115 and Pediatrics 123.
- 204-205. RESEARCH IN PHYSIOLOGY OF NEW-BORN. Prerequisites: General Pathology and Pediatrics 123. Attention is called also to Physiology 105a,b, in this connection.
- 206-207. RESEARCH IN DISEASES OF INFANTS AND GROWING CHILDREN. Required for major in Pediatrics. Prerequisite work will depend upon the type of work undertaken.
- 208-209. RESEARCH IN PHYSIOLOGY OF INFANTS AND GROWING CHILDREN. Required for major in Pediatrics. Prerequisite preparation will depend upon type of work undertaken (Physiology 201-202 or 203-204).
- 210-211. RESEARCH IN ANATOMY OF INFANTS AND GROWING CHILDREN. Required for major in Pediatrics. Prerequisite preparation will depend upon the type of work undertaken.

### SURGERY†

(Including General Surgery, Experimental Surgery, Orthopedic, and Genito-Urinary Divisions)

Professors WILLIAM F. BRAASCH,\* ARTHUR J. GILLETTE, CHARLES H. MAYO,\* JAMES E. MOORE; Associate Professors EMIL H. BECKMAN,\* J. FRANK CORBETT, MELVIN S. HENDERSON,\* EDWARD S. JUDD,\* ARTHUR A. LAW; Assistant Professors EMIL S. GEIST, FRANK C. MANN,\* SAMUEL ROBINSON,\* WALTER E. SISTRUNK,\* ARTHUR C. STRACHAUER.

The graduate courses listed below are designed to prepare selected men for general, orthopedic, or genito-urinary surgery. Since the field of surgery is so generally overcrowded, the young man who would attain eminence therein must either possess great genius or supplement an excellent general medical training with at least three year's work in surgical anatomy, surgical pathology, surgical diagnosis and surgical treatment. Unless his previous training in anatomy has been unusually good, one or two semesters may be spent very profitably in an intensive study of this subject before the special three years' graduate work is under-

† Dr. William J. Mayo, being a regent of the University, is not a member of the instructional staff. His services in instruction and consultation, however, are available.

taken. General surgery is a major subject and may not be taken as a minor.

A. COURSES OFFERED AT MINNEAPOLIS AND ST. PAUL

- 101-102. **ADVANCED MINOR SURGERY.** The student is required to assist in the dispensary (out-patient) surgical clinic, and in this connection makes a special study of the diagnosis and treatment of selected cases. STRACHAUER.
103. **OPERATIVE SURGERY ON THE CADAVER.** The technic of abdominal incision and closure; of bowel suturing, appendix removal, kidney exploration, nephrotomy, tracheotomy, amputations, ligations, etc. Graduate students act as laboratory assistants, and may work out upon the cadaver various independent problems in emergency surgery. CORBETT.
- 105-106. **EXPERIMENTAL SURGERY.** A study of surgical technic by cardinal operations upon animals. CORBETT.
108. **TUMORS.** The surgical pathology and diagnosis of tumors, classified by anatomical relation. CORBETT.
110. **SURGICAL PROBLEMS.** A study of selected surgical problems by operative, physiological, histological, or chemical methods. CORBETT.
112. **LOCAL ANESTHESIA.** Methods and applications of local anesthesia in both major and minor surgery. STRACHAUER.
- 113-114. **SURGICAL DIAGNOSIS.** In this course the graduate student assists in the practical instruction of the clinical clerks and internes in the University Hospital, and makes a special study of problems in surgical diagnosis. MOORE.
- 115-116. **SURGICAL SERVICE.** The graduate student acts as house surgeon, and in connection with this service is required to make a special study of the patients, preparing them for clinics and observing them after operations. MOORE.
- 117-118. **OPERATIVE SURGERY.** In this course the surgical fellow acts as first assistant at all operations by the surgical staff at the University Hospital. When properly qualified, the fellow will be permitted to operate, beginning with simpler surgical procedures. MOORE, LAW, STRACHAUER.
- 119-120. **ORTHOPEDIC SERVICE.** Three months' service as house surgeon in the State Hospital for Crippled and Deformed Children at Phalen Park. Special facilities for the study of orthopedic diagnosis and treatment. GILLETTE.
- 201-202. **SURGICAL RESEARCH.** Properly qualified students may undertake original investigation of problems in either experimental or clinical surgery. The work may be used for thesis purposes. MOORE, CORBETT, LAW, STRACHAUER.

203-204. **SURGICAL SEMINAR.** Weekly conference for reports on surgical literature, with presentation and discussion of especially interesting cases and research work by members of the surgical staff. MOORE.

**B. COURSES OFFERED AT ROCHESTER (MAYO FOUNDATION)**

M151-152. **EXPERIMENTAL SURGERY.** The purpose of this course is to develop technic for special operative work. Open to fellows in surgery. MANN.

M153-154. **GENERAL AND SPECIAL PREPARATION OF PATIENTS BEFORE OPERATION.** BECKMAN.

M155-156. **POST-OPERATIVE CARE OF PATIENTS; TREATMENT OF COMPLICATIONS, SURGICAL AND MEDICAL.** BALFOUR.

M157-158. **OPERATIVE SURGERY.** Second assistantship in operating rooms; occasional substitute service as first assistant. Total service, one year general surgery. MAYO, BALFOUR, BECKMAN, JUDD, ROBINSON, SISTRUNK.

Regular first assistants on surgical service in the Mayo Clinic will be selected from men who have completed the three years' fellowship service in general surgery.

M159-160. **SURGERY OF THE ABDOMINAL ORGANS AND THE DUCTLESS GLANDS.** Operative technic; study of special problems involved. MAYO.

M161-162. **SURGERY OF THE ABDOMINAL AND GENITO-URINARY ORGANS.** Operative technic; study of special problems involved. JUDD.

M163-164. **SURGERY OF THE GASTRO-INTESTINAL TRACT AND PELVIC ORGANS.** Operative technic; study of special surgical problems. BALFOUR.

M165-166. **SURGERY OF THE THORACIC ORGANS.** Operative technic; study of special problems involved. ROBINSON.

M167-168. **SURGERY OF THE NERVOUS SYSTEM.** Operative technic; study of special problems involved. BECKMAN.

M169-170. **ORTHOPEDIC DIAGNOSIS.** History-taking and physical examination of orthopedic cases. HENDERSON.

M171-172. **ORTHOPEDIC TECHNIC.** Study of braces, material and construction, measurement and fitting; application and use of plaster of Paris; radiography of orthopedic cases; care of non-surgical orthopedic cases. HENDERSON.

M173-174. **ORTHOPEDIC SURGERY.** After service as assistant in general surgery, service may be chosen as second assistant in orthopedic surgery, with occasional substitute service as first assistant in orthopedic surgery. This service gives opportunity for the special study of selected cases, and the after-care of surgical cases. HENDERSON.

One year or more of service is offered for those desiring to specialize in orthopedic surgery; three months' service for those desiring a limited training in orthopedic surgery as part of a general course in surgical diagnosis.



- M175-176. UROLOGIC DIAGNOSIS. Cystoscopic examination and history-taking in diseases of the genito-urinary tract. BRAASCH.
- M177-178. CYSTOSCOPY, PROCTOSCOPY, AND URETHROSCOPY. Cystoscopic and proctoscopic examination; pyelography; intravesical operations; fulguration. BRAASCH.
- One year or more of service is offered for those desiring to specialize in urology; three months' service for those desiring a limited training in urology as part of a general course in surgical diagnosis.
- M251-252. APPLIED PHYSIOLOGY. Experimental physiology as applied to surgical problems. Open to fellows in surgery, medicine, and pathology. MANN.
- M253-254. APPLIED PATHOLOGY. Experimental pathology as applied to surgical problems. Open to fellows in pathology, medicine, and surgery. MANN.
- M255-256. SURGICAL RESEARCH. Investigation of special problems in surgery. Open only to fellows of the department. MANN.
- M257-258. SPECIAL PROBLEMS IN ANESTHESIA. ROBINSON.
- M259-260. SURGICAL RESEARCH. Investigations of problems in various divisions of general surgery and surgical specialties. Staff.
- M261-262. SURGICAL SEMINAR. Conference for the discussion of original work, problems and surgical literature. Staff.
- NOTE: For courses in surgical anatomy, pathology, clinical diagnosis, surgery of the eye, ear, nose, and throat, and roentgen plate reading, see announcements of corresponding departments.

### OPHTHALMOLOGY, OTOLOGY, RHINOLOGY, AND LARYNGOLOGY

Professor FRANK C. TODD; Associate Professors CARL FISHER,\* JUSTUS MATTHEWS,\* WILLIAM R. MURRAY; Assistant Professor GORDON B. NEW.\*

The graduate courses in these subjects are designed to prepare selected men for advanced work in the various lines.

Of elective courses in other departments, the following are highly desirable:

- Physics of Light (Physics 52) and Acoustics (Physics 31).
- Advanced Optics (Physics 181-182).
- Advanced Anatomy of the Head and Neck (Anatomy 123).
- Topographic Anatomy of the Head and Neck (Anatomy 114).
- Advanced Histology and Embryology of the Eye, Ear, Nose, and Throat (Anatomy 124).
- Advanced Physiology of Vision and Hearing (Physiology 139-140).
- Physiologic Optics Seminar (Physiology 208).

Special Pathology and Bacteriology of the Eye, Ear, Nose, and Throat (Pathology 201).

Serology and Vaccines (Pathology 109-110).

Advanced Neuropathology (Medicine 126).

The following courses are offered within the Department:

#### A. COURSES OFFERED AT MINNEAPOLIS

131. **ADVANCED OPERATIVE SURGERY OF THE EYE.** Demonstrations upon the cadaver and live and dead animal eyes, with the usual operative procedures of practical value. Each graduate student will perform all the usual operations upon the cadaver and animals. Two and one-half hours a week.
132. **ADVANCED OPERATIVE SURGERY OF THE NOSE AND THROAT.** A course consisting of demonstrations upon the cadaver and the usual operative procedures of practical value. Each student will be given an opportunity to do work in the laboratory, performing all usual and practical operations. Two hours a week.
133. **ADVANCED OPERATIVE SURGERY OF THE TEMPORAL BONE.** A course of eight to twelve hours consisting of demonstrations and exercises on the cadaver at the Institute of Anatomy. Limited to four students.
134. **OPERATIVE SURGERY ON THE LABYRINTH.** A course consisting of lectures and practical demonstrations of diagnostic methods. Eight hours; Millard Hall.
- 135-136. **ADVANCED COURSE IN REFRACTION WORK.** A course consisting of eight lectures and illustrated demonstrations upon the errors of refraction and motor anomalies, supplemental and practical work in out-patient clinic on the refraction work (600 hours).
138. **ADVANCED OPHTHALMOSCOPY**
1. Training in the use of the ophthalmoscope by (a) direct method, and (b) indirect method.
  2. Examination in detail of the normal fundus oculi.
  3. Diagnosis of abnormalities (a) in the media, (b) in the fundus oculi.
- 139-140. **ADVANCED OPHTHALMOLOGY.** Three years' service in the wards and Out-Patient Department of the University Hospital with clinic and laboratory research. Those taking this course will act as assistants in out-patient clinics in operative and other clinical work. TODD and Assistants.
- 141-142. **ADVANCED OTO-LARYNGOLOGY.** Three years' service in the wards of the University Hospital and Out-Patient Department with clinic and laboratory research. Those taking this course will act as assistants in out-patient clinics, in operative and other clinical work. TODD, MURRAY, and Assistants.

- 201-202. SEMINAR IN OPTHALMOLOGY AND OTO-LARYNGOLOGY. Given by members of the staff and open to fellows, scholars and other properly qualified graduate students. One and one-half hours a week throughout the year.
- 203-204. RESEARCH. Each graduate student will be required to pursue some line of original research in ophthalmology or oto-laryngology. MURRAY, TODD.

#### B. COURSES OFFERED AT ROCHESTER (MAYO FOUNDATION)

- M101-102. REFRACTION. Theory, diagnosis and treatment of refractive and muscular errors of the eye. Practical work on patients under supervision of the instructor. FISHER.
- M103-104. CLINICAL OPTHALMOLOGY. Theory and practice of diseases of the eye, including instruction in operative ophthalmology, ophthalmoscopy, and ophthalmology in general diagnosis. FISHER.
- M105-106. CLINICAL OTOTOLOGY. Theory and practice of diseases of the ear, including instruction in operative otology, and the relations of diseases of the ear to nose and throat and to general diagnosis. FISHER.
- M107-108. CLINICAL RHINOLOGY, LARYNGOLOGY, AND STOMATOLOGY. (a) Diagnosis and treatment of diseases of the nose, accessory sinuses, pharynx and larynx, including the diagnosis of surgical conditions of the face, jaws, mouth, and neck; (b) relations of nose, throat, and mouth to general diseases. MATTHEWS, NEW.

NOTE: For courses in pathology of the eye, ear, nose, and throat, see announcement of the Department of Pathology.

#### OBSTETRICS AND GYNECOLOGY

Professor JENNINGS C. LITZENBERG.

Of the courses in other departments open to graduate medical students, the following are especially recommended for those desiring to specialize in obstetrics and gynecology:

Advanced Anatomy; gross and histological, of the female generative organs (Anatomy 123-124).

Fetal Anatomy; dissection of fetus and newborn (Anatomy 115).

Implantation of the Ovum (Anatomy 117).

Advanced Physiologic Chemistry (Physiology 153-154).

Gynecological Pathology (Pathology 112).

Experimental Pharmacology (Pharmacology 104).

Other courses in fundamental or clinical subjects may be elected. The following graduate courses are offered in the departments of Obstetrics and Gynecology (at Minneapolis):

- 107-108. **ADVANCED PATHOLOGY OF THE FEMALE GENERATIVE ORGANS.** Required of first or second year fellows in obstetrics and gynecology. Prerequisite: pathology 108, or equivalent.
- 111-112. **CLINICAL OBSTETRICS AND GYNECOLOGY.** A course in diagnosis and treatment, with special study of selected cases. Clinic in the out-patient department of the University Hospital, M.W.F., throughout the year. Required of first year fellows, and may be elected by second year fellows.
- 113-114. **CLINICAL OBSTETRICS AND GYNECOLOGY.** Similar to course 111-112, but on T.Th.S. Required of second year fellows, and may be elected by first year fellows.
- 115-116. **ADVANCED OBSTETRICS AND GYNECOLOGY.** Includes service in the University Hospital, affording ample opportunity for experience in diagnosis, care and treatment (operative and non-operative) of patients. Special facilities offered for study of problems and cases of unusual interest. Required of first year fellows. LITZENBERG.
- 117-118. Similar to course 115-116, but more advanced, both in clinical and research aspects of the subjects, so as to be adapted to the increased training and experience. Required of second year fellows. LITZENBERG.
- 119-120. Similar to courses 115-116 and 117-118, but more advanced. Required of third year fellows. LITZENBERG.
- 201-202. **SEMINAR.** A conference of the staff, including the fellows and graduate students. Presentation and discussion of original work and reports upon the current literature in obstetrics and gynecology. Reading knowledge of French and German is necessary. LITZENBERG.
- 203-204. **RESEARCH.** Clinical and laboratory research upon problems in obstetrics and gynecology. Required of third year fellows, who must complete a satisfactory thesis during the year. Elective for second year fellows or other properly qualified graduate students. LITZENBERG.

### ROENTGENOLOGY

Professor RUSSELL D. CARMAN\*; Assistant Professor ALEXANDER B. MOORE\*.

The course in roentgenology is designed to prepare selected men for advanced work in this specialty. Unless the prospective student's preparation in normal anatomy, physiology, and pathology has been unusually good, at least a year should be spent in the intensive study of one or both of these subjects before entering on the special three years' course.

151-152. **GENERAL ROENTGENOLOGIC TECHNIC.** Roentgenography; plates, intensifying screens, developers; stereoscopy; roentgenoscopy; vertical, horizontal. CARMAN, MOORE.

- M153-154. SPECIAL APPLICATIONS OF ROENTGENOLOGY. The osseous system, chest and lungs, urinary system, pyelography; gastro-intestinal tract. CARMAN, MOORE.
- M155-156. ROENTGEN THERAPY. Superficial, deep; technic; apparatus; filters; dosage and measurements; cross firing; protection. CARMAN, MOORE.
- M157-158. DANGERS OF THE ROENTGEN RAY. Effect upon tissues, normal and pathologic; protection; operator, patient; roentgen dermatitis, cause, results, treatment. CARMAN, MOORE.
- M251-252. ELECTRO-PHYSICS. Electricity and magnetism; phenomena, nature and properties; source of electric energy; types of currents, continuous and alternating; units of electric measurement; resistance; Ohm's Law; voltage, amperage, and wattage; the static machine; the induction coil; interrupters; condensers; the interrupterless transformer. CARMAN, MOORE.
- M253-254. PHYSICS OF THE ROENTGEN RAY. History, nature, and phenomena; the vacuum tube; the roentgen tube; types, penetration, measurements. CARMAN, MOORE.
- M255-256. INTERPRETATION OF ROENTGENOLOGIC FINDINGS. Normal; abnormal; roentgen signs of disease; direct, indirect; correlation of plate and screen observations; correlation of clinical and roentgen findings. CARMAN, MOORE.

# GRADUATE STUDENTS IN MEDICINE

1915-1916

Names and degrees	Date of entrance	Major	Minor
Adair, Fred L., B.S., M.D.....	Feb. 27, 1915	Anatomy	Pathology
*Adson, Alfred Washington, B.S., M.D....	July 1, 1914	Surgery	Pathology
*Archibald, Alexander, M.B., Ch.B.....	Apr. 1, 1911	Medicine	.....
*Bell, Leo Pecci, B.A., M.D.....	July 1, 1916	Surgery	Pathology
Benton, Anne, B.A.....	Sept. 12, 1914	Chemistry	Bacteriology
*Berkman, David Mayo, B.S., M.D.....	Nov. 1, 1913	Medicine	Physiologic Chemistry
†Binger, Henry, M.D.....	Nov. 10, 1914	Ophthalmology	Anatomy
*Blackford, John Minor, M.D.....	Jan. 1, 1911	Medicine	Pathology
*Broders, Albert Compton, M.D.....	Aug. 12, 1912	Pathology	Bacteriology
*Bumpus, Hermon Clay, Jr., Ph.B., M.D.,	July 1, 1915	Surgery	Pathology
*Butsch, John Louis, M.S., M.D.....	July 1, 1916	Surgery	Urology
†Cameron, Don F., M.A., M.D.....	Oct. 1, 1915	Surgery	Anatomy
Camp, Walter E., M.A.....	Oct. 21, 1913	Anatomy	Pathology
*Carber, Frank Hough, M.D.....	Feb. 1, 1915	Pediatrics	Physiology
*Chase, E. Frank, M.D.....	May 14, 1915	Ophthalmology & Oto-laryngology	.....
*Crenshaw, John Lewis, M.D.....	June 1, 1910	Urology	Roentgenology
*Crispin, Edgerton Lafayette, Ph.B., M.D..	Oct. 1, 1913	Medicine	Roentgenology
*Crumley, William Gregg, M.D.....	Jan. 1, 1914	Surgery	Pathology
*Dederer, Carlton, B.A., M.D.....	June 1916	Surgery	Pathology
*Doe, Charles Herbert, M.D.....	May 1, 1915	Surgery	Pathology
*Drips, Della Gay, B.A.....	Mar. 23, 1913	Pathology	Physiology
*Durante, Luigi, M.D.....	Feb. 1, 1915	Surgery	Pathology
*Evans, Raymond Myers, B.S., M.D.....	July 1, 1916	Surgery	Pathology
*Ferrier, Paul Alexander, B.A., M.D.....	July 1, 1915	Surgery	Pathology
*Foncannon, Frank, B.A., M.D.....	July 1, 1915	Surgery	Pathology
†Forsythe, Samuel Thomas, B.A., M.D.....	Jan. 17, 1916	Ophthalmology	Pathology
*Freligh, Wilfred Protacio, B.A., M.D....	July 1, 1914	Surgery	Pathology
*Fricke, Willa May, B.A., M.D.....	Aug. 1, 1915	Bacteriology	.....
Friesen, Henry J., B.S., M.D.....	Mar. 17, 1915	Ophthalmology	Anatomy
†Grave, Floyd, B.S., M.D.....	April 1, 1916	Medicine	.....
*Gray, Hazel Marie, M.S.....	Oct. 1, 1915	Bacteriology	Pathology
*Hallenbeck, Dorr Foster, M.D.....	July 1, 1913	Medicine	Surgery
*Harrington, Stuart William, M.D.....	Jan. 1, 1914	Surgery	Pathology
*Hartman, Howard Russell, B.S., M.D....	July 1, 1914	Surgery	Pathology
*Hedblom, Carl Arthur, M.A., M.D.....	June 1916	Surgery	Pathology
*Henry, Michael Joseph, M.D.....	Oct. 1, 1913	Surgery	Pathology; Roentgenology
*Horgan, Edmund Joseph, M.D.....	Jan. 1, 1915	Surgery	Pathology
Huenekens, Edgar J., B.A., M.D.....	Oct. 1, 1916	Bacteriology	Chemistry
*Hunt, Verne Carlton, B.S., M.D.....	April 1, 1915	Surgery	Pathology
*King, Clapham Price, M.D.....	Aug. 18, 1915	Surgery	Pathology
Kittelson, John A., B.S.....	Sept. 22, 1915	Anatomy	Pathology
*Looney, John Joseph Williams, M.D....	Oct. 1, 1914	Ophthalmology & Oto-laryngology	.....
*Luden, Georgine, (Arzt) M.D.....	Jan. 1, 1914	Pathology	Physiologic Chemistry
*McDowell, Ivan Wodrow, M.D.....	July 1, 1913	Surgery	Pathology
*McEvoy, Frank Edward, B.S., M.D....	Feb. 1, 1916	Surgery	Pathology
McKinley, John C., B.S.....	Sept. 8, 1915	Anatomy	Pathology
*McMahon, Francis Bartholomew, B.S., M.D.	Feb. 1, 1914	Surgery	Medicine; Pathology

## GRADUATE WORK IN MEDICINE

Names and degrees	Date of entrance	Major	Minor
*McVey, James Robert, M.A., M.D.....	July 1, 1916	Surgery	Pathology
†McWhorter, Golder L., B.S., M.D.....	Oct. 5, 1914	Surgery	Anatomy
Magoon, Charles A., B.A.....	Oct. 1, 1915	Bacteriology	Pathology; Physiology
*Masson, James Carruthers, M.B.....	April 1, 1914	Surgery	Medicine
*Mattson, William Whitelock, M.D.....	April 1, 1915	Surgery	Pathology
*Mensing, Edmund Herman, M.D.....	April 1, 1914	Urology	Pathology
*Meyerding, Henry William, B.S., M.D..	July 1, 1910	Orthopedic Surgery	Bacteriology
*Miller, Albert, B.A., M.D.....	Jan. 1, 1913	Roentgenology	Pathology
Mitchell, Louis A., B.A.....	Oct. 1, 1915	Physiology	Pathology
Moore, Charles U., B.A., M.D.....	Sept. 20, 1915	Physiology	Pediatrics
†Moore, Seth E., LL.B., M.D.....	Oct. 19, 1914	Obstetrics	Anatomy
†Morris, Ralph E., M.D.....	Sept. 25, 1914	Medicine	Physiology
Norris, Edgar H., B.S.....	Oct. 1, 1915	Anatomy	Pathology
*Ott, William Oscar, B.S., M.D.....	July 1, 1916	Surgery	Pathology
*Owens, Esther M., B.A.....	Sept. 20, 1915	Physiology	Physiology
Palmer, Charles G., D.V.M.....	Feb. 9, 1915	Bacteriology	Chemistry
*Pemberton, John deJarnette, B.A., M.D..	May 1, 1913	Surgery	Pathology
Pettibone, Dorothy F., B.S.....	June 15, 1916	Bacteriology	Pathology
*Plum, Frank Arents, B.A., M.D.....	July 1, 1916	Surgery	Pathology
*Plummer, William Albert, M.D.....	June 1, 1910	Medicine	Physiology
*Pollock, Lee Wesley, B.S., M.D.....	Nov. 16, 1914	Medicine	Pathology
*Redelings, Leslie Hall, M.S., M.D.....	Oct. 1, 1915	Surgery	Pathology
*Reeves, Thaddeus Benjamin, B.S., M.D..	Feb. 1, 1916	Medicine	Pathology
Roberts, Lyle J., B.A.....	Sept. 11, 1914	Physiology	Pharmacology
Rutledge, Lloyd H., B.A.....	Sept. 7, 1915	Anatomy	Pathology
*Saeger, Stanley Joseph, M.D.....	April 21, 1915	Surgery	Pathology
*Sanders, Robert Lee, M.D.....	July 1, 1914	Surgery	Urology
Schlutz, Frederic W., B.A., M.D.....	Nov. 20, 1911	Physiologic Chemistry	Anatomy
*Simpson, Ellery DeWitt, M.A., M.D....	July 1, 1913	Surgery	Pathology
*Smith, Ernest Vernon, M.D.....	June 1, 1912	Surgery	Pathology
*Stacy, Leda June, M.D.....	Feb. 1, 1908	Medicine	Pathology
Stewart, Chester A., M.A.....	Sept. 11, 1914	Anatomy	Pathology
*Sutton, George Douglas, B.S., M.A., M.D.	May 1, 1916	Surgery	Pathology
*Sutton, George Ellsworth, B.S., M.D....	May 22, 1916	Surgery	Urology
*Szlapka, Thaddeus Louis, B.S., M.D....	Oct. 1, 1915	Surgery	Pathology
†Taylor, Rood, M.D.....	Nov. 1, 1914	Pediatrics	Chemistry
Vaughn, Florian, B.A.....	Sept. 9, 1915	Anatomy	Pathology
*Walker, James Cloudsley, M.D.....	Oct. 1, 1915	Orthopedics	Pathology
*Weld, Edward Howland, B.A., M.D....	Feb. 1, 1916	Surgery	Pathology
*Willius, Frederick Arthur, B.S., M.D....	July 1, 1915	Medicine	Physiology
†Woltman, Henry W., B.S., M.D.....	Nov. 2, 1914	Neurology	Pathology

\* Fellows on the Mayo Foundation.

† Teaching Fellows in the Medical School.

*Red*