

5  
70

*Dem. Ed.*

# Bulletin of The University of Minnesota

GENERAL EXTENSION DIVISION

## ORGANIZATION OF PART-TIME SCHOOLS AND CLASSES

By

ARTHUR FRANK PAYNE, M.A.

Head of the Department of Trade and Industrial Education,  
College of Education, University of Minnesota



*Vol. XXIV No. 1 January 5, 1921*

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

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

## ORGANIZATION OF PART-TIME SCHOOLS AND CLASSES

1. This bulletin is the second in a series being issued by the General Extension Division of the University of Minnesota in coöperation with the Department of Trade and Industrial Education of the College of Education.

2. The aim of the series is to assist school administrators in the oft-times difficult problem of establishing and administering the various types of vocational schools and classes.

3. The first bulletin of this series was "Organization of Evening Vocational Classes." Other proposed bulletins are, "What Vocational Education Is," "The Related Vocational Subjects," "Vocational and Educational Advisement," and others as occasion requires.

4. In the office of the department of Trade and Industrial Education there will be kept on file and available to superintendents of schools in the State of Minnesota, numerous courses of study and outlines for a wide variety of subjects covering the entire field of industrial education.

5. The services of members of the staff of the department of Trade and Industrial Education are available under certain conditions for work in surveys, recommending and assisting teachers, outlining curricula, etc.

ARTHUR F. PAYNE,  
Department of Trade and Industrial Education,  
University of Minnesota

*Telephoned -  
no changes in  
program for  
w & s. w. H. H.  
11/5*

COLLEGE OF SCIENCE, LITERATURE,  
AND THE ARTS  
ANNOUNCEMENT FOR THE YEAR 1920-21  
SUPPLEMENT

CORRECTIONS, EXPLANATIONS, AND ABBREVIATIONS

**Further information.**—For general information, consult the bulletin, pp. 17-19; for requirements for the B.A. degree, pp. 21-24; for other courses of study, pp. 24-42; for departmental statements (descriptions of courses, major sequences, and so forth), pp. 43-128.

**Course numbering.**—A course is designated by a department name, a number, and a letter. It has the same number in whatever quarter it is offered. The quarter is indicated by the letter (f, fall; w, winter; s, spring; su, summer).

Examples:

1f-2w, a two quarter course given in the fall and winter.

1w-2s, the same course given in the winter and spring.

3f,w,s, a one-quarter course given each quarter.

(1s)-2f, a two-quarter course completed in the fall of 1920.

1s-(2f) a two-quarter course begun in the spring of 1920.

**Statement of credits.**—The number of credits stated for two and three quarter courses is the number for the entire course, not the number each quarter.

**Buildings.**—A, Armory; AB, Animal Biology; Adm(F), Administration, University Farm; C, Chemistry (Main Campus); Ch, Chemistry (University Farm); CB, Christian Bible College; D, Dentistry; DH, Dairy Hall, University Farm; Ed, Education; En(F), Engineering, University Farm; Farm, University Farm (consult bulletin of the College of Agriculture, Forestry, and Home Economics); F, Folwell; G, Greenhouse; HE, Home Economics, University Farm; Law Aud, Law Auditorium; Lib, Library; Lit Th, Little Theater; MA, Mechanic Arts; ME, Main Engineering; MH, Millard Hall; Mu, Music; P, Pillsbury; Ph, Physics; PP, Plant Pathology, University Farm; Psy, Psychology; WGM, Women's Gymnasium.

**Other abbreviations and symbols.**

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

[ ] Not offered in 1920-1921.

I, II, etc. First hour (8:30 to 9:20), second hour (9:30 to 10:20) etc.

ar. To be arranged or assigned.

U OF M BINDERY FEB 2 '21 "M"

cr.	Credits.
Lab.	Laboratory.
Lect.	Lecture.
MTWThFS	Monday, Tuesday, etc.
Rec.	Recitation.

## CORRECTIONS, SEPTEMBER 1920

### AGRICULTURAL BIOCHEMISTRY

7f-8w. GEN. AGRIC. BIOCHEM. Hours changed to Lec. II TThS; Lab. V-VII MWTh.

15f. PRIN. OF ANIM. NUTR. Hours changed to I MWF.

### ANTHROPOLOGY AND AMERICANIZATION TRAINING

60f. SLAVIC CULTURE. Not offered.

61w-62s. SLAVIC ORAL LANGUAGE. Not offered.

70w. FOOD PREPARATION. Changed to 7of.

71s. DIETETICS. Changed to 71w.

72f. HOME MANAGEMENT PROBLEMS. Changed to 72s.

### CHEMISTRY

#### *Division of Organic Chemistry*

35f-36w. LABORATORY. TTh only.

(New Course) 130s. Inter. Med. Org. Chem., Lec. III MWF, 325C, Hunter.

131s. ADV. ORGANIC CHEMISTRY. Not offered.

132f. ADV. ORGANIC CHEMISTRY. Not offered.

(New Course) 131f-132w-133s, Adv. Organic Chemistry, Lec. III TThS, 325C, Hunter.

### ECONOMICS

1f-2w. INTR. TO ECON. HIST. Sec. 10 will meet MW instead of WF.

3f-4w. PRINCIPLES OF ECONOMICS. Open to pre-business students only.

155w-156s. VALUATION. Not offered.

25f. ACCOUNTING. Sec. 10 will meet MWF instead of MThS.

### ENGLISH, RHETORIC, AND PUBLIC SPEAKING

#### *Courses in English*

103 to 155, Statement of prerequisites, "Courses below ten" should read "Courses 4, 6, and 8."

62w. MILTON. Given MWThF instead of MTThF.

133. BALLADS. 3 credits instead of 4 credits.

150s. VICTORIAN POETRY. Given MWThF instead of MTThF.

155s. AMERICAN NOVEL. Given MWFS instead of MWF. Under Prerequisites, read 44-45 instead of 54-55.

#### *Courses in Rhetoric*

115f-116w-117s. DRAMATIC TECHNIC. Not offered.

### GEOLOGY

29f, 34w, 37s, 101f, 114f, 115, 116w, 117s, 118w, 119s. Not offered.

# COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

## NEW CURRICULUM

### *Junior College*

(Required for students entering the Junior College in September, 1920; optional for students who entered the Junior College before September, 1920.)

Departments offering Junior College Courses are grouped as follows:

- Group A English, Rhetoric, Public Speaking.
- Group B Foreign languages: German, Greek, Latin, Romance Languages, Scandinavian.
- Group C Social sciences: Anthropology, Economics, History, Political Science, Sociology.
- Group D Natural sciences: Animal Biology, Astronomy, Bacteriology and Immunology, Botany, Chemistry, Geology and Mineralogy, Human Physiology, Physics, Psychology.
- Group E Mathematics, Philosophy.

#### REQUIREMENTS FOR THE JUNIOR COLLEGE

1. Group A 15 credits in English-Rhetoric.
- Group B The student must present for entrance four years of one foreign language, or he must complete 20 credits in one language in college, or he must continue a language, which he presented for entrance, according to the following schedule:

<i>Amount Presented for Entrance</i>	<i>Amount Required in Junior College</i>
Four years of one language	None
Three years of one language	5 credits in same language
Two years of one language	10 credits in same language
Less than two years of one language	20 credits in one language

- Group C 10 credits in one subject
- Group D 10 credits in one subject (courses in physiography and geography do not meet this requirement)
- Group E No requirement

2. Two of these required subjects must be begun the first quarter and the others not later than the fourth quarter of a student's course. A subject taken to meet one of these requirements must be continued for at least two quarters.
3. The student must earn 15 additional credits in each of two of the five groups, A, B, C, D, E.
4. The student must earn a total of 90 credits and 90 honor points.

## OLD CURRICULUM

### *Junior College*

(Optional for students who entered the Junior College before September, 1920.)

During the first two years the student must complete the following required subjects:

- a. Rhetoric-English, 15 credits.
- b. History, 10 credits.
- c. Laboratory science (chemistry, physics, botany, animal biology), 10 credits.
- d. A foreign language, 10 to 15 credits according to the amount of high-school preparation as follows:

High-school work less than two units of one foreign language; college requirements, 15 credits. High-school work two or more units of one foreign language; college requirements 10 credits if the same language is pursued in college, otherwise, 15 credits.

Two of these required subjects must be begun the first quarter and the other two not later than the fourth quarter of a student's course.

When a required subject is begun, it must be continued for at least two quarters.

The student must earn a total of 90 credits and 90 honor points.

## GREEK

106. The prerequisites should read "53 or 105."

## HISTORY

5f-6w. AMER. HIST. Sec. 3 will meet TS instead of IV TS.  
11f-12w-13s. Given MWF instead of MTHFS.  
125w. Given MTWF instead of MWFS.  
160. TOPICS, AMERICAN COLONIAL. Should be 160w.

## HOME ECONOMICS

20f,w,s. FOODS AND COOKERY (S. L. A.) Not given.  
70w. FOOD PREPARATION. Changed to 70f.  
71s. DIETETICS. Changed to 71w.  
72f. HOME MANAGEMENT PROBLEMS. Changed to 72s.

## LATIN

21f, 22w, and 23s. Given MTWFS instead of MTThFS.

## PHILOSOPHY

55s. ESTHETICS. Not offered.  
106w. PHILOSOPHY OF EDUCATION. Not offered.  
108f-109w. HISTORY OF ETHICS. Not offered.  
135s. PLATO. Not offered.  
141f. METAPHYSICS. Not offered.  
151f-152w-153s. KANT. Not offered.

## PHYSICAL EDUCATION FOR WOMEN

1f-2w-3s. ELEM. PHYS. TRAINING. New section, V MWF.

## PHYSICS

21f. HEAT. Quiz Th instead of T.  
31f. OPTICS. Quiz T instead of Th.

## POLITICAL SCIENCE

7f. STATE AND LOCAL GOVERNMENT. Sec. 2, II, MWThFS, not offered.  
7s. STATE AND LOCAL GOVERNMENT. Pre-legal section, III, MTThFS, not offered.  
41f. INTRODUCTION TO STUDY OF LAW. Not offered.  
58w. ELEMENTARY LAW. Not offered.  
111w. GOVERNMENT OF MINNESOTA. Not offered.  
141s. STATE CONSTITUTIONAL LAW. Not offered.

## PSYCHOLOGY

45f,w. ELEM. EDUC. PSYCH. Section IV, MWF, not offered.  
131f-132w. CHILD MIND. Not offered.  
160f. EMP. PSYCHOLOGY. Not offered.

## SOCIOLOGY

1f. INTRODUCTION TO SOCIOLOGY. Sec. 5, VII, MTWThF, not offered.  
133f. MEDICAL SOCIAL SERVICE. Not offered.

MJ  
1179  
11

## ORGANIZATION OF PART-TIME SCHOOLS AND CLASSES

The organization of Part-Time Schools and Classes presents to school administrators, a unique and often perplexing problem. Owing to the many different ways in which the solution of this problem has been attempted in the various states and cities, a study of existing part-time schools and classes often leads to confusion rather than to clarification.

The part-time class idea is the most recent development of the new conception of education as a social process, which is revolutionizing some parts of our system of school education. It is not the purpose of this bulletin to go into the philosophy which lies back of the movement, except to say, that its roots lie in the fields of sociology, economics, and especially of the newer educational psychology as developed within the past few years. Those who are interested in the philosophy of this movement will find further information in Bulletin no. 35, 1918 of the United States Bureau of Education entitled, *Cardinal Principles of Secondary Education*. This is a report of the National Education Association Commission. Some very good material will also be found in Dewey's *Democracy and Education*, Macmillan Co., *Schools of To-Morrow*, E. P. Dutton Co., and Flexner's, *A Modern School*, issued by the Russell Sage Foundation.

The importance and extent of the field of this new type of education is indicated by an estimate of children of 14 to 18 years of age not attending school made by the Federal Board for Vocational Education as found on page 9 of Bulletin no. 19, 1918 *Part-Time Trade and Industrial Education*, issued by the Federal Board for Vocational Education, Washington, D. C.

Children between 14 and 15 years of age not attending school in 1918....	990,000
Children between the ages of 16 and 18 not attending school in 1918....	4,030,000

Total between ages 4 and 18 .....	5,020,000
-----------------------------------	-----------

The bulletin further states on page 9, "Approximately 2,000,000 children arrive annually at any given age between 14 and 18. In these years the proportion not in school increases rapidly from less than one fifth for the age 14 to nearly four fifths for the age 18. We may safely conclude that about 5,000,000 children 14 to 18 years inclusive are out of school, and that practically all of the boys and a large proportion of the girls not at school in these ages are at work. A very large proportion of these young workers have left public school without completing an elementary education or preparing themselves for any specific vocation. Children of this type are leaving the public schools to-day at the rate of a million a year, and the facilities offered up to this time for giving them any vocational training or preparation for earning a living, have been so inadequate that it is hardly worth while to enumerate them."

This very brief statement gives only an inadequate idea of the size and importance of the problem. The result of such a condition in regard to industrial unrest, vice, radicalism, labor turnover, bolshevism, disregard for law and property rights, the industrial hobo, and other serious present-day problems in our social order, is too far reaching to be considered in detail in this bulletin.

The following is quoted from *School Life*, August, 1920:

It is estimated that 70,546 young people of New York City, between the ages of 15 and 17, who have not completed the elementary course of study and who have left school to go to work, will be required to return to school in the fall for four hours' instruction weekly. In September, 1921, the number will be augmented to 106,546; in 1922, to 134,304; and in 1923, to 166,131. When the new law regulating the continuation schools is in full operation, in the fall of 1924, the number will be increased to 186,131.

### FUNCTIONS OF THE PART-TIME SCHOOL

The following statement of the functions of the part-time school has been adapted from a statement on page 7, bulletin on "Continuation Schools," issued by the State Department of Public Instruction, Trenton, New Jersey, and is used here because it gives in concise form an inclusive statement of the socialized aims and purposes of these schools and classes:

The functions of the part-time school may be stated as follows: It should give such instruction as may be required to enable the pupil to make practical application of what he has already learned and extend his education to meet his individual needs. It should give the physical education necessary to enable him to maintain his health and develop a good physique. The school should train for the duties and responsibilities of citizenship and for social efficiency. It should provide practical activities of a pre-vocational nature for the purpose of developing industrial intelligence and helping pupils to make a choice of a vocation. Wherever possible it should give specific vocational training as far as the limited time at the disposal of the school, the aptitudes of the pupils and the character of the occupations in which they are engaged will permit. In order to assist in placing pupils in the vocations of their choice the school should maintain an employment department. This department should endeavor to reduce the periods of unemployment, help forward promising pupils and promote friendly relations between employers and the school. A systematic plan of vocational guidance should be organized so that the school may be in constant contact with the pupil in his work, that it may be in a position to advise him wisely in regard to his employment. In the exercise of these functions it is assumed that the school will constantly seek to discover the needs of the individual pupil and give him, as far as it can, the particular instruction that fits his case. The part-time school can perform no more important service than to help those pupils who are still drifting to get on to a definite program of their own, and to assist those who have a definite purpose to acquire the particular thing they need to make the next step forward.

The following paragraphs are taken from a statement made by Mr. John N. Greer, Assistant Superintendent of Schools, Minneapolis, Minn.:

This school covers the "transitional" period when the young worker is something more than a child but less than man or woman. It is the age that is least lovely and yet most needing love and guidance. Under the continued influence of this school sooner or later the pupil will choose voluntarily full-time education or will take advantage of the evening, elementary, high or trade schools or other types of extension education in order to better fit himself for his life work.

The work of this type of schools includes vocational guidance, vocational information, training and placement. It also develops social stability; conserves health, includes practical English, mathematics, and science and enlarges civic intelligence. This school



in its proper workings is a clearing house for adjustments and readjustments of the youth's educational, occupational and life problems. It eliminates idleness and thereby tends to reduce that type of crime of which idleness is the mother.

This new type of school will require a new type of teacher. No school can be better than the teacher for "as the teacher so the school." This teacher will have to have a very large amount of the milk of human kindness and sympathy for the working boy and girl. He or she must not only be skilled in the "Technique of Teaching," but must also possess a "trade experience" in having a practical knowledge of office, store, factory and shop in order to understand the working conditions to be found therein. The teacher is not in this school to teach a "section of knowledge" but rather to aid and assist youth in solving their early life problems. This teacher must be a "social service missionary." The success of the part-time school will depend upon the successful development of this type of teacher.

## STATE LEGISLATION

It needs only a glance at the list of states that have recently passed some form of legislation permitting or requiring establishment of part-time schools to appreciate the significance of this specific phase of educational administration. In 1911 Wisconsin passed a law making it compulsory for all employed children between the ages of 14 and 16 to attend a part-time school one-half day a week. This law has been amended and strengthened several times since that time. This makes Wisconsin the pioneer state in regard to part-time legislation.

The example of Wisconsin was closely followed by other leading states, Massachusetts in 1911, New York State (Wilmot Law) 1913, Ohio 1913, Pennsylvania (Cox Law) 1915, Indiana 1916. With the passage of the "Federal Vocational Education Act" better known as the "Smith-Hughes Law" which became a law February 23, 1917, other states rapidly fell into line, until on January 1, 1920, twenty-two states had passed some form of legislation concerning part-time schools and classes. A list of these states indicating the ages between which children attend part-time schools and the number of hours per week is given below. There are various exceptions that are too numerous to be included in this bulletin. Some of these states

### STATES HAVING PART-TIME SCHOOL LAWS

State	Between the ages of	Minimum number of hours per week in attendance
1. Arizona	14-16	5
2. California	14-18	4
3. Connecticut	14-16	8
4. Illinois	14-18	8
5. Indiana	14-16	5
6. Iowa	14-16	8
7. Massachusetts	14-16	4
8. Michigan	16-18	8
9. Missouri	14-16	4
10. Montana	14-18	4
11. Nebraska	14-16	8
12. Nevada	14-18	4
13. New Jersey	14-16	6
14. New Mexico	14-16	5
15. New York	14-18	8
16. Oklahoma	16-18	4
17. Ohio	14-16	4
18. Oregon	14-16	5
19. Pennsylvania	14-16	8
20. Utah	16-18	4
21. Washington	14-18	4
22. Wisconsin	14-18	8

have passed state-wide compulsory laws compelling establishment of part-time schools and attendance. Some permit establishment and compel attendance. Some have local option in the entire matter.

The following states have passed laws compelling attendance at part-time schools for americanization only:

State	Between the ages of	Hours
New Hampshire .....	16-21	?
Rhode Island .....	16-21	200
South Dakota .....	16-21	200

The laws of Arizona, Illinois, Massachusetts, Michigan, Missouri, Montana, Nevada, Oregon, and Washington specifically state that the hours of attendance of part-time schools must be considered as a part of a minor's lawful employment. In Nebraska, New Jersey, New York, Wisconsin, Oklahoma, Illinois, and West Virginia the employer is obliged to permit attendance. Nearly all of the forty-eight states have made provisions for the establishment of part-time schools in their state plans for Vocational Education as approved by the Federal Board for Vocational Education, but they have passed no laws other than local regulations. Many of these states have successful part-time schools in operation on a purely voluntary basis as regards establishment and attendance. During the year 1920-21 it is expected that at least ten other states will pass legislation establishing part-time schools and several others will make establishment and attendance compulsory.

Utah has the most advanced legislation in regard to juvenile education of any state in the Union. Utah has extended the compulsory limit of attendance of public schools to 18 years and enacted that every boy and girl up to 18 must go to school 30 weeks. However, if the pupil is over 16 or if the eighth grade is completed, the pupil may be excused by the superintendent of schools to go to work, provided he attends part-time schools at least 144 hours per year between the hours of 8:00 a. m. and 6:00 p. m. But when not at work he must attend school full time.

England in its recent educational legislation passed a law making attendance of part-time schools compulsory for all persons 14-18 years of age for a minimum of 320 hours per year. Failure to attend is punishable by a fine of five shillings on the pupil and five pounds on the parent.

*The Adolescent School Attendance Act* recently passed in Ontario, Canada makes provision: first, for those between the ages of 14 and 16, and second, for those between 16 and 18 years of age. After September 1, 1921, it is expected to increase the period of compulsory full-time school attendance to include those of 16 years of age instead of ending with the present final limit of 14 years. Partially employed adolescents will be required to attend school for 400 hours in place of the 1100 hours of the regular school year.

After September 1, 1923, a minimum school attendance of 320 hours per year will be required of all those in the province between the ages of 16 and 18. The act further provides that all municipalities of 5,000 and over shall establish part-time courses for the adolescent between the ages of 14 and 18.

## ORGANIZATION

### TYPES OF LEGISLATION

The first step for the school administrator is to find out from his state board of vocational education whether there has been any legislation passed, or provision made, governing the establishment of part-time schools. This legislation or provision may be of the following four types:

1. Compulsory i.e. compelled to establish and compelled to attend. Wisconsin and Pennsylvania are illustrations of this type.

2. Permissive mandatory i.e. permitted to establish but compelled to attend when established. New York, Ohio, Indiana, Michigan, and Massachusetts are good examples of this particular type.

3. Where the establishment of part-time schools is encouraged by the state board, and attendance is compelled by the local school board under the employment certificate system. Minnesota uses this method at present, but hopes to enact a compulsory law. (Note, see appendix for copy of this proposed law.)

4. Where provision has been made in the federally approved state plan for vocational education for supervision, approval, and financial aid, but the organization and method of requiring attendance being left entirely in the hands of the local school administrators.

### KINDS OF PART-TIME SCHOOLS

In considering the kinds of part-time schools this bulletin will adhere closely to the nomenclature and definitions as developed and used by the Federal Board for Vocational Education.

Bulletin No. 19, 1918, mentioned above gives the following general definition:

A part-time school is any school conducted for a limited number of hours during the regular working day. Such a school is open to minors and adults who have entered upon employment, and its several aims are to continue neglected or interrupted elementary education and to prepare for entrance into better occupations or to supplement and extend knowledge and skill in present occupations.

In the general acceptance of the words "part-time" as distinguished from "whole-time," the evening school might be considered a part-time school, but in the above definition the words "during the regular working day" exclude the evening school from consideration as part of our problem. The four-year high-school coöperative industrial courses that are being so successfully conducted in many parts of this country might come up for consideration as part-time schools. In this type of school the student, during the last one, two, or three years of his four-year course attends school only part of the time, working at some specified trade in the factory the other part. He is given credit for the time he spends in the factory, even tho he gets paid for it. The credits count toward his high-school graduation. But this "Four-Year High School Coöperative Industrial Course" will not be considered as a part of this discussion of the part-time school because in the definition of the part-time school made by the Federal Board the words "Such a school is open to minors and adults *who have entered upon employment*" exclude such a course as constituting a part-time

school. In other words, the part-time school is primarily for those whose chief business is working and not going to school. The students registered in the four-year high-school cooperative course have for their chief business going to school. Their factory work is considered as part of their schooling and is given credit as such. Such a school is recognized by the Federal Board as an "All Day Unit Trade School." Therefore, neither the evening-school nor the high-school cooperative industrial course is considered in this discussion of the part-time school. There is, however, a strong possibility that the Federal Board will in the near future rule that these high-school cooperative courses are part-time schools and recognize them as such.

Another type of school which may easily be confused with the part-time school is the so-called "Vestibule School" or "Training Department." Still another is the "Corporation School." These schools closely resemble the part-time schools in aim, methods, personnel, etc., but are excluded from the discussion because these schools are not *under public control*. The Federal Vocational Education Act specifies that all moneys available under the provisions of the act shall be expended only for schools under public control, i.e., part of our public-school system.

#### REQUIREMENTS OF THE FEDERAL SMITH-HUGHES LAW

The Federal Smith-Hughes Law places certain very definite limitations and requirements which must be observed in the organization and administration of part-time schools. These are as follows:

1. The part-time school or class no matter of what type, *must be under public control*, that is, administered and controlled by the public-school authorities.

2. Pupils *must be 14 years of age* or over. There is no upper age limit.

3. The pupils *must have entered upon employment*. This has been modified to permit attendance of persons who have not actually started to work but have a written promise of employment. The purpose of this modification is that the persons may enter the designated employment more advantageously.

4. The pupil *must be mentally and physically able to profit* by the instruction offered. This is to prevent the vocational schools and classes from becoming a dumping ground for the mentally defective.

5. The subjects taught may be any subjects given to enlarge the civic and vocational intelligence of the pupils. These subjects may be trade, home economics, general industrial, commercial, or general education subjects. *The controlling purpose must be to fit for useful employment.*

6. The instruction must be designed for pupils over 14 and under 18 years of age, and of *less than college grade*.

7. The school must be in session *not less than 144 clock hours per year*. Unfortunately this minimum of hours has been used as the standard by most places where part-time schools have been established. If at all possible more hours should be given to these classes. No method of distribution of the required 144 hours is specified. They may be given as a dull season class of eighteen days of eight hours per day, or may be given in the most

common method of four hours per week for thirty-six weeks. Neither is there any method specified as to the number of hours per day or days per week. The four hours may be given in one day or two hours per day for two days, or any other arrangement that best suits local conditions.

8. The classes *must be held during part of the regular working day*. Consideration must be given here to the local child-labor laws. Most of the state laws designate the regular working day as between the hours of 8 a.m. and 5 p.m., some until 6 p.m.

9. *One third of the total federal funds* devoted to trade and industrial education appropriated and spent in any state must be spent on part-time schools.

10. Federal funds shall be used only to *reimburse the school district for one half the salary of the teachers and coordinators*. To this may be added any state appropriation available. Teachers must be approved by the State Board.

## FEDERAL AID

Section 11 of the Federal Act reads as follows:

At least one third of the sum appropriated to any State for the salaries of teachers of trade, home economics, and industrial subjects shall, if expended, be applied to part-time schools or classes for workers over fourteen years of age who have entered upon employment, and such subjects in a part-time school or class may mean any subject given to enlarge the civic or vocational intelligence of such workers over fourteen and less than eighteen years of age.

## THE THREE RECOGNIZED TYPES OF PART-TIME SCHOOLS

The Federal Board for Vocational Education which has charge of the administration of the Smith-Hughes Law recognizes three types of part-time schools. These are as follows:

### I. TRADE EXTENSION TYPE

From the standpoint of vocational education the trade extension type of the part-time school is probably the most important and the most valuable. The controlling purpose of this type is to *extend the trade knowledge* of persons who are already employed at some fairly well defined trade or occupation.

The subjects taught in this type of part-time extension school would probably be English, mathematics, drawing, science, all very closely related to the trade or occupation. Formal academic courses in these subjects would be an obtrusion and entirely out of place in this type of school.

The idea that "A course in mathematics is a course in mathematics and mathematics can only be learned and used by the thoro mastery of all the elements in such a course," must be modified somewhat when organizing courses in any subject for this or the trade preparatory type of school. The best method is to study the trade or occupation and find out what is needed for success and promotion on the job and then organize your course on that basis.

Other courses may be pursued such as Personal and Occupational Hygiene, Safety First, Industrial History, Industrial Geography, keeping continually in mind that all course content must be directly and closely related to the trade or occupation, also that the controlling purpose is "trade extension" and the main objectives of all types of part-time schools are "the promotion of civic and vocational intelligence" and "to prepare for useful employment."

Under the Federal Law for Vocational Education trade extension or trade preparatory part-time classes are not limited to the trades. Classes may be organized for persons employed in stores, business offices, telephone exchanges, etc. For such persons courses in Salesmanship, Merchandising, Store Management, Business Arithmetic, Business English, Commercial Law, Stenography, Typewriting, Filing Systems, Comptometer Operating, etc., may be offered.

It is an interesting fact that this is the only kind of commercial work that is aided under the Vocational Education Act. It is done by virtue of the statement of the purpose of the part-time school as being "the promotion of civic and vocational intelligence."

Provision is also made in the federal law for part-time schools and classes in agriculture and home economics. Comparatively few of these classes have been established.

One big advantage that the trade extension type of part-time class has over other types is that it is neither necessary nor even advisable to establish shops with expensive equipment. The students get all the shopwork and manipulative process work that they need while working at their jobs.

The trade-extension type of part-time school has been largely developed in those localities where the law is not compulsory. In such places those who wish to establish these classes have first to "sell" the idea to the employers and their employees. These groups are not particularly interested in the other two types of classes but are usually very much interested in the trade-extension type, as both can see an immediate benefit to themselves. The employer gets better trained workers, the employee greater earning power, and the public gets increased production and more intelligent citizens.

## 2. TRADE PREPARATORY TYPE

The controlling purpose of the "trade preparatory" part-time school or class is to give preliminary elementary instruction to persons who wish to change their employment. This includes such persons as messenger boys, cash girls, errand boys, wrappers, labelers, bell boys, and those who are engaged in other so-called "blind alley," "juvenile" and "boxed in" jobs. Many wish to prepare for effective entrance into some occupation with a better future, such as mechanical drafting, salesmanship, accountancy, telegraphy, electrical work, or other of the recognized trades and occupations.

It is not to be expected that these classes will turn out finished mechanics, but as the name indicates, they will prepare students to enter effectively some one specific occupation. These classes must not be confused with the pre-vocational classes, the purpose of which is to give experience in

several trades for the purpose of vocational choice, discovery of aptitudes, industrial experience, etc. The trade preparatory part-time class aims to prepare the pupil for entrance into one specified trade or occupation.

It can readily be seen that the employers of these young people will not be particularly interested in seeing them educated away from their jobs into some other employment, altho in some large plants where there is plenty of opportunities for promotion and transfer no objection would be made.

This type of class is very popular with young students, who are as a rule eager to "learn a trade" and thereby better themselves financially and socially. This is particularly true of the 16-20 year old group, as they have matured sufficiently to get a wider vision of the future and have developed a consciousness of the inadequateness of their present training and line of work.

Vocational and educational guidance should play a large part in the trade preparatory class, as it is presumed that the students are making a final choice in one trade and should have the benefit of all available information concerning possible opportunities. Too much emphasis can not be placed upon this feature of the trade preparatory type of part-time school, as it must justify itself by actual success in taking students who are regularly employed at one occupation and preparing them to enter another successfully.

### 3. THE GENERAL CONTINUATION SCHOOL

This type of part-time school, as its name implies, devotes itself particularly to providing a general educational background upon which later a superstructure of vocational education may be built.

The general continuation type of part-time schools has the large majority in this country, the reason being that in those large states where legislation of the compulsory type has been enacted, the educators do not have to "sell" the idea of these classes to either employers or students. It is merely a choice of attending these classes or being arrested, fined, and possibly imprisoned. This being the case, the easiest way out for the educational administrator is to continue the general academic education, as he can use the same courses of study, textbooks, methods, buildings, teachers, equipment, etc. He does not have to train teachers, get out new courses of study, or adapt the methods and system to a new situation. The chief argument for this type of part-time school advanced by the educators is that these 14 to 18 year old students can not read or write very well and do not have more than the bare essentials of arithmetic, geography, and history. It is to be regretted that in the majority of cases this is true.

In the general continuation school and occasionally in the trade preparatory school, home-making classes are organized for girls. If 50 per cent or more of the entire time in part-time schools is spent on the study of vocational home making, the school is classed under the home-making branch of the work. If less than 50 per cent is spent in home-making, it is classed under the trade and industrial branch.

## ORGANIZING THE CLASSES

The first step is to *make a survey* of the general situation to find out how many students are eligible for these classes, their ages, places of employment, types of work, previous education, sex, etc. One difficult problem will be encountered here and that is the question as to what shall be done with young workers who are employed in the school district or city but live outside the school district or in the suburbs, or vice versa. No ruling has been made by the Federal Board in regard to this matter but it is customary in most cases for the local authorities to rule that all young workers who either reside or are employed in the school district shall attend these schools.

The next step is *publicity*. Do not spring any surprises on the people most concerned. Hold meetings of all kinds, with employers, workers, unions, and clubs. Get the members of these groups in sympathy with the idea, acquainted with the procedure, and the necessity for it.

## PLACE OF HOLDING THE CLASSES

The best place for the trade extension classes if large enough groups can be found is *in the place of employment*, whether it be factory, store, or office. Most employers will gladly furnish the room, seats, tables, etc.

In every case an earnest endeavor should be made to get the *classes as homogeneous as possible*, particularly as regards the trade or occupation. If a large enough group of boys who are working at printing, machine shop, electrical work, tinsmithing, building construction, etc., can be found, by all means segregate them into special classes even tho they are working for different employers. It may be necessary to equip a special classroom in a readily accessible place for them.

The same would apply to homogeneous groups of girls such as department store girls, office workers, telephone operators, factory workers, restaurant employees, etc.

In any case the coöperation of the employers' organizations, unions, and employees' organizations should be secured. Many vocational classes of various kinds have had troublous times because, of the failure of educational administrators to secure this coöperation.

The trade preparatory class can seldom be organized successfully in the place of employment. This type of class requires equipment, tools, materials, etc. The best place for holding these classes is in a *properly equipped, centrally-located school building*. In some instances it has been found more convenient to hire rooms in some building near the places of employment.

The classes must be segregated into homogeneous groups. Courses for each trade should be outlined, covering shopwork, manipulation of tools, materials, and processes, and the related academic work such as arithmetic, drawing, science, English, etc. In all cases this related work should be very closely correlated to the trade or occupation. *All problems and projects should be taken directly from the trade.*



The general continuation schools are quite generally held in either *the usual school building* or else in a separate building rented or bought especially for these classes. The groups are usually segregated on the basis of their last grade in school.

The subjects taught are the usual grammar-school subjects with an occasional class in high-school subjects.

It is an interesting fact to note that in this type of class Smith-Hughes Law money can legally be spent for the salaries of teachers of manual training, industrial arts, commercial subjects, domestic science, and the ordinary elementary academic subjects. In one case the writer has visited a general continuation school where Latin was being taught.

## THE STUDENTS

A study of the "Constants and Variables" of the part-time school students should be made by the school administrator before any attempt is made to organize classes or plan courses of study.

### CONSTANTS

About the only constants found will be (1) *chronological age*. All are supposed to be over 14 and under whatever age is set by the law. Care must be taken in accepting the statements of either the student or parents in regard to the age of the student. Documentary evidence should be procured in every case. (2) *Employment*. It is the duty of the school administrator to work out a system of permits, reports, and checking devices that will automatically assure him that all pupils who lose their jobs will be reported to him and not be allowed to loaf on the streets during the long or short periods of unemployment. Most state laws provide that if the student is unemployed he must attend school full time.

### VARIABLES

Variables will be found to be as follows:

- (1) *Chronological age* between the limits as set by law.
- (2) *Physical development*. These students are usually in the midst of their adolescent period and the physical development between students of the same chronological age will in many cases vary greatly.
- (3) *Grade attained in school*. A study should be made of the retardation and acceleration of these part-time school students. The following chart shows the acceleration and retardation of 331 boys and girls, the entire enrolment of a compulsory general continuation part-time school.

The reasons for leaving school given by these same 331 pupils, were distributed as follows: 52 per cent gave economic need as the reason, 20 per cent wanted to go to work, 15 per cent disliked school, 8 per cent gave poor health, and 5 per cent disliked their teachers.

A study of the acceleration and retardation chart will show the real reason why most of this particular group left school. Notice that 291 of the 331 students were one or more years retarded. They were not making

a success of their school work. Quite likely many lacked the native intelligence to do the work.

	2 YEARS ABOVE GRADE	
2		
	1 YEAR ABOVE GRADE	
3		
	NORMAL	
35		
	1 YEAR BELOW GRADE	
103		
	2 YEARS BELOW GRADE	
121		
	3 YEARS BELOW GRADE	
56		
	4 YEARS BELOW GRADE	
11		(NOTE: 291 RETARDED ONE OR MORE YEARS)
351		

(4) *General intelligence.* The writer firmly believes that one of the first things to be done with all entering part-time students is to give them an intelligence test and if possible aptitude tests.

Vast amounts of time, effort, money, and energy are wasted each year trying to educate boys and girls for positions and having them carry courses and subjects far beyond their mental capacity.

(5) *Life career motive.* During the adolescent period the life career motive is a strong factor in the attitude and reaction of these part-time students. Some means and opportunities should be offered in the part-time school for developing and using this strong force.

(6) *Occupations.* One of the most difficult factors to contend with and adjust is the wide variety of occupations of these students. Nearly 50 different kinds of jobs were held by the 331 students mentioned above. In addition to the wide variety of jobs, the constant changing from one job to another is a cause of much maladjustment and of many administrative difficulties. More than 50 per cent of the 331 students had held two jobs in one year.

(7) *Nationality and racial group.* The high percentage of illiteracy found among certain immigrants who are flocking to this country has a marked effect on the educational ideals and objectives of their children. Whenever there is found a racial group in one settlement, special problems arise for the part-time school administrator. These should be given special consideration.

(8) *Social level and economic condition.* When organizing classes in the part-time school it is quite often advisable but not always necessary to take into account the social and economic condition of the student.

## TEACHERS

It will readily be seen that each of the three distinct types of part-time schools or classes will require a distinct type of teacher.

The *trade extension class* will need a teacher who has had considerable academic training and, also, some trade experience.

The usual minimum qualifications as set up by state boards are: (1) completion of a four-year high-school course; (2) completion of a two-year technical course in the subjects to be taught, or, in each case, its equivalent; (3) at least one year of shop experience or contact with the trades in which they propose to teach the related subjects; (4) approval and certification by the state board, usually after some form of examination or the completion of some specified teacher-training course.

The *trade preparatory class* will need a person thoroly trained in the trade or occupation he proposes to teach.

The usual qualifications required are: (1) sound elementary education; (2) exceptional skill in the trade to be taught, as evidenced by at least three years of experience beyond the apprenticeship stage; (3) proved ability to impart skill to others; (4) good health and good standing as a citizen; (5) age at least twenty-one; (6) approval and certification by the state board, usually after some form of examination or completion of some specified teacher-training course.

The *general continuation school*. The usual minimum qualifications for the general continuation school are the same as those set up for the upper elementary grades. The teachers must, however, be specially approved and certificated by the state board for this type of work.

The usual academic teacher will need special study and preparation to teach in part-time schools and classes. The situation, needs, problems, methods, aims, etc., are much different from those of the ordinary all-day school. The student has had a taste of real life, he has earned money, he has discovered that his services are worth something. All this means a great psychological change in the attitude of the student. After a few weeks in business or the industries the boy has often completely changed his outlook on life and school. It is this with other problems that makes the part-time school problem different from that of the regular all-day school.

## CONTENT AND METHODS

The governing purpose of *What and How To Teach* in part-time schools should always be to satisfy the actual needs of the pupils. Their needs and desires can be discovered only by keen continuous observation of the pupils at work, in the schoolroom and of the use they make of their leisure time.

The teachers should always be assigned regular periods for visiting the pupils while at work. They should make their visits with a definite object in view. It may be to analyze a job for educational content; to discover what arithmetic is needed for success on a certain job; to discover what mathematical devices are used, such as the micrometer, vernier calipers, steel square, slide rule, formulas, tables, etc. The English teacher may want to build up a vocabulary of a certain trade or job, or to acquire a

knowledge of what the students mean when they talk so casually about "Foxers," "Fudgers," "Joggers," "Beaders," "Sludger," "Vannerman," "Kiffler," "Stuller," "Spragger," "Dilley," "Blunger," "Coner," "Soffer," "Fluxer," "Cropper," "Treater," "Chemicker," "Scutcher," "Burler," "Stubber," "Naumkeager," "Dinker," etc.

Much valuable information may be secured from foremen, factory inspectors, and welfare workers.

### SUGGESTIVE COURSES OF STUDY

Altho it be accepted that teachers should develop their own courses of study, this will take considerable time and can not be done at once. It is a matter of development.

When starting part-time schools it is necessary that some kind of an outline be handed to the teacher to begin with. Many good outlines may be obtained free of charge from the "Federal Board for Vocational Education" and from almost any of the state directors of vocational education at the various state capitals. No teacher should be allowed to make the serious error of following any of these courses blindly. They should be adapted, modified, and eventually evolved into a special course to fit the special needs of particular groups.

### COÖPERATION

No school administrator should attempt to organize part-time schools and classes without first receiving the coöperation of various agencies that will be interested and affected by the organizing of these schools. An *advisory committee* made up of interested people representing all community groups might be of great assistance to the administrator who knows how to use them.

Those in charge of the administration of the *Child Labor Laws* should be represented on this committee, as well as the factory inspector, representatives of manufacturers' organizations, unions, settlements, philanthropic organizations, Y.M.C.A., "Big Brothers," parent-teachers' associations, etc.

Within the school organization close contacts will, of course, be established with the attendance department, the medical inspection work, and particularly with the psychological clinic and the vocational guidance system.

It will be readily seen that the part-time schools are the most fertile field in the entire school system for real vocational and educational guidance, and the work of that department should at all times have an important part in the part-time schools.

In the August, 1920 issue of *School Life* Dr. John H. Finley, State Commissioner of Education for New York, in regard to part-time schools says:

It was with a clear recognition of the need and right of working children for adequate educational opportunities which would better fit them for their duties as citizens, that the legislature of 1919 passed and Gov. Alfred E. Smith signed the part-time school law, which it seems to be might well be called the "Children's Charter," because of the guarantees which it makes on the part of the State to all children who live in this Commonwealth.

## OPPORTUNITY IS A SOLEMN OBLIGATION

I regard boys and girls who early in life enter upon vocational pursuits as peculiarly of concern to the State and I hold as a solemn obligation this great opportunity which has come to us to conserve their interests, for certainly, as never before, may it be truly said that our national future depends upon the ideals of our youth, upon their faith in democracy and their fitness for it. These many thousands of 14, 15, 16, and 17 year old children who every year leave the schools constitute such a large portion of our citizenship that they become without doubt the very foundation of society.

## SIMILAR SCHOOLS IN 19 STATES

It is gratifying to note that while the movement for compulsory part-time schools in the United States is of recent origin, New York is but one of a group of 19 States which will have such schools in operation in September, 1920, the others being Arizona, California, Illinois, Iowa, Massachusetts, Michigan, Missouri, Montana, Nebraska, Nevada, New Jersey, New Mexico, Oklahoma, Oregon, Pennsylvania, Utah, Washington, and Wisconsin.

Wisconsin enacted in 1911 a law setting up compulsory continuation schools, Pennsylvania followed in 1915, and the 17 other States mentioned, in 1919. Every State will doubtless have some such law in the immediate future. Part-time schools may in consequence be regarded as a constituent part of our American State education program.

Finally, the part-time school is truly democratic because it is compulsory, in other words, being compulsory it will truly be for all children rather than a favored few who might secure its advantages were attendance to depend upon desire and ability to elect it.

Finally, and above all, the administrator should always keep in mind that the part-time school is distinctly a socialized school. The educator, teacher, or administrator who carries into practice this idea of the part-time school will perform a real service to a group that needs it more than any other group in our school system or social order.

## SUGGESTED READINGS

1. COOLEY, E. G. Some continuation schools of Europe. City Club, Chicago. 1912.
2. ——— Vocational education in Europe. City Club, Chicago. 1912.
3. National Education Association. Proceedings, 1915-16-17-18-19-20.
4. National Society for the Promotion of Industrial Education. *Special bulletins*, New York City.
5. United States Bureau of Education. Industrial education in the United States.
6. United States Bureau of Labor. Statistics. Vocational Education Series.
7. Vocational Survey Committee. Board of Education. A vocational survey of Minneapolis. Minneapolis, Minnesota.
8. WYATT, C. H. Manual of continuation schools and technical instruction.
9. SAKLER, M. E. Continuation schools in England and elsewhere.
10. JONES, ARTHUR J. The continuation schools in the United States. United States Bureau of Education, *Bulletin* no 1. 1917.

11. MEYERS, GEORGE E. Problems of vocational education in Germany. United States Bureau of Education, *Bulletin* no. 33. 1915.
12. GULICK, LUTHER H. Why 250,000 children quit school. Russell Sage Foundation, 1 Madison Ave., New York City.
13. Department of Public Instruction. Continuation schools. Trenton, New Jersey. 1920.
14. Annual report of the public continuation schools of Wisconsin. Wisconsin State Board of Industrial Education *Bulletin* no. 7, 1913-14-15-16-17-18-19-20.
15. Reports of the city superintendent of schools, 1914-15-16-17-18-19-20, sections entitled "Continuation and Part-Time Coöperative Classes." Department of Education, City of New York.
16. Department of Education. Manual training and household science in high, continuation, public, and separate schools. Ontario. 1912.
17. Federal Board for Vocational Education. *Bulletins* 13 and 14. Agriculture Series. 1918.
18. ——— *Bulletins* 17, 1918; 18, 1918; 19, 1918; 20, 1918; 55, 1920. Trade and Industrial Series.
19. ——— *Bulletins* 22, 1918; 34, 1919. Commercial Education Series.
20. ——— Third annual report. 1919.
21. State Department of Education. *Bulletin*, Compulsory continuation schools, 1920; Needs and possibilities of part-time education, 1913. Boston, Mass.
22. CALLAHAN, J. Part-time vocational education. *N. E. A. Proceedings*. 57: 272-75. 1919.
23. CARRIS, L. H. Administration of compulsory part-time laws. *The Vocational Summary* 2 no. 2: 22-27. June, 1919.
24. ——— Compulsory part time attendance laws. *Ibid.* 3 no. 2: 24-26. June, 1920.
25. CUMMINGS, J. The field for evening and part-time vocational education. *Ibid.* 1 no. 5: 5-6. September, 1918.
26. EVANS, O. D. The young worker and the part-time school. *Manual Training Magazine* 20: 275-80. April, 1920.
27. Recent developments of part-time or continuation schools in the United States. *Monthly Labor Review* 10: 133-36. April, 1920. United States Bureau of Labor Statistics, Washington, D. C.
28. COOLEY, E. G. Some Chicago continuation schools. *School Life* 4 no. 2: 15. January 15, 1920.
29. Trade and part-time schools in Kansas City, Missouri. *School and Society* 11: 583-84. May 15, 1920.
30. HEBB, H. D. A continuation school in a packing plant. *The Vocational Summary* 2 no. 11: 196. March, 1920.
31. SHARKEY, C. G. The Dayton part-time trade extension school for apprentices. *Ibid.* 2 no. 4: 75. August, 1919.

Publications, courses, outlines, requirements from all state directors of vocational education at the various state capitols and from the Federal Board for Vocational Education, Washington, D. C. Also bulletins of the Child Labor Bureau, Department of Labor, Washington, D. C.

## APPENDIX

For the especial benefit of the school administrator in the State of Minnesota the following proposed bill has, by permission of Mr. E. M. Phillips, State Director of Vocational Education, been copied from the 1920 *Report of the State Board of Education upon the Revision of State Aid*.

### A BILL FOR AN ACT ENTITLED AN ACT TO PROVIDE FOR THE ESTABLISHMENT OF PART-TIME SCHOOLS AND CLASSES

Be it enacted by the Legislature of the State of Minnesota:

Section 1. Any school district in which there reside fifteen (15) or more persons between the ages of fourteen (14) and eighteen (18) who are not in regular attendance upon full-time school instruction is hereby required to establish part-time schools or classes; provided, that in determining whether any school district shall be required to maintain part-time schools or classes in accordance with this act, those persons shall not be counted (1) who were under regular employment during the school year previous to September 1, 1921; nor (2) those who have already completed a four-year high school course; nor (3) those who reside on the farms of parents or guardians.

Sec. 2. All persons between the ages of fourteen (14) and eighteen (18) residing in school districts required by this act to establish and maintain part-time schools or classes, with the exception of such persons as are not to be counted as provided in section 1 of this act, are hereby required to be in regular full-time school attendance, unless excused from such attendance to enter upon regular wage earning employment by written permit of the school board of the district in which such persons reside. When so excused such persons while under employment shall be in regular attendance upon part-time schools or classes, as provided in this act; and, if at any time not under employment, shall be required to return to regular full-time school instruction.

Sec. 3. All persons required under this act to attend part-time schools or classes shall attend such part-time schools or classes for not less than one hundred forty-four (144) clock hours during the school year; and the number of hours per week which such persons may be legally employed is hereby reduced by the number of hours per week that such persons are in attendance upon part-time schools or classes as herein provided. Such part-time schools or classes shall not be in session earlier than (8) o'clock a.m., nor later than five-thirty (5:30) o'clock p.m., nor on other days, excepting Saturday a.m., than those when the full-time schools are in session: except that for persons over sixteen (16) years of age summer sessions for part-time schools or classes will be permitted.

Sec. 4. The State Board of Education shall establish rules relating to the organization, administration and instruction of such part-time schools or classes, shall determine the method of counting the number of persons residing in school districts which districts may be subject to the provisions of this act and shall also provide for the inspection of all work done under this act.

Sec. 5. Any school district which establishes and maintains part-time schools or classes as herein provided and in accordance with the rules of the State Board of Education shall be entitled to reimbursement from available state funds or from available combined state and federal funds, as follows: (1) a school district in which the enrollment in part-time schools or classes is less than two hundred (200), shall receive as reimbursement two-thirds of the salaries of teachers in such part-time schools or classes; (2) a school district in which the enrollment in part-time schools or classes is more than two hundred (200), shall receive as reimbursement one-half of the salaries of teachers in such part-time schools or classes; provided that no school district shall receive as such reimbursement more than fifteen (15) dollars for each one hundred forty-four (144) clock hours of instruction per pupil in such part-time schools or classes; and provided further that if available funds

are not adequate for the full payment of claims as herein provided, then the available funds shall be distributed by the State Board of Education pro rata, as final settlement of such claims.

Sec. 6. Any school district subject to the provisions of this act is hereby authorized to raise funds for the establishment and maintenance of such part-time schools or classes not only for the instruction of persons between the ages of fourteen (14) and eighteen (18), but also for the instruction of persons beyond the eighteenth (18th) year age limit, such funds to be raised in the same manner as funds are raised for the support of elementary and high school instruction in such district. Such part-time instruction for persons beyond the age of eighteen (18), if maintained, shall be subject to the provisions of this act and the rules of the State Board of Education under the terms of this act and shall entitle the school district to reimbursement as herein provided.

Sec. 7. Any parent or guardian, any employer, or school officer, or any person between the ages of fourteen (14) and eighteen (18) convicted of violating any of the provisions of this act shall be guilty of a misdemeanor and shall be punished by a fine not to exceed fifty (50) dollars or by imprisonment in the county jail for not more than thirty (30) days, or both.

Sec. 8. The compulsory features of this act shall first be in force for the school year ending June 30, 1922, but reimbursement to school districts under this act is hereby authorized for the school year ending June 30, 1921, for such part-time schools or classes as may be maintained voluntarily. For the school years ending June 30, 1922, and June 30, 1923, the establishment of part-time schools or classes as herein provided shall be compulsory only upon the basis of the number of persons between the ages of fourteen (14) and seventeen (17) residing within the school district as herein provided; but for the school year ending June 30, 1924, and thereafter, this act shall be in full force and effect as to all persons between the ages of fourteen (14) and eighteen (18), provided that no person excused from school attendance because of physical or mental disability shall be included within the terms of this act.

Sec. 9. This act shall be in force from and after its passage.

It should be distinctly understood that this bill is merely a proposed bill. It has not at this time, January, 1921, been presented or acted upon, and even in the event of its passage it will probably be changed in some of its details.

#### INFORMATION RELATING TO PART-TIME EDUCATION IN MINNESOTA

The following results of a survey are also presented here by permission of Mr. Phillips and copied from the same report:

1. In order to get an estimate of the number of boys and girls between the ages of fourteen and eighteen who would come under the provisions of a compulsory part-time education law, the following questions were asked of the superintendents of the various school districts. These questionnaires were sent to all school districts where the population given by the 1910 census was over 4,000, and also to all other school districts where the resident high school enrollment for the year 1918-19 was over 125.

Questions asked:

(1) Will you give your estimate of the number of boys and girls in your district between the ages of sixteen and eighteen who have not completed the high school course and are out of school and at work?



- (2) How many graduates in the class of 1920?  
 (3) What per cent of the 1916 class are in the present graduating class?  
 (4) Number of labor permits issued the past year?  
 (5) Number of home permits issued the past year?  
 (6) Would your district be ready to start voluntary part-time classes during the school year 1920-21?  
 (7) Would your district be ready for compulsory part-time classes for the 14-17 age group by September 1, 1922?

TABLE I

Replies from cities having a population of over 4,000. The headings refer to the above questions.

Place	1 Out 16-18	2 1920	3 % of '16 Class grad- uating	4 Labor permits	5 Home permits	6 Volun- tary 1920-21	7 Comp. 1922
Albert Lea	60	67	48.0	None	None	Yes	Yes
Anoka	23	47	52.0	1	None	?	Yes
Austin	*125	100	56.0	12	None	Yes	Yes
Bemidji	*75	30	40.0	None	2	Yes	Yes
Brainerd	100	55	50.0	None	None	Yes	Yes
Chisholm	...	...	...	...	...	No	Yes
Cloquet	120	42	41.0	2	None	?	Yes
Crookston	91	63	...	1	None	?	Yes
Duluth	1,200	187	44.50	28	None	Yes	Yes
Eveleth	200	55	85.0	4	None	16-18	Yes
Faribault†	...	...	...	...	...	...	...
Fergus Falls	60	85	68.0	2	5	Yes	Yes
Hibbing	130	83	66.0	None	None	Yes	Yes
Little Falls	133	58	71.6	2	None	Rec.	Yes
Mankato	250	107	68.0	2	None	Yes	Yes
Minneapolis	4,212	1,476	42.0	536	166	Yes	Yes
Moorhead	85	32	42.0	None	2	No	?
New Ulm	75	53	70.0	None	None	Yes	Yes
Owatonna	120	41	41.0	None	None	No	Yes
Red Wing	80	45	43.0	16	None	Yes	Yes
Rochester	100	75	69.4	None	None	...	...
St. Cloud	*200	70	33.0	6	4	?	?
St. Paul	3,500	525	33.0	574	None	Yes	Yes
St. Peter	17	30	56.0	None	None	No	Yes
South St. Paul	100	28	60.0	1	None	Yes	Yes
Stillwater	200	59	52.0	4	None	Yes	...
Two Harbors	75	44	43.0	None	None	Yes	Yes
Virginia	300	79	43.0	16	None	Yes	Yes
Willmar	275	45	51.0	1	1	?	Yes
Winona	400	65	66.0	39	None	...	...
Total	12,316	...	Av. 58%	...	...	...	...

\* Estimate.  
 † No report.

The above reports indicate that a total of 12,778 boys and girls would come under the provisions of part-time legislation. Of this number 2,800 would be in cities of less than 10,000 inhabitants and 10,000 in cities of 10,000 inhabitants and over. The answers indicate that the districts with few exceptions would be ready to start part-time classes for a voluntary group during 1920-21 and compulsory part-time classes by September 1, 1922.

TABLE II

Replies from cities having a resident high school enrollment of over 125 pupils.

	1	2	3	4	5	6	7
	16-18	4th yr. H. S.	% of orig.	Labor permit	Home permit	14-18 1920	Comp. 1921
Alexandria .....	40	45	66	1	None	Yes	Not necessary
Benson .....	50	25	55	6	None	Yes	Don't know
Blue Earth .....	18	40	80	None	None	?	?
Detroit .....	65	36	50	2	None	Yes	Yes (?)
Fairmont† .....	..	..	..	..	..	..	..
Gilbert .....	25	15	50	None	None	Yes	Yes
Grand Rapids .....	20	41	55	2	1	Yes	Yes
Hutchinson† .....	..	..	..	..	..	..	..
Lake City .....	22	30	52	None	None	Yes	Yes
Litchfield .....	10	40	60	None	None	Yes ?	Yes
Marshall† .....	..	..	..	..	..	..	..
Montevideo .....	30	63	93	7	None	Yes	Yes
Northfield .....	30	50	40	1	None	Not sure	Yes
Pipestone .....	20	42	66	None	None	Yes	Yes
Redwood Falls .....	12	27	32	None	None	Yes	Yes (?)
Sauk Center .....	30	31	62	None	None	Yes	Yes
Wadena .....	50	45	50	None	None	Yes	..
Waseca .....	50	28	60	None	None	Yes	Yes (?)
Wheaton .....	15	25	65	None	None	Yes	Yes (?)
Worthington .....	75	41	60	None	None	?	?
<b>Total.....</b>	<b>462</b>	<b>..</b>	<b>..</b>	<b>....</b>	<b>....</b>	<b>....</b>	<b>....</b>

\* Estimate.  
† No report.

TABLE III

An estimate of the numbers between the ages of 16-18 out of school based on the population of the city and the resident enrollment of the school district.

(See section 10.)

Place	Estimated number in districts of 10,000 or over.	Estimated number in districts of 4,000 to 10,000.
Albert Lea .....	..	120
Anoka .....	..	80
Austin .....	..	140
Bemidji .....	..	100
Brainerd .....	..	170
Chisholm .....	..	140
Cloquet .....	..	140
Crookston .....	..	150
Duluth .....	1,600	..
Eveleth .....	..	140
Faribault .....	..	180
Fergus Falls .....	..	130
Hibbing .....	..	180
Little Falls .....	..	120
Mankato .....	250	..
Minneapolis .....	6,000	..
Moorhead .....	..	100
New Ulm .....	..	100
Owatonna .....	..	100
Red Wing .....	..	180
Rochester .....	..	150
St. Cloud .....	225	..
St. Paul .....	4,100	..
St. Peter .....	..	80

South St. Paul .....	150
Stillwater .....	200
Two Harbors .....	90
Virginia .....	200
Willmar .....	80
Winona .....	400
Total from Table II .....	460
Totals .....	12,475
	3,240

The above estimate indicates that the enrollment in eight cities would be over 12,000 or four fifths of the total for the state.

2. Cost of instruction and reimbursements to school districts:

Other states have found that the cost of instruction per pupil for 144 hours amounts to \$25.00. One teacher working on full time can conduct classes for 150 pupils providing the subject matter is the same. If the subject matter is different and smaller groups are accommodated 100 pupils would be the maximum number for one teacher. On the basis of the above facts we have proposed to reimburse school districts to the amount of two-thirds the cost of instruction where the enrollment is 200 or less. In school districts where the enrollment is over 200 and the unit cost of instruction is less because of group classes, we have proposed to reimburse such districts not to exceed one-half of the cost of instruction.

TABLE IV

Probable number enrolled in classes for the school year ending July 31, 1921.  
(See section 10.)

Age group	Total enrollment in districts with less than 200.	Total enrollment in districts over 200.
14-18 .....	700	2,500
18 .....	100	300
Total .....	800	2,800

TABLE V

Probable number enrolled in classes for the school year ending July 31, 1922.

Age group	Total enrollment in districts with less than 200.	Total enrollment in districts over 200.
14-18 .....	1,500	6,200
18 .....	150	400
Total .....	1,650	6,600

Based on the facts presented the appropriation necessary to meet the needs:

For the year ending July 31, 1921.....	\$50,000.00
For the year ending July 31, 1922.....	100,000.00
For the year ending July 31, 1923.....	125,000.00
For the year ending July 31, 1924.....	200,000.00
The same thereafter.	

Summary of enrollment:

Year ending July 31, 1921.....	3,600
Year ending July 31, 1922.....	8,250
Year ending July 31, 1923.....	10,000
Year ending July 31, 1924.....	15,000

## VOCATIONAL EDUCATION IN THE UNIVERSITY OF MINNESOTA

The University of Minnesota is endeavoring to assist the movement for vocational education by the following methods:

(1) Offering courses in the College of Education throughout the year. These courses lead toward the Bachelor of Science in Education.

(2) By offering a wide variety of courses in the Summer Session.

(3) By offering work in the following groups through the General Extension Division.

- (a) Correspondence courses
- (b) Extension courses throughout the state
- (c) Single lectures or lecture series
- (d) Publications

Information concerning any of the above phases may be obtained by writing to the Registrar of the University, the Director of the Extension Division, or the Dean of the College of Education, University of Minnesota, Minneapolis, Minn.

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

*The College of Science, Literature,  
and the Arts*

*Announcement for the Year*  
**1920-1921**



*Vol. XXIV No. 2 January 12 1921*

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

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

1920							1921													
<b>JULY</b>							<b>JANUARY</b>							<b>JULY</b>						
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa
..	..	..	..	1	2	3	..	..	..	..	..	..	<b>1</b>	..	..	..	..	..	1	2
4	5	6	7	8	9	10	<b>2</b>	<b>3</b>	4	5	6	7	8	3	<b>4</b>	5	6	7	8	9
11	12	13	14	15	16	17	9	10	11	12	13	14	15	10	11	12	13	14	15	16
18	19	20	21	22	23	24	16	17	18	19	20	21	22	17	18	19	20	21	22	23
25	26	27	28	29	30	31	23	24	25	26	27	28	29	24	25	26	27	28	29	30
..	..	..	..	..	..	..	30	31	..	..	..	..	..	31	..	..	..	..	..	..
<b>AUGUST</b>							<b>FEBRUARY</b>							<b>AUGUST</b>						
1	2	3	4	5	6	7	..	..	1	2	3	4	5	..	1	2	3	4	5	6
8	9	10	11	12	13	14	<b>6</b>	<b>7</b>	8	9	10	11	<b>12</b>	7	8	9	10	11	12	13
15	16	17	18	19	20	21	13	14	15	16	17	18	19	14	15	16	17	18	19	20
22	23	24	25	26	27	28	20	21	<b>22</b>	<b>23</b>	24	25	26	21	22	23	24	25	26	27
29	30	31	..	..	..	..	27	28	..	..	..	..	..	28	29	30	31	..	..	..
<b>SEPTEMBER</b>							<b>MARCH</b>							<b>SEPTEMBER</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	<b>25</b>	<b>26</b>	18	19	20	21	22	23	24
26	27	28	<b>29</b>	<b>30</b>	..	..	<b>27</b>	<b>28</b>	<b>29</b>	30	31	..	..	25	26	27	<b>28</b>	29	30	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>OCTOBER</b>							<b>APRIL</b>							<b>OCTOBER</b>						
..	..	..	..	..	1	2	..	..	..	..	1	2	..	..	..	..	..	1	2	
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	..	..	..	..	..
<b>NOVEMBER</b>							<b>MAY</b>							<b>NOVEMBER</b>						
..	1	2	3	4	5	6	1	2	3	4	5	6	7	..	..	1	2	3	4	5
7	8	9	10	11	12	13	8	9	10	11	12	13	14	6	<b>7</b>	<b>8</b>	9	10	11	12
14	15	16	17	18	19	20	15	16	17	18	19	20	21	13	14	15	16	17	18	19
21	22	23	24	<b>25</b>	<b>26</b>	27	22	23	24	25	26	27	28	20	<b>21</b>	<b>22</b>	23	24	25	26
28	29	30	..	..	..	..	29	<b>30</b>	31	..	..	..	..	27	28	29	30	..	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>DECEMBER</b>							<b>JUNE</b>							<b>DECEMBER</b>						
..	..	..	1	2	3	4	..	..	..	1	2	3	4	..	..	..	..	1	2	3
5	6	7	8	9	10	11	5	6	7	8	9	10	11	4	5	6	7	8	9	10
12	13	14	15	16	17	18	12	13	14	<b>15</b>	16	17	18	11	12	13	14	15	16	17
19	20	21	22	<b>23</b>	<b>24</b>	<b>25</b>	19	20	21	22	23	24	25	18	19	20	21	22	23	24
<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	..	<b>26</b>	27	28	29	30	..	..	25	26	27	28	29	30	31
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

# UNIVERSITY CALENDAR

1920-1921

1920

September	18	Saturday	Payment of fees closes, except for new students
September	20-25		Registration of new students
September	21-28		Entrance examinations and examinations for the removal of conditions
September	27-28		Changes in registration
September	29	Wednesday	Fall quarter begins, 8:30 a.m.
October	21	Thursday	Senate meeting, 4:30 p.m.
November	2	Tuesday	Election Day; a holiday
November	25	Thursday	Thanksgiving Day; a holiday
December	16	Thursday	Senate meeting, 4:30 p.m.
December	22	Wednesday	Fall quarter closes, 5:20 p.m.
December	31	Friday	Registration of new students

1921

January	4	Tuesday	Winter quarter begins, 8:30 a.m.
February	12	Saturday	Lincoln's Birthday; a holiday
February	17	Thursday	Senate meeting, 4:30 p.m.
February	21 to March	5	Condition examinations
February	22	Tuesday	Washington's Birthday; a holiday
March	24	Thursday	Winter quarter ends, 5:20 p.m.
March	28	Monday	Registration of new students
March	30	Wednesday	Spring quarter begins, 8:30 a.m.
May	16-28		Condition examinations
May	19	Thursday	Senate meeting, 4:30 p.m.
May	30	Monday	Memorial Day; a holiday
June	12	Sunday	Baccalaureate service
June	14	Tuesday	Spring quarter closes, 5:20 p.m.
June	15	Wednesday	Forty-ninth annual commencement
June	17-18		Registration days for summer session
June	20	Monday	Summer session begins, 8:30 a.m.
July	4	Monday	Independence Day, a holiday
July	30	Saturday	Summer session closes

## NOTICE

---

The regular edition of this announcement for the year, 1920-21 is exhausted. This reprint contains only the pages of general information and outlines of the courses of study.

The complete bulletin containing description of courses and major and minor requirements of the departments may be consulted at the Registrar's office, or the adviser's room, 106 Folwell Hall.

Detailed programs may be obtained at the time of registration or at the Registrar's office.



## GENERAL INFORMATION

### ADMISSION

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

1. Four units of English; or three units of English and four units of a foreign language; or three units of English and two units of each of two foreign languages.
2. One unit of algebra and one unit of plane geometry.
3. Enough additional work to make in all fifteen units, of which not more than four may be in Group F (vocational and miscellaneous subjects).

A detailed statement of admission requirements may be found in the bulletin of general information.

*To advanced standing.*—Attention is called to the following rules governing students entering with advanced standing.

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

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

A student admitted to the Senior College and failing to meet this requirement may be excluded from the Senior College at any time after the first quarter.

### CLASS ROUTINE AND SCHOLASTIC REQUIREMENTS

*Schedule.*—Classes are held every week-day, ending for the week at 12:20 p.m. on Saturday. Class periods begin at 8:30, 9:30, 10:30, 11:30 a.m., 1:30, 2:30, 3:30, and 4:30 p.m., and continue fifty minutes. A convocation of faculty and students is held at 11:30 on certain Thursdays.

In the Junior College, courses are normally five-credit courses; in the Senior College, three-credit courses. There are also three-credit courses in the Junior College and one-, two-, four-, and five-credit courses in the Senior College. §

*Examinations and grades.*—Examinations are held at the close of each quarter. A student's grade is based on class work and examinations. Four grades, A, B, C, and D are given for work done satisfactorily. Work not done satisfactorily is marked E (condition) or F (failure). Work of a satisfactory character but not completed is marked I (incomplete). For rules governing the removal of incompletes and conditions, see the faculty regulations.

*Credits and honor points.*—Requirements for graduation are expressed in credits, indicating amount of work, and in honor points, indicating grade of work. Each credit demands on the average three hours a week of the student's time; that is, one recitation with two hours of preparation, or three hours of laboratory work. Honor points are computed as follows; each credit with the grade of A carries three honor points; each credit with the grade of B, two honor points; each credit with the grade of C, one honor point.

*Reasonable advance toward graduation.*—Continued residence in the college is conditioned upon reasonable advance toward graduation. The Students' Work Committee may at any time drop from the rolls of the college any student who does not make such reasonable advance. A student so dropped will not be allowed to reënter the University until a full quarter has elapsed.

No student will be considered to have a wholly satisfactory standing who fails to secure, in the course of any year, the normal advance of one honor point for each credit for which he is registered. Students who fall below this normal standard will be subject to special consideration as individual cases by the Students' Work Committee.

*Habitual bad English.*—Any student who, either, in speaking or in writing, habitually uses bad English will be reported by his instructor to the dean with all available evidence. If the dean considers this evidence sufficient, he will require the student to take without credit such further work in rhetoric as the head of the Department of Rhetoric shall specify.

#### THE JUNIOR AND SENIOR COLLEGES

1. The college distinguishes between the Junior College, consisting of the first two years, and the Senior College, consisting of the third and fourth years.

2. Courses which are intended primarily for freshmen and sophomores are designated Junior College courses; those intended primarily for juniors and seniors are designated Senior College courses.

3. Senior College courses appear in the announcement as open to "juniors and seniors" or to "juniors, seniors, and graduates." The prerequisites for these courses are governed by the following rule: If the prerequisite courses are open to freshmen in their first and second quarters, they must amount to at least fifteen credits; if not, they must amount to at least ten credits.

Senior College courses may be taken by sophomores who have had one honor point per credit in their previous work, and have completed with a grade of C the prerequisites for the courses desired; but courses which carry graduate credit may not be taken earlier than the third quarter of the students' sophomore year.

4. Students registered in combined courses shall secure forty-five credits and forty-five honor points per year (three quarters) of work required in this college before being recommended for entrance to the work of the professional school. In order that such students may receive

the Bachelor's degree after completion of the required professional work, the faculty of the professional school shall certify that they have maintained an equivalent standing in the work of the professional school which is counted toward the degree given by this college.

5. Any student who fails to complete the Junior or Senior College requirements within the normal period will, in order to complete the work, be required to continue in that college for one or more University sessions. During this period he will be required to secure an average of one honor point for every credit of work for which he is registered.

#### FACULTY ADVISERS FOR STUDENTS

*In the Junior College.*—Every freshman is assigned to a class officer whose general purpose is to help the student to get the best out of his college course, to develop his responsibility for planning his work, and to encourage him to make the most of his own powers. The student should go to his class officer for information and help in all matters pertaining to his college work.

The class officer discusses with the student the selection of studies and approves his program and registration; gives information or sends the student to the best source of information about the choice of a vocation and the preparation for it; helps the student to understand the proper sequence of studies and the relationship of various fields of study to the main purpose toward which the student is aiming. Living conditions, methods of study, and the other activities of the student strongly influence college work and are subjects for consideration by the class officers.

The efforts made to aid and advise the student call for prompt response on his part. Every student is required to attend conferences when notified and to follow the instructions of his class officer.

In the sophomore year the class officer gives especial attention to the completion of the requirements of the Junior College and the preparation for the major study in the Senior College.

*In the Senior College.*—When the student has chosen his major subject, he is assigned by the department in charge of that subject to a major adviser who has oversight of all his scholastic work in the Senior College.

#### AUDITORS

Persons who wish to hear lectures and class discussions regularly are registered as auditors and pay a prescribed fee. They must first secure the permission of the instructor in charge of the course and of the dean. Admission of auditors may be denied in case of classes which are crowded or in which the work is of such a nature that the presence of visitors would be a detriment. Regularly enrolled students are not admitted as auditors.

## COURSES OF STUDY

A student may, while registered in the College of Science, Literature, and the Arts, pursue one of the following courses:

### *Courses given within this college:*

1. A general course leading to the degree of Bachelor of Arts.
2. A four-year course leading to the degree of Bachelor of Music.
3. A four-year course in Architecture and Decoration leading to the degree of Bachelor of Science.
4. A four-year course in Americanization Training Work leading to the degree of Bachelor of Science.
5. A five-year course in Training for Social and Civic Work leading to the degree of Bachelor of Science.
6. A five-year course in Training for Diplomatic and Consular Service leading to the degree of Bachelor of Arts.
7. A five-year course in Training for State and Federal Administration leading to the degree of Bachelor of Arts.
8. A five-year course in Training for Municipal Administration and Engineering leading to the degree of Bachelor of Science.
9. A two-year course prescribed for admission to the School of Business.
10. A two-year general course entitling him to admission to the College of Education, on the completion of the Junior College requirements.
11. A two-year general course entitling him to admission to the Law School, on the completion of the Junior College requirements.
12. A one-year course prescribed for admission to the College of Dentistry.

In each of the five-year courses the student may become a candidate for the Master's degree under the regulations of the Graduate School.

### *Combined arts and professional courses:*

A five-year course leading to the degrees of Bachelor of Arts and Bachelor of Science in Chemistry.

An eight-year course leading to the degrees of Bachelor of Arts and Doctor of Medicine.

A seven-year course leading to the degrees of Bachelor of Science and Doctor of Medicine.

A six-year course leading to the degrees of Bachelor of Arts and Doctor of Dental Surgery.

A five-year course leading to the degree of Bachelor of Science and Certificate in Nursing.

A four-year course leading to the degree of Bachelor of Arts with special training in military science and tactics.

A six-year course leading to the degree of Bachelor of Science and the appropriate degree in architecture.

A six-year course leading to the degrees of Bachelor of Arts and Bachelor of Laws.

## REGULATIONS APPLYING TO ALL COURSES

Military drill is required of all freshman and sophomore men and physical education of all freshman men and all freshman and sophomore women.

Rhetoric-English A-B-C (or in some courses Rhetoric 4-5-6) is required of all students in their freshman or sophomore year.

No student may elect work in any quarter in more than five departments.

Students must elect at least 13 credits of work a week. Permission to take less than that number must be secured from the Administrative Board.

Students ordinarily may not elect more than 17 credits. After the freshman year a student who has an average of  $1\frac{1}{2}$  honor points per credit for the previous quarter, or the previous two quarters, and who has no condition or failure the previous quarter may elect 18 credits.

All freshmen and sophomores are required to elect one third of their credit hours in the afternoon.

## I. GENERAL COURSE LEADING TO THE DEGREE OF BACHELOR OF ARTS

The requirements for the degree of Bachelor of Arts are stated below. For the year 1920-21, seniors will complete their work in accordance with either curriculum. Students entering the Senior College in the fall of 1920 or thereafter will follow the new Senior College curriculum. Students enrolled in the Junior College in 1919-20 may complete the Junior College requirements on either the new or the old plan, at their option.

### GENERAL REQUIREMENTS

1. The student must earn 180 credits and 180 honor points.
2. The student may not receive credit for beginning courses (two quarters, 10 credits) in more than one of the foreign languages, except Greek and Italian, unless his major adviser approves such courses as necessary for the proper development of the student's major work.
3. Not later than the end of his sophomore year, each student must elect the department in which he intends to do his major work. He will then be assigned to a major adviser by that department.
4. The student must earn at least 45 credits in residence at this college. If the term of residence is only one year, that year must be the senior year; and in any case, he must spend at least two "quarters" of the senior year in residence.

### NEW CURRICULUM

#### *Junior College*

(Required for students entering the Junior College in September, 1920; optional for students who entered the Junior College before September, 1920.)

Departments offering Junior College courses are grouped as follows:

- Group A English, Rhetoric, Public Speaking.
- Group B Foreign languages: German, Greek, Latin, Romance Languages, Scandinavian.
- Group C Social sciences: Anthropology, Economics, History, Political Science, Sociology.
- Group D Natural sciences: Animal Biology, Astronomy, Bacteriology and Immunology, Botany, Chemistry, Geology and Mineralogy, Human Physiology, Physics, Psychology.
- Group E Mathematics, Philosophy.

REQUIREMENTS FOR THE JUNIOR COLLEGE

1. Group A 15 credits in English-Rhetoric.
- Group B The student must present for entrance four years of one foreign language, or he must complete 20 credits in one language in college, or he must continue a language, which he presented for entrance, according to the following schedule:

<i>Amount Presented for Entrance</i>	<i>Amount Required in Junior College</i>
Four years of one language	None
Three years of one language	5 credits in same language
Two years of one language	10 credits in same language
Less than two years of one language	20 credits in one language
Group C 10 credits in one subject	
Group D 10 credits in one subject (courses in physiography and geography do not meet this requirement)	
Group E No requirement	

2. Two of these required subjects must be begun the first quarter and the others not later than the fourth quarter of a student's course. A subject taken to meet one of these requirements must be continued for at least two quarters.
3. The student must earn 15 additional credits in each of two of the five groups, A, B, C, D, E.
4. The student must earn a total of 90 credits and 90 honor points.

*Senior College*

(Required for students entering the Senior College in September, 1920; optional for students who entered the Senior College before September, 1920.)

*Admission.*—For admission to the Senior College a student must have satisfied the requirements of the Junior College. In September, 1920, any student will be admitted to the Senior College if he has satisfied the requirements of the Junior College as stated in the bulletin for 1918-19, or as given here under New Curriculum, or as given below under Old Curriculum. The new curriculum demands 90 credits and 90 honor points; the other two demand 84 credits and 84 honor points.

*Requirements.*—1. A major sequence, 27 to 36 credits. Each student must complete a coherent and progressive sequence of courses, known as a major sequence, which shall include, as specified by the department which offers it, from 27 to 36 credits in Senior College courses. Such major sequences are offered by the following departments: Animal Biology, Astronomy, Bacteriology, Botany, Chemistry, Economics, English, Rhetoric, and Public Speaking, Geology and Mineralogy, German, Greek, History, Human Anatomy, Human Physiology, Latin, Mathematics, Philosophy, Physics, Political Science, Psychology, Romance Languages, Sociology. The courses constituting a major sequence in any department are announced in the departmental statement.

2. A minor sequence, 9 credits. A student must secure in some department other than his major department and in addition to his major sequence, 9 credits in Senior College courses.

#### OLD CURRICULUM

##### *Junior College*

(Optional for students who entered the Junior College before September, 1920.)

During the first two years the student must complete the following required subjects:

- a. Rhetoric-English, 15 credits.
- b. History, 10 credits.
- c. Laboratory science (chemistry, physics, botany, animal biology), 10 credits.
- d. A foreign language, 10 to 15 credits according to the amount of high-school preparation as follows:

High-school work less than two units of one foreign language; college requirements, 15 credits. High-school work of two or more units of one foreign language; college requirements 10 credits if the same language is pursued in college, otherwise, 15 credits.

Two of these required subjects must be begun the first quarter and the other two not later than the fourth quarter of the student's course.

When a required subject is begun, it must be continued for at least two quarters.

##### *Senior College*

(Optional for students who entered the Senior College before September, 1920.)

The work of the Senior College must include at least 45 credits in Senior College courses, with at least 18 credits in Senior College courses in one department.

#### SPECIAL REGULATIONS

*Bachelor of Arts with Honors.*—Students already registered for the Honors Course will find the requirements stated on page 23 of the bulletin for 1919-20.

*Election of subjects in other colleges or schools.*—In the senior year, any student registered in the College of Science, Literature, and the Arts may elect not to exceed 6 credits per quarter in any other college or school of this University, provided that (1) the courses are indicated by the dean of the college or school in question and approved by the Advisory Committee of this college as suitable for such election; (2) no duplication of subjects occurs; and (3) the subjects so elected are specifically approved by the major adviser. Courses so taken are counted toward the Bachelor of Arts degree on the same terms as those taken in the College of Science, Literature, and the Arts.

By resolution of the Board of Regents students in any college electing work in any other college must complete the work so elected before they are allowed to come up for the degree for which they are candidates.

Seniors desiring further information regarding courses open should consult the assistant dean of the Senior College.

*Extension courses.*—Credits received in University extension courses are counted as credits in this college only after the student has completed one year of work in the college and has met the requirements of the department concerned.

*Correspondence courses.*—The equivalent of some of the introductory courses in various departments is offered by correspondence under the auspices of the General Extension Division. Those desiring information regarding such courses should consult the General Extension Division.

## II. FOUR-YEAR COURSE IN ARTS AND MUSIC LEADING TO THE DEGREE OF BACHELOR OF MUSIC

The University of Minnesota offers a four-year course leading to the degree of Bachelor of Music. The aim of this course is twofold: to provide the best available training in practical music, and to lay the foundation for a true understanding of music as literature—that is, as a vital element in modern culture. For the attainment of the first end, thoro courses in the theory, history, and the appreciation of music are required; to achieve the second, the student is given a background of history, literature, and science, these courses being in many cases especially arranged by the faculties of the various departments to parallel and supplement the work given by the Department of Music. The course is designed to meet the requirements of students who wish the cultural benefits of a college education, but whose aptitude in music would lead them to forego these benefits if music were not made a primary interest in their work.

In the field of practical music the greatest pains are expended in developing the individual student's talent. But the University recognizes the fact that many students who have neither the desire nor the capacity for the arduous career of concert performers are much better fitted than the average practical musician for the work of teaching. For such students unique opportunities for study in the special fields of public-school music are provided together with practical instruction in instrumental teaching. The University thus, at a charge considerably smaller than is asked by private instructors of the first rank or by conservatories of music, not only offers every facility for practical music study, but prepares its students to occupy the position of broadly educated and influential members of the musical community in which they shall find themselves after graduation.

The requirements for admission are the same as for admission to the freshman class in the General Course, together with one of the following requirements in music, according to the instrument selected:

Pianoforte: Candidate must be able to play Czerny's *School of Velocity*, and the easier Haydn and Mozart sonatas.



Violin: Candidate must be able to play the first ten studies of the Kreutzer *Etudes*.

Voice: Candidate must possess good natural equipment, and have some previous musical training.

Orchestral instruments: Candidate must pass entrance examinations equal to the grade required of candidates who wish to select violin. Students from high schools granting credit in music toward graduation may present four units in music for entrance.

The number of credits required for the degree in music is 180, not counting military drill or physical education, which are required the same as for the Bachelor of Arts degree. During the four years the student must earn 180 honor points, including 48 honor points in applied music.

The one-half hour lessons, plus twelve to fifteen hours' practice a week for one quarter, are required in order to gain 4 credits in applied music.

Students who elect voice as their major study must earn 30 credits and, by special permission of the faculty of the department, may be allowed to earn 36 credits in voice during the four years. During each of the first two years 6 credits must be earned in voice and 6 in piano. In the junior year the student may be permitted, and in the senior year will be expected, to take additional work in voice in place of the instrumental work.

Students who elect other subjects than voice as their major must earn 36 credits in the chosen subjects, specializing in the junior and senior years.

#### OUTLINE OF COURSE

##### *Freshman Year*

(Not less than 15 credits each quarter)

- |   |            |
|---|------------|
| 1. Elect 4 credits from A, or 4 from B, including Voice |            |
| A   | B          |
| Piano (4)   | Piano (2)  |
| Violin (4)  | Violin (2) |
| Cello (4)   | Voice (2)  |
| Organ (4)   | Cello (2)  |
|   | Organ (2)  |
| 2. Harmony (3)  |            |
| 3. Rhetoric (5)   |            |
| 4. History (3)  |            |
| 5. Physical Education (no credit)                       |            |
| Elective, Orchestra (1), Choir (1)                      |            |

##### *Sophomore Year*

Beginning with the sophomore year, students are divided into three groups: I, Normal piano; II, Public-school music; III, General.

Group II, Public-school music, register in the College of Education their junior year.

(Not less than 15 credits each quarter)

All groups. 1. Elect 4 credits from A, or 4 credits from B, including Voice.

A

Piano (4)  
Violin (4)  
Cello (4)  
Organ (4)

B

Piano (2)  
Violin (2)  
Voice (2)  
Cello (2)  
Organ (2)

2. Counterpoint (2)

3. (Groups I and II) History of Music (3)

or

(Group II) Psychology (3) first and second quarters;  
Acoustics (3) third quarter.

4. Modern language (5)

5. Appreciation of Music (1)

6. Ear-Training (no credit)

Elective, Orchestra (1), Choir (1)

*Junior Year*

(Not less than 16 credits each quarter)

All groups. 1. Elect 4 credits from A, or 4 from B, including Voice

A

Piano (4)  
Violin (4)  
Voice (4)  
Cello (4)  
Organ (4)

B

Piano (2)  
Violin (2)  
Voice (2)  
Cello (2)  
Organ (2)

Group I. 2. Romantic Movement (3)

3. Normal Piano (3)

4. Ear-Training (no credit)

5. Introduction to Sociology (5) first quarter; Problems of  
Philosophy (5) second quarter; Esthetics (3) third  
quarter

6. Psychology (3) first and second quarters; Acoustics (3)  
third quarter.

Group II. 2. Romantic Movement (3) or elective (3)

3. Public-School Music (3)

4. History of Education (3) first quarter; Educational Psy-  
chology (3) second quarter; Technic of Teaching (3)  
Educational Sociology (3) third quarter.

5. History of Music (3)

Group III. 2. Romantic Movement (3)

3. Introduction to Sociology (5) first quarter; Problems of  
Philosophy (5) second quarter; Esthetics (3) third  
quarter.

4. Advanced Harmony (2)

5. Elective (3 or 5)

Senior Year

(Not less than 14 credits each quarter)

- All groups. 1. Elect 4 credits from A, or 4 credits from B, including Voice.
- |            |  |            |
|------------|--|------------|
| A          |  | B          |
| Piano (4)  |  | Piano (2)  |
| Violin (4) |  | Violin (2) |
| Voice (4)  |  |            |
| Cello (4)  |  |            |
| Organ (4)  |  |            |
- Groups I and II. 2. Bach and Beethoven, first and second quarters; Wagner and Brahms, third quarter (2)
3. Normal Piano (3) or Public-School Music (3)
4. Ensemble (1)
5. Analysis (1)
6. Elective (3)
- Elective, Orchestra (1), Choir (1)
- Group III. 2. Bach and Beethoven (2)
3. Ensemble (1)
4. Analysis (1)
5. Advanced Counterpoint (2)
6. Elective (5 or 6)

III. FOUR-YEAR COURSE IN ARCHITECTURE AND DECORATION LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

This course offers to students of the College of Science, Literature, and the Arts the opportunity to prepare themselves for certain lines of work such as domestic architecture and interior decoration without taking the full technical course in Architecture.

Students registering in this course should secure the approval of the staff in Architecture, and the advice of the staff should be sought with regard to the choice of electives and of special courses in architecture.

FRESHMAN YEAR

FALL	Credits	WINTER	Credits	SPRING	Credits
Mathematics.....		Mathematics .....	5	Med. history.....	5
Rhetoric .....	5	Rhetoric .....	5	English .....	5
Language .....	5	Language .....	5	Language .....	5

SOPHOMORE YEAR

Credits	Credits	Credits
Med. history..... 5	Elective .....	5
English .....	Physics .....	5
Architecture .....	Architecture .....	5
	Architecture .....	5

## JUNIOR YEAR

	Credits
Architecture .....	27
Electives .....	18

## SENIOR YEAR

	Credits
Architecture .....	36
Electives .....	9

IV. FOUR-YEAR COURSE IN AMERICANIZATION TRAINING  
WORK LEADING TO THE DEGREE OF  
BACHELOR OF SCIENCE

## FRESHMAN YEAR

REQUIRED	CREDITS
Rhetoric-English .....	15
Modern European History (1-2)....	10
American History .....	5
General Zoology .....	10
Introduction to Anthropology.....	5

## SOPHOMORE YEAR

REQUIRED	CREDITS	ELECTIVES
Modern language .....	9 or 15	Public Speaking
American History (continued)...	5	Modern language
American Government .....	5	Geography
General Anthropology .....	3	Modern Social Reform Movements
General Immigration .....	3	Cultural Anthropology
General Psychology .....	9	Elements of Educational Psychology
Electives .....	9 to 18	Food Preparation
		Elementary Dietetics
		Ethnology

## JUNIOR YEAR

In the Senior College (junior and senior years) the electives of individual students will vary much, depending on the phases of work and the groups of peoples in which the student is specializing. All electives must be approved by the director.

REQUIRED	CREDITS	ELECTIVES
American People .....	9	Supervised Americanization Work
Technic, Methods, and Organiza- tion of Americanization Work..	9	Municipal Government
General Economics .....	10	State and Local Government
Electives .....	18 to 23	Immigrant Women
Aliens' Viewpoints		Race Leaders and Programs
Special lectures by race leaders		Labor Problems
		Statistics
		Elementary Dietetics
		Housing Problems
		Home Management
		Social Psychology
		History of Education
		Educational Sociology
		Physical Anthropology
		Political and Social Ethics

SENIOR YEAR

REQUIRED	CREDITS	ELECTIVES
American Negro.....	3	Negro and Immigrant Adjustments
Government and the Immigrant.....	3	Slavic Culture
Supervised Americanization Work (if not previously elected).....	9	Slavic Oral Language <sup>1</sup>
Race Leaders and Programs (if not previously elected) .....	6	Genetics and Eugenics
		Social Statistics
		Socialism
		Child Welfare
		Philippine Peoples
		Municipal Problems
		Mental Diagnosis

For the requirements for teachers' certificate in americanization training, see bulletin of College of Education.

For courses in home economics open to students in americanization course, see statement of Department of Home Economics.

V. FIVE-YEAR COURSE IN SOCIAL AND CIVIC WORK LEADING TO THE DEGREES OF BACHELOR OF SCIENCE AND MASTER OF ARTS

This course is organized in response to a demand for distinctive technical training for professional social service. It covers both undergraduate and graduate work. Satisfactory completion of the four-year course leads to the degree of Bachelor of Science. A fifth year's work is designed leading primarily to a special certificate of proficiency; but students whose programs satisfy the requirements of both the training course and the Graduate School may receive the degree of Master of Arts in addition to the special certificate.

The organization of the course of study aims to give the undergraduate the fundamentals of a broad modern education with considerable emphasis upon history, economics, political science, psychology, and language. To this end all intensive specialization is reserved for the fourth and later years of study.

The fourth year includes comparatively few required courses, but a long list of advised electives, for which other electives may be substituted according to the individual student's needs. While the four-year course as arranged should confer upon the student a certain degree of familiarity with the problems of social and civic work, really adequate professional preparation demands at least one year of graduate study. With this professional instruction in view, during the fifth and later years of study only an irreducible minimum of specified courses is required; the emphasis is laid upon providing individual programs to meet the student's special inclination, aptitudes, or need.

<sup>1</sup> This course is open only to students who are specializing in the americanization work.

## FIRST AND SECOND YEARS

REQUIRED	ELECTIVES
Sociology	Sociology
Introduction to Sociology	Modern Social Reform Movements
Economics	Animal Biology
Principles of Economics	General Zoology
Political Science	Anthropology
American Government	Cultural Anthropology
Psychology	Philosophy
General Psychology	Logic
Additional courses to satisfy the Junior	Ethics
College requirements	

## THIRD YEAR

REQUIRED	ELECTIVES
Sociology	Sociology
Background of Dependency and Defectiveness	Rural Sociology
Treatment of Defectives and Dependents	Social Control
Treatment of Delinquents	Social Organization
Child Welfare	Social Psychology
Housing	[State Care of Dependents, Defectives, and Delinquents] <sup>1</sup>
Legal Protection of the Child	Anthropology
Economics	Physical Anthropology
Labor Problems	The American Negro
Political Science	Bacteriology
Municipal Government	General Bacteriology
	Economics
	Labor and Reform Movements
	Trade Unionism
	Education
	Educational Sociology
	History of Education
	Pathology and Public Health (Medical School)
	Preventive Medicine and Hygiene
	Philosophy
	History of Philosophy
	Political Science
	State and Local Government
	Elementary Law

## FOURTH YEAR AND GRADUATE WORK

REQUIRED	ELECTIVE
Sociology	Sociology
Social Psychology (if not already elected)	Medical Social Service
Methods of Social Investigation	Social Statistics
The Family	Mental Case Work
Social Progress	Charitable Administration, Finance, and Publicity
Methods of Community Organization and Social Work in Small Towns and Country	Supervised Field Practice Work
	Technic of Family Treatment
	Juvenile Courts and Probation
	[Settlement and Community Center Work] <sup>1</sup>
	[Elements of Social Hygiene and Community Protective Work]

<sup>1</sup> Courses in brackets not offered in 1920-21.

Rural Social Institutions  
 History of Social Theory  
 Contemporary Social Theory  
 Seminars in Sociology  
 Animal Biology  
   Genetics and Eugenics  
 Anthropology  
   Older Immigrants  
   Newer Immigrants  
   General Immigration  
 Civil Engineering  
   Sanitary Engineering  
 Economics  
   Public Finance  
   Principles of Accounting  
   Industrial Relations  
 Home Economics  
   Food Preparation in Relation to Social  
   Work  
   Elementary Dietetics for the Social  
   Worker  
   Home Management Problems for the  
   Social Worker  
   Child Training  
 Physical Education  
   Hygiene of the Family  
   Folk Dancing and Organized Games  
 Political Science  
   Constitutional Law  
   Legislative Power and Methods  
   Police Power  
 Psychology  
   Abnormal Psychology  
   Mental Tests and Mental Diagnosis  
 Philosophy  
   Political and Social Ethics  
 Agricultural Education  
   History of Agriculture

NOTE: For a fifth year's work consisting of 9 hours' class work and 12 hours of supervised field work per week for three quarters the student will receive a special certificate. He will be eligible for the Master's degree if his program is approved by the Graduate School and if he prepares a satisfactory thesis in addition to the work required for the special certificate.

## VI. A FIVE-YEAR COURSE IN TRAINING FOR DIPLOMATIC AND CONSULAR SERVICE

The degree of Bachelor of Arts is conferred at the end of four years. Students whose programs satisfy the requirements of the Graduate School may receive the degree of Master of Arts at the end of the fifth year.

## JUNIOR COLLEGE

*First Year*

	Credits
Rhetoric-English .....	15
Modern language .....	15
History .....	10
American Government .....	5
	45

*Second Year*

Comparative European Government.....	5
Language.....	10
Economics .....	10
Natural science .....	10
Electives .....	10
	45

## SENIOR COLLEGE

In the Senior College the student will take major sequence E in political science and such additional work in economics, history, and law, not exceeding 30 credits, as may be prescribed by the major adviser and the committee in charge of the course.

In foreign languages, 15 credits, or at least a minor sequence. A speaking knowledge of one language is required and a thoro reading knowledge of a second.

Electives to make up a total of not less than 90 credits in this college.

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

## GRADUATE SCHOOL

In the fifth year the student will take the following work:

Research in economics or political science for the consular service.

Research in history or political science for the diplomatic service.

Additional Senior College courses in history, economics, law, or political science, to be selected by the student under the direction of the Graduate School and the committee in charge of the course.

## VII. A FIVE-YEAR COURSE OF TRAINING FOR STATE AND FEDERAL ADMINISTRATION

The degree of Bachelor of Arts is conferred at the end of four years. Students whose programs satisfy the requirements of the Graduate School may receive the degree of Master of Arts at the end of the fifth year.

## JUNIOR COLLEGE

*First Year*

	Credits
Rhetoric-English .....	15
History .....	10
American Government .....	5
Modern language sufficient to fulfil the Junior College requirements .....	15
Electives sufficient to make up 45 credits for the first year.....	45



*Second Year*

Natural science .....	10
General Economics .....	10
State and Local Government or Municipal Government.....	5
Electives .....	20
	45

SENIOR COLLEGE

In the Senior College the student will take major sequence A or F in Political Science. In economics 18 credits selected from the following courses: Public Finance, State and Local Taxation, Labor Problems, Economics of Transportation, Statistics, Business and Government, Public Utilities and Financial History of the United States.

In history 9 credits selected from Economic History of the United States, Recent American History, History of Minnesota, and Constitutional History of the United States.

Electives to make up a total of not less than 90 credits in this college.

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

GRADUATE SCHOOL

In the fifth year the student will take the following work:

Research in the field of American government or administration.

Additional Senior College courses in history, economics, law, or political science, to be selected by the student under the direction of the Graduate School and the committee in charge of the course.

VIII. A FIVE-YEAR COURSE OF TRAINING FOR MUNICIPAL ADMINISTRATION AND ENGINEERING

The degree of Bachelor of Science is conferred at the end of four years. Students whose programs satisfy the requirements of the Graduate School may receive the Master's degree at the end of the fifth year.

FIRST YEAR

	Credits
Rhetoric-English .....	15
Modern language .....	10
Engineering mathematics .....	10 or 15
American Government .....	5
Electives .....	5 or 0
	45

SECOND YEAR

	Credits
Municipal Government .....	5
General Economics .....	10
History .....	10
Physics .....	10
Drawing .....	5
Electives .....	5
	45

## THIRD AND FOURTH YEARS

Political Science	Engineering
Municipal Corporations <sup>1</sup>	Surveying <sup>1</sup>
Municipal Problems <sup>1</sup>	Highways and Pavements <sup>1</sup>
Research in Municipal Administration <sup>1</sup>	Water Supply <sup>1</sup>
Business Law	Sanitary Engineering <sup>1</sup>
Police Power	Applied Electricity (51-52)
Government of Minnesota	Heat and Ventilation for Architects
State Constitutional Law	
Economics	Other courses
Principles of Accounting <sup>1</sup>	General Bacteriology <sup>1</sup>
Public Finance <sup>1</sup>	Public Health <sup>1</sup>
State and Local Taxation <sup>1</sup>	
Public Utilities <sup>1</sup>	Other electives
Labor Problems	Sociology
Business Organization and Management	Introduction to Sociology
Government and Business	Housing Problems
Transportation	Social Statistics and Survey
Statistics	

## FIFTH YEAR

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

## IX. PRE-BUSINESS COURSE

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

1. 10 credits in Economic History
2. 15 credits in English-Rhetoric
3. 10 credits in *one* of the following social sciences: anthropology, history, political science, sociology
4. 10 credits in mathematics or in *one* of the laboratory sciences: animal biology, botany, chemistry, physics
5. Four years of one language in preparatory school or 20 credits in one language in college, or the continuance of a language begun in preparatory school according to the following schedule:

*Amount presented for entrance*      *Amount required in the pre-business course*

- |                                     |                             |
|-------------------------------------|-----------------------------|
| 4 years of one language.....        | None                        |
| 3 years of one language.....        | 5 credits in same language  |
| 2 years of one language.....        | 10 credits in same language |
| Less than 2 years of one language.. | 20 credits in one language  |
6. 6 credits in psychology
  7. 10 credits in the Principles of Economics
  8. 8 credits in the Principles of Accounting

<sup>1</sup> Required work.

- 9. 5 credits in Business Organization
- 10. 5 credits in Statistics
- 11. A total of at least 90 credits and an average of one honor point per credit.

NOTE: Students preparing to follow lines of business relating to agriculture may substitute for items 1, 7, and 10 the equivalent courses in the Department of Agricultural Economics. In lieu of items 3 and 4, they are expected to take 5 credits in American Government, 20 credits in chemistry and animal biology or botany, and a minimum of 5 credits in technical agricultural courses.

## X. GENERAL COURSE PRELIMINARY TO THE COLLEGE OF EDUCATION

The requirements for admission to the College of Education are identical with those for admission to the Senior College. All students who expect to receive the teacher's certificate from the University of Minnesota at the end of a four-year college course must register in the College of Education their junior year.

## XI. GENERAL COURSE PRELIMINARY TO THE LAW SCHOOL

The requirements for admission to the Law School are identical with those for admission to the Senior College.

## XII. THE PRE-DENTAL COURSE

This course consists of one year of prescribed work during which the students are registered in this college and are subject to its regulations. The required courses are as follows:

- Animal biology, three quarters (12 credits)
- General Chemistry, two quarters (10 credits)
- Qualitative Chemistry, one quarter (5 credits)
- English, A-B-C (15 credits)
- Shop practice in the engineering shops, three quarters (6 credits)

NOTE: This course assumes that pre-dental students enter with both high-school physics and high-school chemistry.

## OTHER VOCATIONAL COURSES

For information and advice regarding the selection of studies in preparation for various vocations, the student should consult the heads of the departments concerned. The studies offered by the college are so varied and the opportunities for election are so great that the student who first forms an intelligent plan can usually find an excellent combination and sequence of courses serving his particular purpose. It is important in preparation for a vocation, not only to secure training in the major subjects, but also in the related subjects.

A considerable collection of literature and other information bearing upon the choice of a vocation and especially upon occupations open to women is available for the use of class officers and students.

## COMBINED ARTS AND PROFESSIONAL COURSES

For the benefit of those who wish to begin a professional course before completing the four-year course in Science, Literature, and the Arts, the following combination courses and short courses are offered.

## XIII. THE FIVE-YEAR COURSE IN ARTS AND CHEMISTRY

The degree of Bachelor of Arts is given at the end of the fourth year and the degree of Bachelor of Science in Chemistry at the end of the fifth year.

## FRESHMAN, SOPHOMORE, AND JUNIOR YEARS

During the first three years of the course the student is registered in the College of Science, Literature, and the Arts, and is subject to its rules. He must complete the requirements of the Junior College and 45 credits in the Senior College, and must secure 135 honor points. This work must embrace the following subjects and their prerequisites:

Advanced Chemical German (German 28-29)  
 General Inorganic Chemistry and Qualitative Analysis  
 Quantitative Chemistry, two quarters  
 Physics with laboratory, one year  
 Technical Drawing, one year  
 Mathematics, 50 and 51

## SENIOR YEAR

During his fourth year he must complete the work required in the junior year of the four-year course in Chemistry of the School of Chemistry and must maintain a standing equivalent to that required by this college for graduation.

The degree of Bachelor of Arts is voted by the College of Science, Literature, and the Arts at the end of the fourth year, and the student must present a total of not less than 180 credits and 180 honor points, including the required work mentioned above.

## POST-SENIOR YEAR

The fifth year is the same as the fourth year of the four-year course in Chemistry, and upon its completion the student will be entitled to the degree of Bachelor of Science in Chemistry.

PROGRAM<sup>1</sup>*Freshman Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Rhetoric-English	5	Rhetoric-English	5	Rhetoric-English	5
Chemistry	5	Chemistry	5	Chemistry	3
Mathematics	5	Mathematics	5	Mathematics	5

*Sophomore Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
German	5	German	5	Social science	5
Physics	4	Physics	4	Physics	4
Chemistry	5	Chemistry	5	Chemistry	5
Drawing	2	Drawing	2	Drawing	2

<sup>1</sup> For students entering with two years of high-school German. Students entering without either Chemistry or German will require extra time to complete their work.

*Junior Year*

Credits		Credits		Credits	
Mathematics .....	5	Mathematics .....	5	Chemistry .....	5
German .....	3	German .....	3	Electives .....	10 to 12
Social science.....	5	Chemistry .....	5		
Electives .....	3	Electives .....	3		

XIV. EIGHT-YEAR COURSE IN ARTS AND MEDICINE, LEADING TO THE DEGREES OF BACHELOR OF ARTS AND DOCTOR OF MEDICINE

During the first three years of this course, the student does his work in the College of Science, Literature, and the Arts subject to the regulations governing other Arts students, and must secure 135 credits including 22 credits in Senior College courses. The first year of the course in the Medical School counts as the equivalent of the fourth year (45 credits) of the Arts course. During this year, the student must maintain a standing equivalent to that required by this college for graduation. During the four years the student must earn 180 honor points.

FRESHMAN AND SOPHOMORE YEARS

- The following subjects must be included:
  - Rhetoric-English, 15 credits
  - Zoology, 12 credits
  - Qualitative Analysis, Quantitative Analysis,<sup>1</sup> and Medical Organic Chemistry, with the elementary courses prerequisite to them.
  - French or German sufficient to secure a reading knowledge.
  - Three quarters of work in physics (including laboratory) with prerequisite work in mathematics.
- The following subjects are recommended as electives: economics, free-hand drawing, Latin, a fourth quarter of physics, psychology, and sociology.

JUNIOR YEAR

The work of the junior year is elective, subject to the requirement of 22 credits in Senior College courses.

SENIOR YEAR

This year is taken in the Medical School, and is counted toward the degree of Bachelor of Arts.

XV. SEVEN-YEAR COURSE IN SCIENCE AND MEDICINE, LEADING TO THE DEGREES OF BACHELOR OF SCIENCE AND DOCTOR OF MEDICINE

To be eligible for admission to the Medical School, students in this course must secure in the College of Science, Literature, and the Arts not less than 90 credits and 90 honor points, and must complete the subjects prescribed above for the eight-year course in Arts and Medicine, substituting 9 credits in rhetoric for 15 credits in rhetoric-English.

---

<sup>1</sup> Quantitative analysis required in 1922; recommended for 1920-21.

The arrangement of the work is given below.

Ten credits must be selected from the social science group and psychology.

Three quarters of physics are required; a fourth quarter is strongly advised but the student may take an elective instead.

Students who enter with higher algebra elect trigonometry the first quarter.

Students must select such language work as will enable them to pass an examination demonstrating a reading knowledge of medical French or medical German before entering the Medical School. They may meet this requirement by passing two quarters' work in scientific French or scientific German, or by taking a special examination after completing 15 credits of French or two years of German. This examination is conducted by the department concerned.

Electives in the second year or summer quarter may be taken from any courses open to sophomore students in the College of Science, Literature, and the Arts.

A. FOR THOSE WHO ENTER WITH TWO YEARS OF EITHER FRENCH OR GERMAN

*First Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Chemistry .....	4	Chemistry .....	4	Chemistry .....	4
French .....	3	French .....	3	French .....	3
	or		or		or
German .....	4	German .....	3	German .....	3
Algebra or		Trigonometry .....	5		
Trigonometry .....	5		or	Physics .....	4
Zoology .....	4	Physics .....	4	Zoology .....	4
		Zoology .....	4		

*Second Year*

	Credits		Credits		Credits
Chemistry .....	4	Chemistry .....	4	Chemistry .....	4
Rhetoric .....	3	Rhetoric .....	3	Rhetoric .....	3
Physics .....	4	Physics .....	4		
			or	Elective .....	5
Elective .....	4-6	Elective .....	5	Elective .....	4-5
		Elective .....	4-5		

B. FOR THOSE WHO ENTER WITHOUT LANGUAGE AND WITHOUT HIGHER ALGEBRA

*First Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Chemistry .....	4	Chemistry .....	4	Chemistry .....	4
French .....	5	French .....	5	French .....	5
	or		or		or
German .....	5	German .....	5	German .....	5
Algebra .....	5	Trigonometry .....	5	Physics .....	4
Zoology .....	4	Zoology .....	4	Zoology .....	4

SUMMER QUARTER

	Credits
Physics .....	4
Electives.....	10 to 12

Second Year

	Credits		Credits		Credits
Chemistry.....		Chemistry .....	4	Chemistry .....	4
German .....	5	French .....	3	French .....	3
. or		or		or	
Elective.....	3 or 5	German .....	3	German .....	3
Physics .....	4	Physics .....	4	Electives.....	4 to 6
Rhetoric .....	3	or		Rhetoric .....	3
		Electives.....	4 to 6		
		Rhetoric .....	3		

JUNIOR AND SENIOR YEARS

The work during these two years is taken in the Medical School, and is credited toward the degree of Bachelor of Science. To secure this degree the student must have 180 credits and 180 honor points.

Students who have completed elsewhere two or more years of collegiate or university work which includes the required subjects specified above and which is in other respects the full equivalent of the two years of academic work required in the seven-year combined course, will be awarded the degree of Bachelor of Science on recommendation of the faculty of the College of Science, Literature, and the Arts, provided they meet the scholarship requirements stated above. The credit value of work done elsewhere shall be determined by the Students' Work Committee of the College of Science, Literature, and the Arts, but such credits shall not become effective until the student shall have completed, with the required standing, two full years of work in the Medical School of the University of Minnesota.

XVI. SIX-YEAR COURSE IN ARTS AND DENTISTRY, LEADING TO THE DEGREES OF BACHELOR OF ARTS AND DOCTOR OF DENTAL SURGERY

During the first three years of this course the student does his work in the College of Science, Literature, and the Arts, subject to the regulations governing other Arts students and must secure 135 credits, including 22 credits in Senior College courses. The final year of the course in the College of Dentistry counts as the equivalent of the fourth year (45 credits) of the Arts course. During this year the student must maintain a standing equivalent to that required by this college for graduation. During the four years the student must earn 180 honor points.

XVII. COMBINED ARTS AND NURSING COURSE

FRESHMAN YEAR

	Credits
Rhetoric-English .....	15
Foreign language .....	15
Chemistry .....	15
	—
	45

## SOPHOMORE YEAR

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Psychology .....	3	Psychology .....	3	Psychology .....	3
History .....	5	History .....	5	Human physiology.....	5
Economics 3.....	5	Economics 4.....	5	Elem. bacteriology.....	5
Rhetoric 15.....	3	Rhetoric 15.....	3	Human anatomy .....	3
	<hr/>		<hr/>		<hr/>
	16		16		16

## THIRD YEAR—FALL QUARTER

Credits	
Elem. pharmacology.....	3
Bacteriology .....	4
Home economics .....	5
Sociology 1.....	5
	<hr/>
	17

## THIRD YEAR—WINTER QUARTER

Theoretical and practical work during this quarter includes lettering, history and ethics of nursing, hospital economy, personal hygiene, nursing, practice, and practical dietetics.

During this quarter the student spends a portion of each day in the wards under supervision.

At the completion of this quarter's work, the student enters the junior class of the School of Nursing and continues her work in theory and practice with the students taking the three-year course.

## FOURTH YEAR

Practical and theoretical work at hospital.

## FIFTH YEAR

Two quarters in the hospital.

Two quarters in class work during which the student must elect courses carrying 25 credits, in the College of Science, Literature, and the Arts, and must complete the requirements stated above for three years' work in this college.

## XVIII. MILITARY SCIENCE AND TACTICS

## REQUIRED WORK

All physically fit male students are required to take military training during the first two undergraduate years of their course unless they have secured such training at an approved institution endorsed by the Military Department. When this course is entered upon it must be carried to completion as a prerequisite for graduation. No credits are allowed for this work.

All students, of any class, registered for military training, are members of the Reserve Officers' Training Corps, and as such are issued all necessary uniform clothing and equipment by the government free of charge.

After completing the two years required students may discontinue military work if they wish.



## ELECTIVE WORK

Students who have completed the Basic Course, R.O.T.C., and are selected for advanced work by the professor of Military Science and Tactics, and who sign an agreement with the government to continue this work for the remainder of their college course (not to exceed two years) and to attend one summer training camp, are eligible for the Advanced Course, R.O.T.C., prescribed in Special Regulations No. 44 War Department, 1919.

The faculty will recommend for graduation any student who has satisfactorily completed the work of the Advanced Course, R.O.T.C., and has completed 174 college credits with 174 honor points, including all other specific requirements for graduation.

Students enrolled in the Advanced Course, R.O.T.C., are furnished with the necessary uniforms and equipment, and receive from the Government an allowance of forty cents per day while enrolled in this course, except during the period in which they are actually at a training camp.

All students who complete the Advanced Course, R.O.T.C., and who graduate from the University will, if recommended by the professor of military science and tactics and the president of the University, be commissioned in the Officers' Reserve Corps of the United States Army.

## XIX. SIX-YEAR COURSE IN ARTS AND ARCHITECTURE

Preliminary announcement is made of a course designed to combine with the full technical course in Architecture the broad cultural training recognized as most desirable in preparation for the practice of this profession. The course will lead to the degree of Bachelor of Science at the end of four years, and to either Master of Science or an appropriate degree in architecture at the end of six years.

Students wishing to elect this course should consult the Department of Architecture. For the first two years the requirements will not differ materially from those laid down in the course in Architecture and Decoration on page 15 of this bulletin.

## XX. SIX-YEAR COURSE IN ARTS AND LAW, LEADING TO THE DEGREES OF BACHELOR OF ARTS AND BACHELOR OF LAWS

The work of the first three years of this course is done in the College of Science, Literature, and the Arts and is subject to the regulations which govern the work of other Arts students. During these three years the students must secure not less than 135 credits, including 22 credits in Senior College courses. The first year of the course in the Law School counts as the equivalent of the fourth year (45 credits) of the Arts course. During this year the student must maintain a standing equivalent to that required by this college for graduation. During the four years the student must earn 180 honor points.

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

*The College of Agriculture, Forestry,  
and Home Economics*

*Program for the Spring Quarter*  
*1920-1921*



*Vol. XXIV No. 4 February 25 1921*

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

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

COLLEGE OF AGRICULTURE, FORESTRY, AND  
HOME ECONOMICS

PROGRAM, SPRING QUARTER, 1920-1921

SPECIAL ANNOUNCEMENT

*Revised Hour Schedule*

	University Farm	Minneapolis Campus
I Hr	8:15- 9:05	8:30- 9:20
II Hr	9:15-10:05	9:30-10:20
III Hr	10:15-11:05	10:30-11:20
IV Hr	11:15-12:05	11:30-12:20
V Hr	1:30- 2:20	1:30- 2:20
VI Hr	2:30- 3:20	2:30- 3:20
VII Hr	3:30- 4:20	3:30- 4:20
VIII Hr	4:30- 5:20	4:30- 5:20

Convocation—Thursdays, IV Hour, University Armory  
College Assembly—Thursdays, III Hour, Assembly Hall,  
Ad, University Farm

*Revised credit value.*—One credit is equivalent to (1) one lecture or recitation period requiring two hours of preparation, (2) two periods of laboratory work requiring one hour of preparation, or (3) three hours of laboratory work requiring no preparation, each week for one quarter.

*Close of registration.*—All except new students must indicate their registration not later than March 15. New students may register and all students may pay fees up to and including March 29.

*Classes begin.*—Spring quarter classes will begin March 30. All classes scheduled for Wednesday will meet for the full time assigned.

*Registration changes.*—Necessary changes in registration may be made without fee up to and including March 31. The secretary's office closes at noon on that day (Thursday).

*Discontinuance of sections.*—In general, sections of undergraduate courses will not be continued for less than six students. Exceptions to this rule may be made by the dean.

*Time for removal of incompletes.*—Incompletes received for work of the last quarter attended may be removed on or before April 30. After that date they automatically become conditions.

*Condition examinations.*—Conditions in work of the winter quarter may be removed by examination from the seventh to the tenth week inclusive. Arrangements must be made with the instructors concerned not later than the sixth week of the quarter (May 7).

In case of conflict between two examinations consult the instructors concerned to make special arrangements, in advance of examination week.

Examination permits must be obtained from the secretary's office BEFORE reporting for the examination.

*Quarter closes.*—The spring quarter will close June 14.

*Final examinations.*—Final examinations will be given during the last four days of the quarter. A detailed schedule will be published in the *Official Daily Bulletin*.

### CLASS SCHEDULE

*Other schools and colleges.*—For programs of classes given in other schools and colleges of the University, not listed below, send to the registrar, University of Minnesota, Minneapolis.

*Abbreviations.*—The following abbreviations are used to indicate names of buildings, those marked with an asterisk (\*) are located on the Minneapolis campus; all others are at University Farm.

A, *Armory	HE, Home Economics
AB, *Animal Biology	Hr, Horticulture
Ad, Administration	IA, *Institute of Anatomy
BB, Beef Barn	MA, *Mechanic Arts
C, *Chemistry	ME, *Main Engineering
CB, *Christian Bible School	MH, *Millard Hall
Ch, Agricultural Chemistry	MS, Meat Shop
DB, Dairy Barn	Mu, *Music
DH, Dairy Hall	P, *Pillsbury Hall
DiH, Dining Hall	Ph, *Physics
Ed, *Education	PHP, *Public Health and Pathology
En, Agricultural Engineering	PP, Plant Pathology
FH, Farm House	Psy, *Psychology
F, *Folwell Hall	SS, Soil Survey
G, *Greenhouse	St, Stock Pavilion
Gy, Gymnasium	Ve, Veterinary
HB, Horse Barn	WGm, *Woman's Gymnasium

*Explanation of course numbers.*—All undergraduate courses are numbered from 1 to 100. All courses open to undergraduates and graduates are numbered from 100 to 200. The letters f (fall), w (winter), and su (summer), indicate the quarters in which the course is offered. For example: 5f,w,s indicates that Course 5 is a one-quarter course given in the fall and repeated in the winter and again in the spring; 10f-11w-12s indicates that Course 10-11-12 is a three-quarter course running through three quarters; 25f,w-26w,s indicates a two-quarter course given in the fall and winter quarters and repeated in the winter and spring quarters.

*Explanation of program statements.*—The program statements below offer the following information for each course: (1) course number (for description of the course see corresponding number under the same division or department in the bulletin), (2) descriptive name of course, (3) name of instructor in parentheses, (4) number of credits, (5) classes of students to whom the course is open and the prerequisites, (6) hours offered, (7) days offered, (8) room assignment, and (9) building.

For example: under the home economics division, "17f,w,s. Advanced Clothing Construction (Weller, Carlotta Brown), 3 cred.; jr., sr., H.E. 13, 52, 53, each section limited to 20; sect. 1 V, VI, VII TTh, 305 HE; sect. 2 V, VI MWF, 305 HE," indicates that the course is a one-quarter course offered in the fall, winter, and spring; is taught by the instructors whose names appear in the parentheses; is a three-credit course; is open to juniors and seniors who have completed Home Economics Courses 13, 52, and 53; that each section is limited to twenty students; that one section is offered the fifth, sixth, and seventh hours on Tuesdays and Thursdays in Room 305, Home Economics Building, and that the other section is offered the fifth and sixth hours on Mondays, Wednesdays, and Fridays in Room 305, Home Economics Building.

When lectures, laboratory, quiz, or recitations are scheduled separately they are indicated by (lect.), (lab.), (quiz), and (rec.), respectively.

### AGRICULTURAL BIOCHEMISTRY

7w-8s	General Agricultural Biochemistry (Dutcher, Anderson), 10 cred.; soph., jr., sr.; Chem. 10 cred.; (lect.) III TThS, 201 Ch; (lab.) V, VI, VII MW, 303 Ch
108s,su	Chemistry of Wheat and Wheat Products (Bailey), 3 cred.; jr., sr.; Agr. Biochem. 7-8; I MWF, 201 Ch
110s,su	Flour Laboratory Methods (Bailey), 5 cred.; jr., sr.; Agr. Biochem. 101-102 or Chem. 131-132, parallel Agr. Biochem. 108; V, VI, VII, VIII MWF, 7 Ch
116f,w,s,su	Chemistry of "Vitamines" and Deficiency Diseases (Dutcher), 3 or 5 cred.; sr.; Agr. Biochem. 111-112, 113-114, or 7-8 and 15, or Physiol. 101-102, Ar
118f,w,s,su	Laboratory Problems in Biochemistry (Gortner, Bailey, Dutcher, Morrow, Palmer, Willaman), 3 or 5 cred.; sr.; Agr. Biochem. 111-112, 113-114, or 103 or 110, Ar

### AGRICULTURAL ECONOMICS

See Economics

### AGRICULTURAL EDUCATION

11f,s	Principles of Vocational Education (Dyer), 3 cred.; jr., sr., preparing to teach; II TThS, 317 Ad
41f,w,s	Teaching I (Field), 2 cred.; jr., sr., preparing to teach, on approval of div., Agr. Ed. 11, 131; VI MTWThF or Ar
42f,w,s	Teaching II (Field), 3 cred.; sr., preparing to teach, on approval of div., Agr. Ed. 41, Agron. 121, 122, 123; VI MTWThF or Ar
54s,su	Rural Education in Community Life (Dyer), 3 cred.; All; preparing to teach, Ar
63f-64w-65s	General Agriculture (†), 9 cred.; All, Ar
75s	Visual Presentation (Field), 3 cred.; jr., sr., Ar
131w,s,su	Methods in Teaching High School Agriculture (Field), 5 cred.; jr., on approval of div., sr., preparing to teach; Agr. Ed. 11; III MTWThF, 317 Ad
132s,su	Methods in Teaching High School Agriculture (Field), 3 cred.; jr., sr.; Agr. Ed. 11; II TThS, Ar
151f,s	Organization and Management (Storm), 5 cred.; sr., preparing to teach, Agr. Ed. 11, 12; IV MTWFS, 317 Ad
161f-162w-163s	Fundamentals of Agriculture (Storm), 9 cred.; jr., sr., preparing to teach, Ar
173f,w,s	History of Agriculture (†), 3 cred.; soph., jr., sr.; Ar
191f-192w-193s	Seminar in Agricultural Education (Storm, Field), 2-6 cred.; sr., preparing to teach, Ar

† Instructor to be assigned.

## AGRICULTURAL EXTENSION

171S Agricultural Extension (Storm et al), 3 cred.; jr., sr., Ar

## AGRONOMY AND FARM MANAGEMENT

1f,w,s,su Farm Crops (Steinmetz), 3 cred.; All, III, IV MWF, 2 Ad  
 11S Farm Machinery (Bassett), 3 cred.; jr., sr.; V, VI, VII TTh, Base-  
 ment Ad  
 101S Farm Management I (Pond, Worsham), 3 cred.; jr., sr.; Agron. 1,  
 Econ. 6; II TThS, 24 Ad  
 103W.S Farm Management II: Operation (Boss, Garey), 3 cred.; sr., Agron.  
 102; I MWF, 24 Ad  
 104S Farm Management III (Boss), 3 cred.; sr.; Agron. 101, 102; II  
 MWF, 24 Ad  
 123S Forage and Fiber Crops (Arny, McGinnis), 3 cred.; jr., sr.; Agron. 1;  
 Bot. 10 cred.; I, II MWF, 4 Ad  
 132S,SU Farm Crops Plant Breeding (Hayes, Griffee), 3 cred.; jr., sr.; Agron.  
 131; I TTh and I, II S, 4 Ad

## AMERICANIZATION TRAINING AND ANTHROPOLOGY

\*1f,w,s Introduction to Anthropology (Grace), 5 cred.; All; II MWThFS,  
 15 F  
 \*5f,w,s General Immigration (Junek), 3 cred.; soph., jr., sr.; Amer. Tr. 1,  
 II TThS, 25 F  
 \*12S Ethnology (Jenks), 3 cred.; soph., jr., sr.; Amer. Tr. 1, II MWF,  
 25 F  
 \*115S American People, Americanisms and Assimilation (Jenks), 3 cred.;  
 jr., sr.; 3 courses, III MWF, 25 F

For additional courses see the program of the College of Science, Literature,  
 and the Arts.

## ANIMAL BIOLOGY

\*1w-2S General Zoology (†), 10 cred.; full course must be completed; All;  
 (lect.) II ThS and I, II T, 313 AB, (lab.) I II MWF, 101 AB  
 \*1S-2SU General Zoology (†), 10 cred.; full course must be completed; All;  
 (lect.) V MW and V, VI F, 313 AB, (lab.) V, VI, VII TTh,  
 101 AB  
 \*11S General Histology (Nachtrieb), 5 cred.; All; An. Biol. 1-2, III, IV  
 MTWThF, 201, 211 AB  
 \*23S Morphogenesis and Behavior of Organisms (Luna), 5 cred.; All;  
 15 cred., or 10 cred. and Physics or Chem. 10 cred.; V, VI, VII  
 MW and V, VI, VII, VIII F, 10 AB  
 \*37f-38w-39S General Entomology (Oestlund), 9 cred.; full course must be com-  
 pleted; soph., jr., sr.; An. Biol. 1-2, I, II MWF 208-10 AB  
 \*43S Introductory Entomology (Oestlund), 5 cred.; All; An. Biol. 1-2,  
 I, II MTWThF, 208-10 AB  
 \*47S General Ecology (Chapman), 5 cred.; All; An. Biol. 1-2, V, VI, VII  
 TTh, 208-10 AB

## ANIMAL HUSBANDRY

8S Elements of Feeding (Harvey, Rayburn), 3 cred.; jr., sr., not open to  
 students specializing in Dairy Husbandry or Animal Husbandry;  
 I TThS, 3 St  
 9S Pedigrees and Herd Books (Ferrin), 3 cred.; sr.; An. Husb. 5,  
 I MWF, 3 St  
 102S Horse Husbandry (Peters), 3 cred.; sr.; An. Husb. 3-4, 5, 6, II  
 TTh, 3 St and V, VI, VII F, Center St

† Instructor to be assigned.

\* Offered on Minneapolis campus.

- 103s Beef Cattle Husbandry (Carnes), 3 cred.; sr.; An. Husb. 3-4, 5, 6, III MW, 3 St and V, VI, VII T, BB
- 104s Sheep Husbandry (P. A. Anderson), 3 cred.; sr., An. Husb. 3-4, 5, 6, IV WF, 3 St and V, VI, VII M, Center St
- 105s Swine Husbandry (Ferrin), 3 cred.; sr.; An. Husb. 3-4, 5, 6, III TS, 3 St and V, VI, VII Th, Center St
- 107s Meat Problems (Anderson), 3 cred.; sr.; An. Husb. 106, IV TS and V, VI, VII W, MS
- 108s Seminar (Peters), 3 cred.; sr.; An. Husb. 5, 6, II MWF, 3 St

### ART EDUCATION

- \*29f-30w-31s Fundamental Principles of Design (Raymond), 9 cred.; All; (lect.) III TThS, (lab.) II or IV TThS, 401, 404 F
- \*32f-33w-34s Freehand Drawing and Composition (Small, Raymond), 9 cred.; All; (Comp.) II W, (Sketch) III F, (lab.) I or IV MWF, 401, 404 F
- \*40f-41w-42s Principles of Harmony in Form and Color (Raymond), 9 cred.; soph., jr., sr.; Art Ed. 29-30-31; (lect.) II TThS, (lab.) I or III TThS, 406 F

For additional courses see the program of the College of Education.

### BACTERIOLOGY AND IMMUNOLOGY

- \*1f,w,s,su General Bacteriology (†), 5 cred.; soph., jr., sr.; Chem. 1 yr., Biol. 1 yr., V, VI, VII MWF, MH

For additional courses see the program of the Medical School.

### BEE CULTURE

- 1s,su Elements of Beekeeping I (Jager, Matthews), 3 cred.; All; Sect. 1, (lect.), III TThS, (lab.) 1 hour ar., FH; Sect. 2, (lect.), IV TS, (lab.) 2 hours ar., FH; Sect. 3, (lect.), I MWF, (lab.) 1 hour ar., FH
- 3w-4s Advanced Beekeeping (Jager), 6 cred.; jr., sr.; Bee Cult. 1, 2, (lect.), V TTh, (lab.) 1 hour ar., FH

### BOTANY

- \*1s-2f General Botany (Durand), 10 cred.; full course must be completed; All; (lect.) IV T and III, IV S, 210 P, (quiz) III T, 212, 214 P, (lab.) III, IV MWF, 212, 214 P
- \*7s Taxonomy of Flowering Plants (Rosendahl), 5 cred.; All; Bot. 2, (lect.), VI, TTh, 210 P, (quiz) V Th, 210 P, (lab.) V, VI MWF, 212, 214 P
- \*54s Elementary Ecology (Cooper), 5 cred.; jr., sr.; Bot. 15 cred., III, IV MTWFS, G
- \*63s Angiosperms and Gymnosperms (Butters), 5 cred.; jr., sr.; Bot. 7, or 62, I, II, TWThFS, 202 AB
- \*105s Algae (Tilden), 5 cred.; jr., sr.; Bot. 11, I, II MTWFS, 10 AB
- \*113f-114w-115s Advanced Taxonomy (Rosendahl), 9 cred.; jr., sr.; Bot. 7; V, VI MWF, 202 AB
- \*118w-119s Cytology (Rosendahl), 6 cred.; jr., sr.; Bot. 51, I, II MWF, 202 AB
- \*133s Forest Geography of North America (Cooper), 5 cred.; sr.; Bot. 54, V, VI MWF, G
- \*143s Plant Metabolism and Growth (Knight), 5 cred.; sr.; Bot. 52, Org. Chem., I, II TWThFS, G

For additional courses see the program of the College of Science, Literature, and the Arts.

† Instructor to be assigned.

\* Offered on Minneapolis campus.

## CHEMISTRY

- \*1f-2w-3s General Inorganic Chemistry (†), 12 cred.; for those without high school chemistry; (lect.) V MWF, 100 C, (lab.) V, VI or VII, VIII TTh, 210 C
- \*12s-13f Qualitative Chemical Analysis (Sneed), 10 cred.; soph., jr., sr.; Chem. 9-10, Sect. 1, (lect.) II MWF, 100 C, (lab.) I, II, III ThS, 210 C; Sect. 2, (lect.) II TThS, 325 C, (lab.) V, VI, VII MW, 210 C
- \*21s Quantitative Analysis (Geiger, Sidener), 5 cred.; soph., jr., sr.; Chem. 20, (lect.) V M, 325 C, (rec.) V F, 315 C, (lab.) VI-VIII MF, 310 C and V-VIII W, 310 C
- \*126s Sanitary Water Analysis (Geiger, Sidener), 1 or 2 cred.; sr.; Chem. 21, (lect.) V T, 315 C, (lab.) VI, VII T, 310 C, and V-VII Th, 310 C
- \*140f-141w-142s Physical Chemistry (MacDougall), 9, 12, or 15 cred.; jr., sr.; Chem. 30 cred., Physics 15 cred.; (lect.) IV MWF, 225 C, (rec.) III S, 115 C, (lab.) V-VII F, 117 C

For additional courses see the program of the School of Chemistry.

## DAIRY HUSBANDRY

- 1f,w,s Elements of Dairying (Keithley, Dahle), 5 cred.; All: (lect.) III MWF, (lab.) III, IV TS, 39 DH
- 102s Market Milk (Macy, Keithley), 3 cred.; jr., sr.; Dy. Husb. 1, 2, VI, VII MWF, 39 DH
- 104s Advanced Study of Dairy Breeds (Rayburn), 3 cred.; jr., sr.; Dy. Husb. 1, 101, III S and V, VI TTh, 40 DH
- 107s Seminar III (Eckles), 1 cred.; sr.; 3 courses in Dy Husb., II S, 30 DH

## ECONOMICS

- 6f,w,s Agricultural Economics (Holmes), 3 cred.; soph., jr., sr.; I TThS, 317 Ad
- 7w,s Principles of Economics (Wertz), 5 cred.; soph., jr., sr.; I MTWThF, 106 HE
- \*14s Statistics (Mudgett), 5 cred.; soph., jr., sr.; Econ. 3-4, or 5 and 6, see S. L. and A. Bulletin.
- 28s Principles of Accounting (Chapman), 5 cred.; soph., jr., sr.; IV MTWThF, 24 Ad
- \*74s Water Transportation (Cummings), 3 cred.; jr., sr.; Econ. 3-4 or 5 and 6, V MWF, 202 MA
- 109s Economics of Consumption (Black), 3 cred.; jr., sr.; Econ. 3-4 or 5 and 6, IV MWF, 307 Ad
- 110s-111f Practice Course in Marketing (Black), 1 cred.; jr., sr.; Econ. 89. Ar
- 117s Prices of Farm Products (Working), 3 cred.; jr., sr.; Econ. 3-4 or 5 and 6, V MWF, 317 Ad
- 126f-127w-128s Special Research Problems in Agricultural Economics (Black), 9 cred.; sr., grad., Ar
- \*149s Business Cycles (Ebersole), 3 cred.; sr., grad.; Econ. 143-144 and 54 or 146 VIII MTW, 209 MA
- 150s Farm Finance (Dowrie), 3 cred.; jr., sr.; II MWF, 317 Ad
- \*193s State and Local Taxation (Blakey), 3 cred.; jr., sr.; Econ. 191-192, III MWF, 109 MA

For additional courses see the program of the School of Business.

## EDUCATION

- \*1f,w,s Brief Course in the History of Education (Alexander), 5 cred.; jr., sr.; Psych. 9 cred., of which 6 may be in Educational Psychology, II MTWThF, 205 Ed

† Instructor to be assigned.

\* Offered on Minneapolis campus.



- \*3f,w,s Educational Sociology (Finney), 3 cred.; jr., sr.; Psych. 9 cred., of which 6 may be in Educational Psychology, III MWF, 205 Ed  
 58 The American School (Alexander), 3 cred.; jr., sr., Psych. 6 cred., limited to 30, VI MWF, 307 Ad  
 \*11f,w,s Technic of Teaching (Miller), 3 cred.; jr., sr.; Psych. 9 cred., of which 6 may be in Educational Psychology, I MWF, 102 Ed  
 \*55f,w,s Elementary Educational Psychology (Dealey), 3 cred.; jr., sr.; Psych. 6 cred., I MWF, Psy

For additional courses see the program of the College of Education.

## ENTOMOLOGY AND ECONOMIC ZOOLOGY

- \*1f,s su Introductory Entomology (Oestlund, Riley), 5 cred.; soph., jr., sr.; An. Biol. 10 cred., VI, VII MTWThF, 208, 210 AB  
 168 Plant Pest Control (Ruggles, Stakman), 3 cred.; jr., sr.; Ent. 1-2 or 3. Plant Path. 1, V, VI, VII TTh, 1, 2 PP  
 \*37f-38w-39s General Entomology (Oestlund), 9 cred.; soph., jr., sr.; An. Biol. 10 cred., I, II MWF, 208, 210 AB  
 448 An Introductory Course in Animal Parasites and Parasitism (Riley), 3 cred.; soph., jr., sr.; An. Biol. 10 cred., V, VI, VII, VIII MW or TTh, 321 Ad  
 \*117f-118w-119s General Ecology of Insects (Chapman), 9 cred.; jr., sr.; Ent. 1-2 or 37-38-39 V, VI, VII TTh, 208, 210 AB  
 125f-126w-127s Advanced General Entomology (Oestlund), 9 cred.; jr., sr.; Ent. 1-2 or 37-38-39, III, IV TThS, 208, 210 AB  
 \*139s-140w Histology and Development of Insects (Riley), 6 cred.; jr., sr.; Ent. 1-2 or 37-38-39, III, IV MWF, 208, 210 AB  
 144f-145w-146s Animal Parasites and Parasitism (Riley), 9 cred.; jr., sr.; Ent. 1-2 or 37-38-39, V, VI, VII WF, Ar  
 197f,w,s,su Introduction to Research (Ent. Staff), 5 or more cred.; sr.; Ent. 1-2 or 37-38-39, and other work as prescribed by the div., Ar

## FARM ENGINEERING

- 3f,s Mechanical Drawing (Jacobson), 3 cred.; All; I, II TThS, 303 En  
 13f,s Farm Motors (Torrance), 3 cred.; All; I, II TThS, 37 En  
 15f,s Mechanics Laboratory (Dent), 2 cred.; All; I, II WF, 101 En  
 18s Surveying (Roe), 5 cred.; soph., (Forestry only) jr., sr.; F. Eng. 3, 11 or equivalent, 1:15-5:20 MWF, 215 En  
 30s Household Physics (Stewart), 5 cred.; All; Sect. 1, II MTWThF; Sect. 2, III MTWFS, 216 En  
 31s Farm Surveying and Drainage (Roe), 5 cred.; jr., sr.; F. Eng. 3, 11 or equivalent, 8:15-12:05 MWF, 215 En  
 32s Motors II (Torrance), 3 cred.; F. Eng. 13, I, II MWF, 37 En

## FORESTRY

- 1f,s General Forestry (Cheyney), 4 cred.; All; II MTWF, 302 Hr  
 4s Dendrology II (Wentling, DeFlon), 5 cred.; For. 3. (lect.) I TThS. (lab.) V, VI, VII, VIII Th, 301 Hr  
 30s Wood Seasoning (Cheyney), 3 cred.; jr., sr.; For. 33-34, III MWF, 302 Hr  
 31s Logging Plans (Cheyney), 3 cred.; sr.; For. 28; Ar, 302 Hr  
 40s Forest By-Products (Allison), 3 cred.; jr., sr., I MWF, 302 Hr  
 43s Sylviculture Laboratory (Wentling), 3 cred.; jr., sr.; For. 35, Ar  
 44s Wood Pulp and Paper (Allison), 3 cred.; jr., sr.; For. 33-34, Chem. 3 or 10, II MWF, 301 Hr  
 45s Forest Regulation (Allison), 3 cred.; sr.; For. 43, 11, IV MWF, 302 Hr  
 46s Forest Regulation Laboratory (Allison), 3 cred.; jr.; For. 43, 11, Ar  
 100s Uses of Wood III (Wentling), 3 cred.; sr.; For. 107, 108, V, VI, VII, VIII WF, 301 Hr

\* Offered on Minneapolis campus.

## GEOLOGY AND MINERALOGY

- \*1f,s-2w,su      General Geology (Emmons), 10 cred.; full course must be completed; soph., jr., sr., III MTThFS, 110 P
- \*7f,s-8w,su      Laboratory Work (Schwartz), 2 cred.; full course must be completed; soph., jr., sr.; supports 1-2, Ar
- \*21w-22s          Elements of Mineralogy (Broderick), 10 cred.; full course must be completed; soph., jr., sr.; open to students taking Chemistry, (lect.) IV MWF, 210 P, (lab.) V-VIII F and III MWF, 100 P
- \*37s                Economic and Commercial Geography (Posey), 3 cred.; All, III MTThFS, 210 P

For additional courses see the program of the College of Science, Literature, and the Arts.

## HOME ECONOMICS

- 3f,w,s             Textiles (Weller, Brown), 5 cred.; limited to 20, I, II TWThFS, 307 HE
- 4f,w,s             Textiles (Phelps), 3 cred.; S. L. and A., and Art Education students only; Sect. 1, V, VI MWF; Sect. 2, II, III, IV S, open to teachers only, 211, 307 HE
- 11f,w,s            Garment Making (McDowell, Ebersole, MacComber), 3 cred.; each section limited to 20; Sect. 1, V, VI, VII TTh; Sect. 2, V, VI MWF, 305 HE; Sect. 3, V, VI, VII TTh, 112 HE
- 13f,w,s            Dressmaking (McDowell), 5 cred.; soph., jr., sr., H.E. 3, 11, 51, H. Pract. in Garment Making, limited to 20, III, IV MTWFS, 305 HE
- 17f,w,s            Advanced Clothing Construction (Patchin, Carlotta Brown), 3 cred.; jr., sr.; H.E. 13, 52, 53, limited to 20, III, IV MWF, 304 HE
- 18w,s              Commercial Clothing Manufacture (Patchin), 4 cred.; sr.; H.E. 17 or parallel, V, VI, VII, VIII MWF, 304 HE
- 21f,w,s            Foods and Cookery (Child), 5 cred.; soph., jr., sr.; Chem. 5 cred., Physiol. 4 parallel, limited to 20, V, VI MTWThF, 209, 309 HE
- 22f,w,s            Food Economics (Child), 5 cred.; soph., jr., sr.; H.E. 21, limited to 20, III, IV MTWFS, 207 HE
- 22w,s              Food Economics (Child), 3 cred.; I, II S, 207 HE, open to teachers only.
- 23f,w,s            Nutrition I (Anderson), 5 cred.; jr., sr.; H.E. 22, Agr. Biochem. 3, Bact. 1, limited to 25, I, II MTWThF, 211, 213 HE
- 25w,s              Special Problems in Foods and Cookery (Child), 3 cred.; sr.; H.E. 22, 108, limited to 12, V, VI MWF, 207 HE
- 34f,w,s,su        Home Management: Operation and Maintenance, Lectures (Mumford), 3 cred.; 3rd qr. jr., sr., H.E. 22, 35 parallel, Econ. 7 or parallel; VII MWF, 313 HE
- 35f,w,s,su        Home Management: Operation and Maintenance, Laboratory (Lindquist, Studley), 6 cred.; 3 qr. jr., sr.; H.E. 22, H. Pract. in Foods and Cookery, 34 parallel, advanced arrangements with division, Ar
- 37f,s,su           Home Care of the Sick (Moorhead, Fisher), 3 cred.; jr., sr.; Chem. 5 cred., Bact. 1, (lect.) I S, 213 HE, (lab.) V, VI TTh, WH
- 42f,s,su           Special Methods in Teaching Home Economics (Miller, Brown), 5 cred.; jr., sr.; H.E. 13, 22, Psychol. 1-2, VII MTWThF, 309 HE
- 44s                Methods in Home Economics Extension Work (Lombard, Newton), 3 cred.; sr.; H.E. 42, III MWF, 106 HE
- 51f,w,s            Drawing and Design (V. Goldstein, Bacon, MacEwen), 3 cred.; limited to 20; Sect. 1, V, VI, VII TTh, 402 HE; Sect. 2, V, VI MWF, 402 HE
- 52f,w,s            Art History and Appreciation (V. Goldstein), 3 cred.; jr., sr.; H.E. 51, limited to 24, II MWF, 309 HE

\* Offered on Minneapolis campus.

- 53f,w,s      Advanced Design (V. Goldstein), 4 cred.; jr., sr.; H.E. 51, limited to 20, I, II MWThF, 400 HE
- 55f,s      Decorative Needlework and Other Crafts (Morse), 3 cred.; jr., sr.; H.E. 3, 11, 51, 53 or parallel; III, IV MWF, 402 HE
- 61f,s      Large Quantity Cookery and Marketing (Richards), 4 cred.; jr., sr.; H.E. 22; I M, 309 HE and I, II, III WF, DH, limited to 10
- 63f,w,s      Institutional Experience (Treat, Richards), 3 cred.; jr., sr.; H.E. 22, (lect.) I T, 309 HE, (lab.) Ar, those registering for this course must have three IV hrs. vacant
- 69s      Institutional Management Practice (Treat, Richards), 3 cred.; sr.; H.E. 67, Ar, DH, those registering for this course must have two 8-hour days vacant
- 72s      Home Management Problems (Lindquist), 3 cred.; soph., jr., sr.; H.E. 71, Econ. 7 or parallel; V MWF, 313 HE
- 103f,w,s      Dietetics (Biester, Mumford), 5 cred.; sr.; H.E. 108, limited to 20, V, VI MTWThF, 105, 213 HE
- 108f,w,s,su      Nutrition II (Anderson), 5 cred.; jr., sr.; H.E. 23, limited to 20, III, IV MTWFS, 211, 213 HE
- 109s      Advanced Nutrition (Biester), 5 cred.; jr., sr.; H.E. 108, Agr. Biochem. 2, limited to 15, (lect.) III TS, (lab.) V, VI, VII, VIII TTh, 211, 213 HE
- 110s      Special Problems in Dietetics (Biester, Mumford), 3 cred.; sr.; H.E. 103, VII, VIII MWF, 213 HE
- 122f,w,s      Advanced Textiles (Phelps), 3 cred.; jr., sr.; H.E. 3, 51, limited to 16, V, VI, VII TTh, 211, 307 HE
- 123f,w,s      Clothing Economics (Weller), 2 cred.; jr., sr.; H.E. 13, 52, 53, Econ. 7, IV MW, 309 HE
- 131f,w,s      Home Management: House Planning and Equipment (Morse), 5 cred.; sr.; H.E. 53, I, II MTWThF, 402 HE

## HORTICULTURE

- 32s      Vegetable Growing (Tapley), 3 cred.; soph., jr., sr.; Bot. 10 cred., Hort. 90, II TTh, 11a Hr, and V, VI Th, 11 Hr
- 50s      Floriculture (Cady) 3 cred., All, III MWF, 102 Hr
- 56w,s      Propagation and Nursery Practice (Cady), 3 cred.; soph., jr., sr.; Hort. 90, III TS, 102 Hr and V, VI T, 11 Hr
- 71f w,s      Landscape Gardening (Cady), 3 cred.; All; II TThS, 102 Hr
- 90f.s      General Horticulture (Alderman), 3 cred.; All; Soils 2, (lect.) II MW, 102 Hr, (lab.); Sect. 1, V, VI T; Sect. 2, V, VI F; Sect. 3, I, II F, 8 Hr
- 91s      Advanced General Horticulture (Alderman), 3 cred.; jr., sr., in Agr. Ed.; Hort. 90, Ar
- 191w-192s      Special Problems (Hort. Staff), 6 cred; jr., sr., special permission; Ar
- 193f-194w-195s      Horticulture Seminar (Hort. Staff), 3 cred; jr., sr.; 9 cred. in Hort., VIII T, 106 Hr

## MILITARY SCIENCE AND TACTICS

- \*Freshman, sophomore, no cred., V, VI, VII T, A
- \*Advanced courses, 3 cred. per qr., jr., sr., 2 yrs. Mil. Drill, Ar

## MUSIC

- \*14f-15w-16s      History of Music (Ferguson), 9 cred.; full course must be completed; soph., jr., sr.; II MWF, Mu
- \*17f-18w-19s      Appreciation of Music (Reeves), 3 cred.; full course must be completed; jr., sr., V M, Mu
- \*39f-40w-41s      Pianoforte (†), 6-12 cred.; full course must be completed; jr., sr.; see statement in course description in bulletin, Ar

† Instructor to be assigned.

\* Offered on Minneapolis campus.

- 51f-52w-53s Violin (Pepinsky), 6-12 cred.; full course must be completed; jr., sr.;  
Ar
- \*75f-76w-77s Public School Music (Giddings), 9 cred.; full course must be completed; jr., sr.; VII, VIII WF, Ed
- 91f-92w-93s Orchestra (Pepinsky), 3 cred.; full course must be completed; jr., sr.;  
Ar
- \*97f-98w-99s Choir (†), 3 cred.; jr., sr.; Ar
- For additional courses see bulletin of the College of Science, Literature, and the Arts.

### PHYSICAL EDUCATION FOR MEN

- \*1f w,s Personal Hygiene (Dr. Cooke), 1 cred.; fr.; II TTh, A
- \*2f-3w-4s Gymnasium and Swimming (Cooke, Roemer, Glidden), no cred.; fr.;  
Sect. 1, II; Sect. 2, III; Sect. 3, V; Sect. 4, VI; Sect. 5, VII  
TTh, A
- \*3f-6w-7s Advanced Leaders (Foster, Roemer), 3 cred.; full course must be completed; soph., jr., sr.; instructor's permission, Ar
- \*8f-9w-10s Corrective Gymnastics (†), no cred.; All, Ar
- \*11w-12s Wrestling (†), no cred.; instructor's permission, Ar
- \*13f-14w-15s Intermediate Swimming (Buswell), no cred.; instructor's permission,  
Ar
- \*16f-17w-18s Advanced Swimming (Buswell), no cred.; instructor's permission, Ar
- \*19w-20s Boxing (†), no cred.; instructor's permission, Ar
- \*21f-22w-23s Intramural Athletics (Foster), no cred.; instructor's permission, Ar

### PHYSICAL EDUCATION FOR WOMEN

- \*1f-2w-3s Elementary Physical Training (†), no cred.; required of all new students; Sect. 1, IV MWF; Sect. 2, VI MWF; Sect. 3, VII MWF; Sect. 4, III TThS; 3, 151, 153 WGm
- \*19f-20w-21s Rhythmic Expression (Ladd), no cred.; fr., jr., sr.; II MW, 153 WGm
- \*22f-23w-24s Sophomore Rhythmic Expression (Ladd), no cred.; soph.; Phys. Ed. 1-2-3, Sect. 1, IV TS, Sect. 2, VII TTh, Sect. 3, VIII TTh, 151 WGm
- \*25f-26w-27s Sophomore Physical Training (Schill), no cred.; soph.; Phys. Ed. 1-2-3; Sect. 1, III WF; Sect. 2, IV TS; Sect. 3, V TTh. 3, 153 WGm
- \*31f-32w-33s Folk Dancing and Organized Games (Kissock), no cred.; fr., jr., sr.;  
V TTh, 151 WGm
- \*34f-35w-36s Hockey, Basket Ball and Baseball (†), no cred.; fr., jr., sr.; permission of director, VIII TTh, WGm
- \*37f-38w-39s Sophomore Organized Games (Barr), no cred.; soph.; Phys. Ed. 1-2-3, II TTh, 151 WGm
- \*40f,w,s Sophomore Major Sports (Kissock), no cred.; soph.; Phys. Ed. 1-2-3, VIII MW, 151 WGm
- \*43f,w,s Sophomore Elementary Swimming (Barr), no cred.; soph.; required of all sophomores who fail to pass swimming test in freshman year; Sect. 1, IV MW; Sect. 2, IV TS; Sect. 3, VI MW; Sect. 4, VI TTh, 51 WGm
- \*44f,w,s Sophomore Advanced Swimming (Barr), no cred.; Phys. Ed. 1-2-3; Sect. 1, VII MW; Sect. 2, VII TTh, WGm
- \*45f,w,s General Swimming (†), no cred.; fr., jr., sr.; VIII MTWThF, WGm

For additional courses see the program of the College of Science, Literature, and the Arts.

\* Offered on Minneapolis campus.

† Instructor to be assigned.

## PHYSICS

- \*1f,w,s Elements of Mechanics and Sound (Erikson), 3 cred.; All; Trig. (lect.) VII MWF, 30 Ph, (quiz) VII or V Th, 30 Ph
- \*2f w,s Elements of Mechanics Laboratory (Erikson and Assts.), 1 cred.; All; Phys. 1 or parallel; Sect. 1, V, VI T, 16 Ph; Sect. 2, VII, VIII T, 16 Ph; Sect. 3., V, VI Th, 16 Ph; Sect. 4, VII, VIII Th, 16 Ph
- \*9s Acoustics (Erikson), 3 cred.; All; III TThS, 30 Ph
- For additional courses see the program of the College of Science, Literature, and the Arts.

## PHYSIOLOGY

- \*4f w,s Human Physiology (Greisheimer), 5 cred.; Chem. 10 cred.; Biol. 10 cred.; (lect. and rec.) I MTWFS, 301 MH; (lab.) I, II, III Th, 315 MH
- For additional courses see the program of the Medical School.

## PLANT PATHOLOGY AND BOTANY

- 6s Plant Pest Control (Seal), 3 cred.; jr., sr.; Pl. Path. 1, Ent. 3, V, VI, VII TTh; 1, 2 PP
- 10s Forcst Pathology (Stakman, Leach, Seal), 5 cred.; soph., jr., sr.; Bot. 10 cred.; 1:30-5:20 MWF, 2 PP
- 14s Plant Disease Control (Barker), 5 cred.; jr., sr.; Pl. Path. 1, Ent. 1 or 3, Ar
- 105f-106w-107s Mycology (Stakman, Dossdall), 9 cred.; jr., sr.; Bot. 7, 11 or equivalent, III, IV MWF, 1, 32 PP
- 110s Principles of Pathology (Stakman), 3 cred.; jr., sr.; Pl. Path. 1, Bact. 1, I, II MWF, 1, 30 PP
- 112s.su Disease of Fruit and Vegetable Crops (Leach), 3 cred.; jr., sr.; Pl. Path. 1, Ar, 1, 2 PP

## POLITICAL SCIENCE

- 28s Business Law (†), 5 cred.; jr., sr.; 10 cred. in Pol. Sci. or Econ., IV MTWFS, 4 PP
- For additional courses see the program of the College of Science, Literature, and the Arts.

## POULTRY HUSBANDRY

- 4s Incubating and Brooding (Smith) 3 cred., All, V MWF, 104 Ve
- 5s Advanced Poultry Judging (Smith) 3 cred., All, Poultry Husb. 2, Ar

## PSYCHOLOGY

- \*1f-2w-3s General Psychology (Elliott), 9 cred. (6 cred. allowed for first and second quarters); soph., jr., sr.; (lect.) I MW, Lit. Th.; (rect.) I Th or F or S, Psy; III Th or F or S, Psy; V Th or F, Psy; VII Th or F, Psy
- \*4f-5w-6s Introductory Laboratory Psychology (Foster), 3 cred.; soph., jr., sr.; An. Biol. 10 cred. in 1920-21 physics, bot. or chem. may be substituted; Sect. 1, I, II T; Sect. 2, III, IV T; Sect. 3, V, VI T; Sect. 4, VII, VIII T, 211 Psy
- \*8s Applications of Psychology to Business (Morgan), 3 cred.; Bus., and Pre-Bus. students, Psych. 1-2, V MWF, Psy, Amph.

For additional courses see the program of the College of Science, Literature, and the Arts.

\* Offered on Minneapolis campus.

† Instructor to be assigned.

## PUBLICATIONS AND RURAL JOURNALISM

- 10f-11w-12s    Agricultural Journalism (Kirkwood), 9 cred.; jr., sr.; Journalism  
13-14-15, 51-52†, V MWF, 24 Ad
- 19s            Agricultural Publicity (Kirkwood), 3 cred.; jr., sr.; Rhetoric 19  
cred. or Rhet. 9 cred. and Engl. 9 cred.. I TThS, 24 Ad
- ‡ For these and additional courses see the program of the College of Science,  
Literature, and the Arts.

### RHETORIC

- 1f,w,s        Rhetoric I (Jenkins), 3 cred.; All; I TThS, 310 En
- 2f,w,s        Rhetoric II (Clausen), 3 cred.; All; Rhet. 1, Sect. 1, I TThS, 308  
En Sect. 2, II TThS, 308 En
- 3w,s         Rhetoric III (Jenkins, Clausen, Lansing), 3 cred.; All; Rhet. 2,  
Sect. 1, II MWF, 310 En, Sect. 2, II TThS, 310 En, Sect. 3  
and 4, IV MWF, 308, 310 En
- 11f,w,s      Argumentation (Lansing). 5 cred.; soph., jr., sr.; Rhet. 3, II  
MTWThF, 307 En
- 22f,w,s      Public Speaking (Burtis). 5 cred.; soph., jr., sr.; Rhet. 3, Sect. 1,  
II MTWThF; Sect. 2, III MTWFS, 311 En
- 24f,w,s      Advanced Public Speaking (Burtis). 3 cred.; soph., jr., sr.; Rhet.  
22, IV MWF, 311 En

### ROMANCE LANGUAGES

See program of the College of Science, Literature, and the Arts.

### SOCIOLOGY AND SOCIAL WORK

- 1f,s         Introduction to Sociology (Lundquist), 3 cred.; soph., jr., sr.; IV  
MWF, 105 En
- \*1f,w,s      Introduction to Sociology (Bernard, Lundquist, Finney, Wray,  
Lively, Boettiger), 5 cred.; soph., jr., sr.; Sect. 1, I TWThFS,  
5 F; Sect. 2, II MWThFS, 5 F; Sect. 3, IV, MTWFS, 5 F;  
Sect. 4, V MTWThF, 5 F; Sect. 5, VI MTWThF, 9 F;  
Sect. 6, VII MTWThF, 5 F
- \*3s         Educational Sociology (Finney), 3 cred.; jr., sr.; Sociol. 1, III  
MWF, Ed
- \*6f,w,s      Modern Social Reform Movements (Elmer, Finney), 3 cred.; soph.,  
jr., sr.; Sociol. 1, Sect. 1, IV MWF, 9 F; Sect. 2, VI MWF,  
5 F
- \*14f,w,s     Rural Sociology (Lively), 3 cred.; soph., jr., sr.; Sociol. 1, no  
prereq. for sr. in college of A.F. and H.E., III TThS, 9 F
- \*52w,s      Treatment of Dependents and Defectives (Bruno), 3 cred.; jr., sr.;  
Sociol. 51, I MWF, 9 F
- \*53w,s      Treatment of Delinquents (Elmer), 3 cred.; jr., sr.; 10 cred. in  
Sociol. or 10 cred. in Sociol. and Pol. Sci., Econ., or Psy., III  
MWF, 9 F
- \*61s         Legal Protection of the Child (Hodson), 3 cred.; jr., sr.; Sociol. 60,  
VIII MWF, 9 F
- \*90f,w,s     Supervised Field Practice Work (Mudgett), 3 cred.; jr., sr.; di-  
rector's consent, Ar
- \*102s        Social Control (Bernard), 3 cred., jr., sr.; 3 courses, one of which  
may be in Psychol., Philos. Econ., Pol. Sci., Anth., or Ed., II  
TThS, 9 F
- 114s         Rural Social Institutions (Lundquist), 3 cred.; jr., sr.; 10 cred. in  
Sociol. or 10 cred. in Sociol. and Pol. Sci., Econ. or Psychol.,  
I TThS, 105 En

\* Offered on Minneapolis campus.

† Instructor to be assigned.

## SOILS

- 3s Soils (Alway), 5 cred.; jr., sr.; Chem. 10 cred., (lect.) IV MTWF,  
(lab.) 2 hours to be arranged, 251 Ch  
102f,w,s Special Problems in Soils (Alway), cred. according to amount of  
work, sr.; Soils 101, 103; Ar  
104s Soil Surveying (McMiller), 3 cred.; jr., Soils 3, 103, Ar

## VETERINARY MEDICINE

- 3w-4s Comparative Physiology (Hewitt), 6 cred.; soph., jr., sr.; Vet. Med.  
2, I MWF, 2 Ve  
8s Veterinary Studies (Reynolds), 5 cred.; soph., jr., sr.; III, MTWFS,  
9 Ve  
13s Non-Infectious Diseases (Boyd), 3 cred.; jr., sr.; Vet. Med. 3-4,  
I TThS, 2 Ve  
101w-102s Advanced Anatomy of Domestic Animals (Kernkamp), 6 cred.; jr.,  
sr.; Vet. Med. 2 or equivalent, Ar

---

\* Offered on Minneapolis campus.

THE BULLETIN OF  
**The University of Minnesota**

SUMMER SESSION

PRELIMINARY ANNOUNCEMENT

June 20-July 30



Vol. XXIV No. 5 March 10 1921

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

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



## GENERAL INFORMATION

The Summer Session of the University of Minnesota retains the form of organization in use during the regular college year and all the courses offered are of college grade. Students register in colleges in exactly the same manner as during the regular year.

### Location

The main campus of the University of Minnesota is located on the east bank of the Mississippi river in the city of Minneapolis. The summer courses with the exception of those in agriculture and in home economics, are given on the main campus. The University buildings, libraries, laboratories, observatory, and museums are at the service of the summer students. In addition to the equipment of the University, there are a number of public and semi-public libraries in St. Paul and Minneapolis available for the students' use.

The courses in agriculture and home economics are given on the Agricultural College campus, one of the beautiful spots of the Twin Cities. The Agricultural College has its own library, laboratories, museums, gymnasium, tennis courts, and grounds for other sports. It also offers the advantages of the main campus, for it is connected with the latter by an intercampus trolley line which gives a regular 15-minute service. The Como-Harriet interurban line between the two cities is only a short distance from the college campus.

so that the libraries, art galleries, lecture courses and recreational facilities in both cities are accessible.

### **Recreation**

The climate of St. Paul and Minneapolis is especially favorable for summer residence. The surrounding region is rich in natural beauty. The Twin Cities themselves, with their parks, lakes, public buildings, libraries, and art galleries, afford students many opportunities for recreation. The Armory, with its gymnasium and swimming pool, and Northrop field, with facilities for outdoor sports, will be available for men during the Summer Session. The women's gymnasium, tennis courts, and playgrounds furnish excellent opportunities for recreation for women. A series of public lectures and concerts is open to students, faculty, and the general public. Numerous personally conducted excursions will be arranged.

### **Summer Session Courses**

The summer courses are planned for college students, teachers, and others prepared to profit from collegiate work. The College of Education offers a large number of courses especially designed to meet the needs of superintendents, principals, supervisors, normal-school and college teachers.

All courses carry University credit. By accepting the advantages of the Summer Session, teachers and others who have not finished their undergraduate work are enabled to meet a considerable part of the requirements for the Bachelor's degree. Students who combine

summer work with that of the regular academic year frequently shorten their period of residence study for the Bachelor's degree to three years.

### **Graduate Work**

The increasing variety of advanced courses carrying graduate credit give any college graduate an opportunity to specialize in the field of his personal and professional interests. The residence and course work necessary for the Master's degree is now being met by numbers of students through work in the Summer Session. Credit toward the Doctor's degree may also be obtained through summer work.

### **Registration**

Saturday, June 18, and Monday, June 20, are the regular registration days. Class work will begin at 8 a.m. Tuesday, June 21. Students arriving late may register by special permission until 5 o'clock Monday afternoon, June 27, but after that date no registration will be received. Registration is not completed until all fees are paid.

### **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 work to advantage.

Students desiring advanced standing for college work completed in other institutions should file with the University Examiner, before the regular registration dates of the Summer Session, official transcripts of their student records in such institutions.

## **Expenses**

The living expenses for students at the University are never very high, and this is true especially for the Summer Session. Good accommodations for room and board may be had from \$7 to \$12 per week. Several good restaurants are to be found in the immediate vicinity of the University. Further information concerning room and board for women may be obtained by addressing Mrs. Staples, Shevlin Hall; for men, Housing Bureau, Minnesota Union. It is generally more satisfactory to engage accommodations after arrival than to make reservations in advance.

## **Sanford Hall**

Sanford Hall, a residence hall for women, is on the main campus. It has 83 single rooms and 52 double rooms, accommodating 187 students. The building is lighted with electricity and all rooms have hot and cold water. Each double room has two closets.

The furniture consists of a cot, with mattress and bedding, one double blanket, a dresser, study table, chair, and rug for each student. Students must supply towels, dresser scarf, couch cover, and extra blankets.

A rate of \$2.50 per week is charged for a single room and \$1.50 per week for each person occupying a double room. Applications for rooms should be addressed to Miss Mary E. Jackson, Director of Sanford Hall. No application will be recorded until a deposit fee of \$2 (to apply on residence fee) is received. This deposit will hold the room until the day after the opening of the Summer Session.

## Minnesota Union

The Minnesota Union will open its building for both men and women of the Summer Session of 1921. Three meals a day will be provided following the plan in use during the regular University year with corresponding prices. The usual facilities offered by the Minnesota Union will be available for all men of the Summer Session.

## Shevlin Hall

Shevlin Hall, with the exception of the cafeteria, will be open for the use of women during the Summer Session.

## Fees

Students are required to pay fees as follows:

Registration fee .....	\$5.00
Tuition fee per credit hour. ....	2.00
Additional fee for each laboratory course.....	1.50
Deposit fee .....	5.00
Health fee .....	1.00
Minnesota Union or Shevlin Hall fee.....	1.00

Every student will be required to pay at least \$10, including the registration fee of \$5. The unused balance of the deposit fee will be returned at the close of the Summer Session. All of the courses in medicine and dentistry, and a few courses in other colleges, require special fees.

## Health Service

A fee of one dollar is charged each student of the Summer Session for the maintenance of the Student Health Service. This entitles the student to physical examination, and

medical service and care when needed.

The Health Service aims (1) to help each student possess a healthy, vigorous, active, and harmoniously developed body, thereby contributing to his success while in college and in later life; (2) to reduce to the minimum that prodigious academic and economic loss due to indisposition and illness of students. Positive health is its goal.

### **Curricula**

A number of courses will be offered in each of the following subjects:

#### **COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS**

Americanization	Latin
Anthropology	Mathematics
Animal Biology	Music
Astronomy	Philosophy
Botany	Physical Education
Chemistry	Physics
Economics	Political Science
English	Psychology
Geology	Romance Languages
German	Sociology
Greek	Social Work
History	

#### **COLLEGE OF ENGINEERING AND ARCHI- TECTURE**

Architecture	Mechanics
Drawing	Engineering Shop
Descriptive Geometry	Manual Training
Mathematics	

#### **THE MEDICAL SCHOOL**

Anatomy	Pathology
Physiology	Bacteriology
Pharmacology	

## COLLEGE OF AGRICULTURE

Agricultural Biochemistry	Entomology
Agricultural Education	Economic Zoology
Agronomy	Farm Engineering
Farm Management	Home Economics
Animal Husbandry	Horticulture
Bee Culture	Plant Pathology
Dairy Husbandry	Botany
Economics	Poultry Husbandry

## COLLEGE OF DENTISTRY

Oral Anatomy	Operative Dentistry
Dental Prosthesis	Orthodontia
Crown and Bridge	Oral Surgery

## COLLEGE OF EDUCATION

Educational Administration	Theory and Practice of
Educational Statistics	Teaching
Educational Psychology	History and Philosophy of
Mental Tests and Clinical	Education
Work	Educational Sociology

The College of Education offers special curricula leading to University certificates for Supervisors and Superintendents of High Schools and Rural Schools, Principals of Graded and Consolidated Schools, Directors of High-School Teacher-Training Departments, for Teachers of High-School Subjects, Americanization Courses, Physical Education, Trade and Industrial Education, Home Economics, Agriculture, Art, Public-School Music, and Special Teachers of Sub-normal Children.

The Summer Session bulletin with a detailed description of the courses offered, a full statement of matters of general information, and an announcement of the instructional staff will be published about April 1. Copies may be obtained by addressing

**The Registrar, University of Minnesota,  
Minneapolis, Minnesota**

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

*Correspondence Courses*  
*Announcement for the Year*  
**1921-1922**



*Vol. XXIV No. 6 April 5, 1921*

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

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



# CORRESPONDENCE COURSES

## FACULTY

LOTUS DELTA COFFMAN, Ph.D., President  
WILLIAM WATTS FOLWELL, LL.D., President Emeritus  
CYRUS NORTHROP, LL.D., President Emeritus  
RICHARD R. PRICE, M.A., Director of University Extension  
SARA H. VAN DUSEN, M.A., Secretary Correspondence Study

---

JEAN H. ALEXANDER, M.A., Instructor in Education  
WILLIAM ANDERSON, Ph.D., Assistant Professor of Political Science  
RALPH M. BARTON, B.A., Assistant Professor of Mathematics  
WILLIAM O. BEAL, M.S., M.A., Assistant Astronomer  
LOUIS L. BERNARD, Ph.D., Professor of Sociology  
ROY G. BLAKEY, Ph.D., Professor of Economics  
GISLE BOTHNE, M.A., Professor of Scandinavian Languages and Literatures  
OSCAR C. BURKHARD, Ph.D., Assistant Professor of German  
EDWARD G. CHEYNEY, B.A., Professor of Forestry  
ROBERT V. CRAM, Ph.D., Instructor in Latin  
ROBERT E. CUSHMAN, Ph.D., Associate Professor of Political Science  
JAMES DAVIES, Ph.D., Assistant Professor of German  
HERMIONE L. DEALEY, Ph.D., Assistant Professor of Educational Psychology  
LYNWOOD G. DOWNS, M.A., Instructor in German  
GEORGINA DROITCOUR, M.A., Teaching Fellow in History  
WILLIAM P. DYER, M.A., Assistant Professor of Agricultural Education  
JOHN F. EBERSOLE, M.A., Professorial Lecturer in Economics  
OLIVER C. EDWARDS, B.S., M.E., Assistant Professor of Mechanical Engineering, General Extension Division  
SYBIL I. FLEMING, M.A., Instructor in Economics  
JOSEPHINE C. FOSTER, Ph.D., Assistant in Psychology  
JULES T. FRELIN, B.A., Assistant Professor of Romance Languages  
ROBERT W. FRENCH, B.S. in C.E., Assistant Professor of Drawing  
MARGUERITE GUILNOTTE, Brevet Supérieur, Certificat d'Aptitude Pédagogique, M.A., Instructor in Romance Languages  
ALVIN H. HANSEN, Ph.D., Associate Professor of Economics  
REWEY B. INGLIS, B.A., Instructor in English, University High School  
WILLIAM W. HOBSON, B.A., LL.D., (Director Children's Bureau, State Board of Control) Special Lecturer in Sociology  
SAMUEL KROESCH, Ph.D., Assistant Professor of German  
GEORGE A. MCGARVEY, B.A., Supervisor of Trade and Industrial Education, State Department of Education  
JOHN V. MARTENIS, M.E., Associate Professor of Mechanical Engineering  
CHARLES W. NICHOLS, Ph.D., Assistant Professor of Rhetoric

- ARTHUR F. PAYNE, M.A., Assistant Professor of Trade and Industrial Education
- VICTOR H. PELZ, M.A., Instructor in Economics
- RUTH S. PHELPS, M.A., Associate Professor of Romance Languages
- JOSEPH B. PIKE, Ph.D., Professor of Latin
- GEORGE C. PRIESTER, B.E., M.S., Assistant Professor of Mathematics and Mechanics
- HAROLD S. QUIGLEY, Ph.D., Assistant Professor of Political Science
- ALBERT W. RANKIN, B.A., Professor of Education, Retired
- FRED E. RINGHAM, B.A., Assistant in Accounting
- CHARLES ALBERT SAVAGE, Ph.D., Professor of Greek
- CARLYLE M. SCOTT, Professor of Music
- EDWARD H. SIRICH, Ph.D., Assistant Professor of Romance Languages
- WILLIAM C. SMILEY, LL.M., Instructor in Business Law, General Extension Division
- HOMER J. SMITH, Ph.B., Assistant Professor of Trade and Industrial Education
- J. WARREN STEHMAN, M.A., Assistant Professor of Economics
- GEORGE M. STEPHENSON, Ph.D., Instructor in History
- ANDREW A. STOMBERG, M.S., Professor of Scandinavian Languages and Literatures
- EMERSON G. SUTCLIFFE, Ph.D., Assistant Professor of Rhetoric and Public Speaking
- JOSEPH C. TAYLOR, M.A., Secretary Municipal Reference Bureau, General Extension Division
- LOUIS A. TOHILL, M.A., Instructor in History, University High School
- BERT A. WALLACE, M.A., Instructor in Economics
- QUINCY WRIGHT, Ph.D., Assistant Professor of Political Science

## GENERAL INFORMATION

### CORRESPONDENCE STUDY

The developments of the last few years have clearly demonstrated the effectiveness of, and the necessity for, university teaching by correspondence. The foremost American universities have recognized this opportunity for specific service by extending their work beyond the lecture room and the campus, in order to reach students who are unable to comply with the traditional limitations of university and college study.

In thus extending its functions, the University offers a plan of practical instruction whereby preparatory, vocational, and collegiate training is made available to those who of necessity must devote a part of their time to other duties, and hence can not attend classes. Teaching by correspondence thus has become a part of the state educational system and has broadened it so that it now makes education possible to every person who is willing to make the effort to get it.

By a careful economy of time it is possible to contribute largely to the requirements for a Bachelor's degree by combining work in residence at the University summer session with correspondence study under the General Extension Division.

### ADVANTAGES

Correspondence study possesses many advantages. It accommodates itself to a person's spare time, enabling him to make valuable use of short periods which would otherwise be wasted; it permits him to carry on work in a single field of study in which he has a special interest, to prepare for special occupations, to broaden his intellectual outlook to meet the demands of mature life, or to make up defects in his education—defects one often does not realize until it is too late to attend school.

The student recites on every part of every lesson and receives the individual attention of the teacher in the correction of the papers he submits. Since a student is not hurried in his work, but may within reasonable limits take as much time as he needs for the preparation of a lesson, he can master the material thoroly and make every recitation report represent his best efforts.

Correspondence courses develop initiative, resourcefulness, and a sense of responsibility. They put a student on his mettle and make him the determining factor in the success of the work he undertakes.

### THE INSTRUCTION

Upon the receipt of the application and fee for any course the first lessons are sent, together with instructions for the preparation of lessons and directions for making reports.

The teaching is done by teachers from the various faculties in the University who are in continuous charge of similar courses in residence and who are familiar with the needs of non-resident students.

Each lesson contains questions to test the student's methods of work as well as his understanding of the ground covered. After preparing for recitation, the student writes his answers to the questions and returns them, together with a statement of any difficulties which may have arisen during his study.

Each recitation report is returned to the student with such corrections, explanations, and suggestions as may be needed. It is expected that these will be carefully gone over. Lists of books, assignments for reading, and all necessary assistance will be furnished throughout the course, so that the student at no time will be left without adequate aid and guidance. Questions on the subject in hand are at all times encouraged.

#### THE UNIT COURSE

The unit course is divided, where practicable, into forty lessons, representing a five-credit course for one semester in residence. Such a course represents 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. Variations from the unit course are indicated by the number of credits, or by the number of lessons when university credit is not allowed. Two lessons in correspondence approximately cover the ground in quantity of a week's work in residence.

High-school courses are arranged so that each lesson covers approximately a week's work in the high school.

#### SELECTION OF COURSES

In selecting courses for university credit, the student should conform to the prescribed course of study of each college. This is particularly necessary in the case of those taking up college work for the first time. It is advisable for such students to secure a copy of the bulletin of the college which they expect to enter, in order to find out what subjects are prescribed for the freshman year. Advice in the selection of courses is always freely given. Full information regarding preparation and aims should accompany requests for such advice. The bulletin of any of the colleges of the University may be secured by addressing the Registrar, University of Minnesota, Minneapolis.

#### HIGH-SCHOOL COURSES

High-school courses are offered in a number of subjects. Additional subjects will be announced from year to year until enough are offered to enable the mature student to complete a full high-school course and thus prepare for college entrance by this means. The courses that are offered are given entrance credit in this University. The student may not be in attendance at any secondary school while he is taking such courses for university entrance credit. Information regarding entrance requirements is contained in the general information bulletin, a copy of which may be

obtained from the University registrar. It should be borne in mind that beginning courses in foreign languages may be taken to satisfy entrance requirements.

#### BOOKS AND OUTFIT

All necessary textbooks, drawing outfits, and apparatus are extra and *must be procured by the student*. Money should *not be sent* to the University for the purchase of texts and other material. When ordering textbooks, the student should give the exact title, the author, and the publisher. The student pays postage on lessons one way.

Every correspondence student, regardless of the course for which he enrolls, is expected to buy and use the pamphlet *How to Study*, by Swain, published by McGraw-Hill Book Company, 239 West 39th Street, New York, at twenty-five cents.

Some reference books may be borrowed from the University Library. This privilege does not apply to the necessary textbooks. The period of loan is one month. The student is expected to pay express or postage both ways. Requests for such reference books should be addressed to the Librarian, University of Minnesota, Minneapolis, and the student should state explicitly what books are desired, with the author's name, title of the book, and the volume number, naming the course in which they are to be used and giving full instructions for mailing. Blanks are supplied for this purpose.

No list of textbooks is published by the Department.

#### 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 if he has not already obtained one. All applications must be made on the blank furnished by the Department. He should fill out the blank with all the information called for and return it with the required fee to the Correspondence-Study Department, General Extension Division, University of Minnesota, Minneapolis.

#### HOW TO SEND MONEY

Payment should be made by post-office or express money order, personal check, or draft. *Make all checks and orders payable to the University of Minnesota*. They should cover the exact amount of the fee, no more and no less. If the fee is not indicated in the description of the course, see Fees, page 8.

## 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 all the information asked for in order that his fitness to pursue the course selected may be determined. It is desired that the student state fully the purpose he has in view in taking the work and give in detail the educational advantages, training, or experience he may have had. The Department endeavors to meet the needs of the individual student by advice and suggestions, as well as by formal instructions, but whenever it finds that the courses selected are not for the best interests of the student, it reserves the right to reject the application or to advise change. It also reserves the right to advise discontinuance or change after a course has been started, if the student shows entire unfitness for the work. Whenever a registration is discontinued in this way or rejected the fee will be returned.

### 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 enrolment, but the Department *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 course will be extended. The student may work as rapidly as he desires provided his work is satisfactory.

As a rule the student should endeavor to send in a recitation report every week or at least one in two weeks. If it is not possible to do this the department should be notified. Temporary delays are, however, unavoidable in a busy person's work, and no student should become discouraged because of them and give up the attempt to complete the course upon which he has entered.

### 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. No reduction of fee is made for a combination of courses carried simultaneously. The fees are as follows:<sup>1</sup>

Two-credit course—16 lessons.....	\$ 8.00
Three-credit course—24 lessons.....	12.00
Five-credit course—40 lessons.....	20.00
Six-credit course—40 lessons.....	20.00

<sup>1</sup> If fees vary from this schedule, the amount is indicated in the description of the course.

*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 secretary on payment of one dollar for each course.

#### CREDIT

Correspondence courses remain on the semester basis of credit, altho the University is on the quarter basis. To translate semester credits to quarter credits, multiply by three halves.

Students who undertake correspondence-study work for university credit must state this fact in advance and comply with all requirements of the University, including the prerequisites for each course. University credits allowed in this connection will be recorded separately until the student matriculates at the University, when they will be recorded permanently as university credits. Registrations for credit will not be accepted unless evidence is given that university entrance requirements can be met. These requirements are ordinarily comprised in a four-year high-school course.

Those seeking a university degree must conform to all the requirements exacted by the college or school in which such degree is sought. The bulletin of any college or school may be obtained from the University registrar.

A maximum of one half of the required credits for the Bachelor of Arts degree may be accumulated through correspondence. The work of the earlier part of the course is more likely to be available for correspondence study. The work of the senior year, or the major portion of it, must be done in residence.

Normal-school students who undertake courses for university credit with the purpose of having the credit transferred to the normal school in which they are working for a diploma should make certain by consultation with the proper authorities at the normal school that the arrangement to do this is satisfactory and that the course selected fits into their program of work.

Entrance credit is allowed for courses of high-school grade. See High-School Courses, page 6.

No credits may be earned by correspondence study to apply on the Master's degree, or any other graduate degree.

Notice of completion with or without credit, as the case may be, is sent by the University registrar to each student who satisfactorily completes a course.

## CORRESPONDENCE COURSES

## PROFESSIONAL STATE TEACHER'S CERTIFICATE

The State Department of Public Instruction does not accept grades acquired through correspondence study in lieu of examination for credit toward the state professional or any other state teacher's certificate. Correspondence courses listed in this bulletin, however, may be taken as a preparation for the state examination in the required branches.

## RESIDENT STUDENTS

Registrations for correspondence courses will not be accepted from resident students of the University of Minnesota or of any other institution of learning unless acceptance would be justified by exceptional circumstances.

Persons pursuing correspondence courses for credit must discontinue them when they enter school. Arrangements may be made to hold the courses over until the student is again free to pursue them.

No university student may enroll for a correspondence course for the purpose of removing a condition or a failure, except by consent of the Students' Work Committee.

## 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.

## GRADE SYMBOLS

The following grade symbols are used to indicate the grade of any paper:

A (93-100)	D (75-81)
B (87-93)	E (Conditioned)
C (81-87)	F (Failed)



## COURSES OF INSTRUCTION

### ASTRONOMY

1. **DESCRIPTIVE ASTRONOMY.** A descriptive course designed to give accurate general information regarding the solar system and the stellar universe. Students will be expected to construct some simple inexpensive apparatus for themselves to aid in the comprehension of the subject. Altho not necessary, the student will find that a small telescope, or even an opera glass, will add greatly to the interest in the subject.

Twenty-four lessons (three university credits). MR. BEAL.

2. **URANOGRAPHY.** A study of the constellations visible from the United States. The course includes an exposition of star magnitudes; use of star maps; identification of the constellations, brighter stars, variables, doubles, clusters, and nebulae; interpretation of the Milky Way; reading of star folk-lore; watching the motions of the brighter planets relative to the sun and stars. The course can be begun at any time.

Twelve lessons (no university credit). Fee, \$6. MR. BEAL.

### BUSINESS COURSES

1. **BUSINESS CORRESPONDENCE.** Mastery of materials, letters in general, complaint answers, reminder letters, recommendation letters, application letters, credit-adjustment letters; form letters, follow-up letters, general sales letters. The ability to use correct English is prerequisite.

Twenty-four lessons (no university credit). MR. NICHOLS.

2. **BUSINESS LAW A—CONTRACTS AND AGENCY.** 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.

The general rules of contracts being fundamental to all work in business law, this course must precede Business Law B.

Sixteen lessons (two university credits). MR. SMILEY.

3. **BUSINESS LAW B—PERSONAL PROPERTY, SALES, BAILMENTS, NEGOTIABLE INSTRUMENTS.** Negotiable instruments, nature and characteristics, definition; 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 to demand (1) goods of a certain quality, (2) warranty of the purchaser's title. Prerequisite, Course 2.

Sixteen lessons (two university credits). MR. SMILEY.

4. BUSINESS LAW A—PARTNERSHIPS, CORPORATIONS, AND BANKRUPTCY.<sup>1</sup> Partnerships: formation of partnerships; articles of co-partnership; methods of terminating partnerships; rights and obligations of partner (a) toward his co-partners, (b) as an agent of the firm, (c) toward the firm's creditors, (d) for an accounting; special partners; limited partnerships.

Joint stock companies: how distinguished from ordinary partnerships; how like ordinary partnerships; statutory requirements.

Corporations: formation of corporations of various classes; terminations of corporations; membership in corporations, methods of transferring interest, fraudulent issuance of stock by corporate officers; rights of stockholders (a) to dividends, (b) to inspect and control corporate affairs; liabilities of stockholders (a) on stock subscriptions, (b) to pay assessments, (c) for the corporate debts; the doctrine of ultra vires; rights and obligations of corporate directors; corporate mergers and consolidations; domestic and foreign corporations; solvency and the national bankruptcy act. Prerequisite, Course 2.

Sixteen lessons (two university credits). MR. SMILEY.

5. BUSINESS LAW D—REAL PROPERTY, MORTGAGES.<sup>1</sup> Classification of property, distinction between real and personal property; estates in land, freehold, life estate, tenancy for a term, at will, at sufferance; estates held jointly or in common, equitable estates, relative rights of adjoining owners, trespass, easements, sales of real property, the contract to sell, conveyances, wills, mortgages, and liens; landlord and tenant, the lease, assignment and subletting, rent, and remedies for non-payment. Prerequisite, Course 2.

Sixteen lessons (two university credits). MR. SMILEY.

6. PRINCIPLES OF ACCOUNTING. This is a course containing all the fundamental principles of accounting, together with sufficient practice work to show the application of these principles. The emphasis throughout is put upon principle rather than upon the details of method; but the practice material is made to conform to present-day methods as nearly as possible, and the course demonstrates what service accounting should render to business.

Part I treats of the fundamentals of debit and credit, the books of account, standard methods of recording transactions, accruals and adjustments, construction and interpretation of balance sheets

<sup>1</sup> Courses 4 and 5 will not be ready before October 1, 1921.

and income statements, classification of accounts, the distinction between capital and revenue, and an introduction to partnerships.

Twenty-four lessons (three university credits). MR. RINGHAM.

Part II is built up with corporation accounting as its leading feature, but gives further consideration to partnerships, and to certain essential accounting principles, such as valuation, depreciation, capital, and revenue. These general principles will be emphasized and made clear by application to various businesses by means of problems, in which manufacturing establishments will be included.

Twenty-four lessons (three university credits). MR. RINGHAM.

26. BUSINESS AND FACTORY MANAGEMENT, PART I. The first part of this course deals with the origins of present practices in management, the underlying principles of efficiency in management, the several forms of organization. Part I is prerequisite to Part II.

Sixteen lessons (no university credit). MR. PAYNE.

27. BUSINESS AND FACTORY MANAGEMENT, PART II. The second part deals with the more specific details of management, such as scientific management, business cycles, methods of control, selection of personal incentives and rewards, labor problems, etc.

Sixteen lessons (no university credit). MR. PAYNE.

28. FOREMAN'S COURSE IN METHODS OF HANDLING LABOR. The aim of this course is to develop in the foreman the scientific point of view in regard to the various problems of handling labor of various kinds as related to production.

Some of the detailed lessons are: Evolution of the factory system, functional foremanship, testing of trade knowledge and skill, psychology of the worker, job analysis, personal analysis, and the foreman as an instructor.

Part I, sixteen lessons (no university credit).

Part II, sixteen lessons (no university credit). MR. PAYNE.

30. EMPLOYMENT MANAGEMENT, PART I. The first part of this course deals with the significance of employment management as a part of our evolving industrial civilization, its relation to scientific management, and the organization and functions of an employment department. Part I is prerequisite to Part II.

Sixteen lessons (no university credit). MR. PAYNE.

31. EMPLOYMENT MANAGEMENT, PART II. The second part deals in detail with the several functions of the employment department, such as: Sources of labor supply, interviewing, scientific selection of men, wage systems, training the worker, labor audits, labor turnover, psychology of the worker, and modern industrial movements.

Sixteen lessons (no university credit). MR. PAYNE.

NOTE: See also Course 3 under Economics.

## ECONOMICS

1. **PRINCIPLES OF ECONOMICS, PART I.** This course, with Part II, is designed to give a general understanding of our present industrial order. Special attention is given to descriptive accounts of economic institutions and to a consideration of basic principles underlying their operation.

Part I of the course presents certain fundamental concepts followed by a study of division of labor, of large-scale production, and of the corporation as a type of enterpriser. Then follows a study of money, banking, international trade, including tariff and foreign exchange, prices, and crises. This part closes with the discussion of the principles of value.

Twenty-four lessons (three university credits). MR. WALLACE.

2. **PRINCIPLES OF ECONOMICS, PART II.** A continuation of the study of value to discover what measures the reward received by the respective factors of production in wages, interest, rent, and profits. Then follow special problems of labor and labor unions, railways, public utilities, and finally the principles underlying taxation.

Twenty-four lessons (three university credits). MR. WALLACE.

3. **BANKING.** The subject-matter of this course constitutes the necessary basis of a thoro understanding of the principles of currency, banking, and finance. The lessons will survey all the practical operations of modern banks with chief emphasis upon commercial banking and with some attention to the legal problems to be met with in dealings between banks and their customers. Beginning with a description of the development of commercial banking, of savings banks and trust companies, the course will be developed under the following topics: how to organize a commercial bank; shareholders, directors and officers, their duties, powers, and liabilities; deposits, depositors, and the receiving teller; the paying teller and checks; the bank reserve; national bank notes; clearing houses; collections and domestic exchange; foreign exchange; loans and discounts, credit departments and how they judge credit; collateral loans; statements of condition; bank policy; supervision and examinations; central banks of England, France, and Germany, and the federal reserve system of the United States. Prerequisite for credit, Course 1.

Twenty-four lessons (three university credits). MR. EBERSOLE.

4. **ADVERTISING.** Functions and principles of advertising; advertising media; planning and executing an advertising campaign; relating the advertising campaign to the distribution system; selection of media; and preparation of copy. Prerequisite for credit, Marketing of Products.

Sixteen lessons (two university credits). MR. PELZ.

5. **RETAIL MARKETING.** Problems and methods of the so-called regular retailer, department stores, and chain stores. Coöperation between the retailer and the local board of trade. The retailer and the consumer. Prerequisite for credit, Marketing of Products.  
Sixteen lessons (two university credits). MR. PELZ.
6. **LABOR PROBLEMS AND TRADE UNIONISM.** Origin of the labor problem; conditions of labor in American industries; structure, aims, policies, and methods of trade and industrial unionism and employers' associations; collective bargaining and shop committees; mediation and arbitration; injunctions; labor legislation.  
Sixteen lessons (two university credits). MR. HANSEN.
7. **PUBLIC FINANCE.** Governmental revenues, expenditures and debts. This includes a study of the various forms of taxation, of budgetary legislation and control, of war and emergency financing, of the shifting and incidence of taxation, and of fiscal reforms. Prerequisite for credit, Courses 1 and 2.  
Twenty-four lessons (three university credits.) MR. BLAKEY.
8. **COMMERCIAL POLICIES.** Theory of international commerce, free trade, reciprocity, protection, and other governmental and organized efforts to affect trade, with special emphasis upon American policies in view of post-war conditions. Prerequisites for credit, Courses 1 and 2. Several texts must be read in addition to those on which the course is based.  
Sixteen lessons (two university credits). MR. BLAKEY.

## EDUCATION

NOTE: See Courses 1 and 2 under Psychology.

2. **EDUCATIONAL PSYCHOLOGY.** A survey of fundamental facts of human behavior involved in educational activities. This survey includes the following topics: Psychological and educational measurements, habit formation, transfer of training, statistical methods. Courses 1 and 2 in psychology are prerequisite.  
Twenty-four lessons (three university credits). MISS DEALEY.
3. **HISTORY OF EDUCATION TO THE REFORMATION.** An historical study of the foundations of modern education. The theories and practices of the Hebrews, Greeks, and Romans, and of the Middle Ages and the Renaissance, are considered in the light of their influence upon the present educational situation. The course includes the work offered in residence Course 101. Prerequisite, 6 credits in psychology.  
Twenty-four lessons (three university credits). MISS ALEXANDER.
4. **HISTORY OF MODERN EDUCATION.** Educational history since the time of the Renaissance. A study of the theory of the great modern educators; the origin, aims, and development of typical secondary and higher schools in various countries; the rise of the modern elementary school

with emphasis upon early state systems and reform movements. Equivalent in part to residence Courses 102 and 103. Prerequisite, 6 credits in psychology.

Twenty-four lessons (three university credits). MISS ALEXANDER.

5. RURAL-SCHOOL MANAGEMENT. The course treats of the technic of school management and instruction in the various subjects with special reference to the needs of the teacher in the one-room school. In addition it aims to acquaint teachers with the significance of the country-life movement, giving a sort of elementary introduction to rural sociology, with special emphasis upon the standpoint of the school. The student will be expected to purchase two texts.

Eight lessons (one university credit). Fee, \$4. MR. DYER.

7. INDUSTRIAL EDUCATION. The principles fundamental to vocational training in the public-school system as affecting the arrangement of school years, the course of study, and the methods of teaching. Prerequisite for credit, History of Education.

Twenty-four lessons (three university credits). MR. RANKIN.

8. THEORY OF TEACHING. An introductory course in educational theory for elementary school teachers. The work includes a study of the principles upon which the present practice of teaching is based, and of the responsibility of the school in providing various forms of training. Other topics are considered briefly, such as types of classroom exercises, the making of lesson plans, qualifications of teachers, school management. Prerequisite, 6 credits in psychology. In special cases a student may, by conference with the instructor, waive these prerequisites.

Twenty-four lessons (three university credits). MISS ALEXANDER.

9. SCHOOL ORGANIZATION AND LAW. A comprehensive course in the organization and management of schools in American communities, with special reference to the duties of school boards and school superintendents, principals, and teachers, to the methods and equipment proper to schools of various grades, and to the main facts in the school law of Minnesota. Prerequisite for credit, History of Education.

Twenty-four lessons (three university credits). MR. RANKIN.

10. SCHOOL SANITATION. This course is designed for those who are concerned with schools of any and all grades. It deals with conditions affecting the health of school children of all ages. School architecture, courses of study, and the discipline of the school will be considered as well as all other questions affecting the well-being of pupils. Prerequisite for credit, History of Education.

Twenty-four lessons (three university credits). MR. RANKIN.

12. **SOCIAL ASPECTS OF EDUCATION.** This course is concerned with the school as an environment which is designed to fit its pupils for their social relations; also it discusses the school in respect to its interaction with other institutions of a similar character and aim. It is a common remark that the school is becoming more and more a social institution, and this course attempts to determine in what respect and in what manner this is true. Prerequisite for credit, Psychology I and 2.

Twenty-four lessons (three university credits). MR. RANKIN.

20. **ORGANIZATION AND SUPERVISION OF VOCATIONAL EDUCATION.** The course includes a careful study of the Smith-Hughes Act for vocational education. Particular attention is given to the Minnesota plan for establishing vocational courses in our public schools. Consideration is given to the various types of vocational schools, to adapting vocational courses to community needs, and to the methods of organization and supervision of courses. The methods of making an analysis of certain trades are discussed, and recent vocational surveys are studied.

Sixteen lessons (two university credits). MR. MCGARVEY.

21. **PROBLEMS IN VOCATIONAL EDUCATION.** A general course for administrators in education and for teachers who aspire to supervisory and administrative positions. A partial list of topics discussed is: aims of vocational education; types of vocational education; relations to industry; relations to regular schools; teachers, methods of teaching; equipment; projects; federal and state laws; schools, community, and industrial surveys; vocational guidance; vocational placement.

Sixteen lessons (two university credits). MR. PAYNE.

23. **TRADE ANALYSIS.** A course for men and women with trade experience who wish to prepare for the teaching of shop work in day, part-time, and evening schools. Among the subjects treated are the analysis and classification of trade knowledge; project analysis, arrangement of courses for specified conditions; lesson outlines; and the organization of teaching material. It is not intended in this course to take up subject-matter, the supposition being that those enrolled in the class have had sufficient trade experience to enable them to qualify as shop teachers.

Sixteen lessons (two university credits). MR. PAYNE.

25. **TEACHING OF RELATED SUBJECTS.** The purpose of this course is to meet the needs of teachers of related subjects, as science, mathematics, and drawing, who expect to teach these subjects. The organization of teaching units, related subject-matter, trade analysis, testing and checking results, discipline, and records are taken up in this course. Opportunities will be given to afford students to present and work out their own particular problems for immediate needs.

Sixteen lessons (two university credits). MR. SMITH.

## ENGINEERING

1. SHOP MATHEMATICS, PART I. This course is for the practical man who desires training in mathematics to solve mechanical and electrical problems and will be found valuable by the teacher who is preparing to teach applied mathematics under the Smith-Hughes Act. It takes up arithmetic from fractions through proportion and contains problems in areas, volumes, weights of materials, screw threads, and gears. It teaches logarithms, the use of the slide rule, and the fundamental elements of machines, such as levers, pulleys, and the inclined plane.  
Twenty-four lessons (no university credit). MR. EDWARDS.
2. SHOP MATHEMATICS, PART II. This work follows Part I and takes up algebra, geometry, and trigonometry from a practical shop standpoint. A thoro working knowledge of the formulae is given. Each lesson in both Parts I and II has numerous practical problems to be worked by the student.  
Twenty-four lessons (no university credit). MR. EDWARDS.
3. MECHANICAL DRAWING, PART I. The course includes the use of instruments, lettering, views and sections, conventions, sketching, dimensioning, completed working drawings, and tracing. The course is designed to meet the needs of beginners.  
Twenty lessons (no university credit). Fee, \$10. MR. FRENCH.
4. MECHANICAL DRAWING, PART II. A continuation of Part I.  
Twenty lessons (no university credit). Fee, \$10. MR. FRENCH.  
NOTE: It is impossible to quote prices on drawing outfits. The cost will probably be from \$8 to \$12.
5. ELEMENTARY MECHANICS. A short, practical course in elementary mechanics designed to meet the needs of students who have had limited training in mathematics. Numerical and simple graphical calculations, forces, simple machines, velocity, acceleration, impulse, momentum, work, power, and energy are treated. Prerequisites, Courses 1 and 2 or their equivalents.  
Twenty-four lessons (no university credit). MR. EDWARDS.
7. STRENGTH OF MATERIALS—ELEMENTARY. An elementary course on the strength of materials in common use. It treats of 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. Prerequisite, Courses 1, 2, and 5.  
Twenty-four lessons (no university credit). MR. EDWARDS.
9. ELECTRICITY AND MAGNETISM, PART I. An elementary study of magnetism and electricity. Simple laws of magnetism, and the relation of magnetism to direct current electricity are developed. Series and



parallel circuits, and combinations of both, simple wiring and armature winding are taken up. A knowledge of arithmetic such as is given by Shop Mathematics I is necessary.

Twenty lessons (no university credit). MR. EDWARDS.

10. ELECTRICITY AND MAGNETISM, PART II. This course is a continuation of Part I. It will deal with motors, generators, and instruments.

Twenty-four lessons (no university credit). MR. EDWARDS.

11. ALTERNATING CURRENTS. This course takes up simple laws of alternating currents and their application to machines; inductance, capacity, and impedance are fully treated.

Twenty lessons (no university credit). MR. EDWARDS.

12. HEATING AND VENTILATING. 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, heat loss due to 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). MR. MARTENIS.

13. ARITHMETIC. A short course in arithmetic for those who are engaged in boiler-room practice and need to learn how to do the necessary figuring connected with steam boilers and boiler accessories. It gives work in multiplication, division, fractions, decimals, areas, etc.

Ten lessons (no university credit). Fee, \$5. MR. EDWARDS.

14. BOILER-ROOM PRACTICE. The course is intended for the boiler operator. Outline of course: combustion, coal; firing methods; flue-gas analysis; boiler construction; feed water; boiler fittings; power of boilers; care of boilers; pipes and fittings; pipe covering; steam tables.

Sixteen lessons (no university credit). MR. MARTENIS.

15. ENGINE-ROOM PRACTICE. The course is planned to give an elementary and plain presentation of the subject to operating engineers who are not able to comprehend fully the average textbook on steam engines. Outline of course: principles of energy, motion, steam; classes of steam engines; parts of the steam engine; valves and steam action; valve-setting; governing; reversing gears; indicators and cards; calculating horse-power; pumps, condensers, lubrication; engine troubles,

Sixteen lessons (no university credit). MR. MARTENIS.

NOTE: For those who are in boiler-room practice and who may wish to take an examination for a chief-engineer's license, Courses 13, 14, and 15 are of the utmost importance.

16. **ELEMENTS OF MACHINE DESIGN.** A short, practical course in machine design. Some elementary machines will be discussed and the laws of mathematics, mechanics, and strength of materials will be applied in each case, leading to the complete design of the particular machine under consideration. Working details and general drawings will be made as the work advances. Prerequisites, Courses 1, 2, 3, 4, 5, and 7. Twenty-four lessons (no university credit). MR. EDWARDS.
20. **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. MR. CHEYNEY.

NOTE: See also General Physics I and II.

### ENGLISH AND RHETORIC HIGH-SCHOOL COURSES

1. **ENGLISH COMPOSITION A.** This course and the one following are suited to the needs of those persons who do not have a good foundation in English, and hence need training in the correct use of the language. It covers that part of the work in high-school composition given in the freshman and sophomore years. It gives practice in writing compositions on simple subjects, with special attention to the development of sentence structure and a unified paragraph; special drill to overcome errors in grammar, spelling, punctuation, etc.; training in the use of the dictionary; and letter writing. The course is offered in two parts. The completion of both parts gives one entrance unit in English.  
Part I. Twenty lessons. Fee, \$10.  
Part II. Twenty lessons. Fee, \$10. MISS INGLIS.
2. **ENGLISH COMPOSITION B.** This course is a continuation of the work of the first year but it is more advanced and presupposes the ability to do more thoughtful work, as it covers the composition work of the junior and senior years of the high school. Composition forms a large part of the course. In it emphasis is placed on gathering material and organizing it into longer themes than those of the first year. Drill in spelling, punctuation, etc., includes more difficult points than those covered in the first year. The course is offered in two parts. The completion of both parts gives one entrance credit in English.  
Part I. Twenty lessons. Fee, \$10.  
Part II. Twenty lessons. Fee, \$10. MISS INGLIS.

NOTE: Courses covering the literature of high-school work in English are in preparation. Inquiry concerning them is invited. There will be two courses, each giving one entrance credit in English.

## COLLEGE COURSES

*English*

1. HISTORY OF ENGLISH LITERATURE I. A general survey of English literature from the earliest times to 1700, with a good deal of emphasis upon the historical setting. Extensive readings from volumes of examples of the most famous poetry and prose. When feasible, the special study of the work of one of the major authors is recommended to be done at the same time as an intensive offset to so much rather sporadic reading. Prerequisite for credit, Rhetoric 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). MR. SUTCLIFFE.

2. HISTORY OF ENGLISH LITERATURE II. A general survey of English literature from 1700 to the present time. Prerequisite for credit, Course 1 or its equivalent.

Twenty-four lessons (three university credits). MR. SUTCLIFFE.

3. AMERICAN LITERATURE—GENERAL SURVEY. A study of American literary development, with particular attention to the influence of English literature and the effect of our own national history upon the progress of thought and expression in the United States. The student must read extensively from American authors and answer questions which will call for constructive criticism and independent estimates. Textbook comments will not be accepted. Prerequisite for credit, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). MR. SUTCLIFFE.

4. THE ENGLISH NOVEL. An elementary course in the principles of fiction with the careful study of seven novels, selected to represent various aspects of the history of English prose fiction; also the study of a contemporaneous novel with an attempt to ascertain its literary value and its relationship to the masterpieces of the past. The consecutive study of the novels will be accompanied by selected assignments from Bliss Perry, *Study of Prose Fiction*, and W. L. Cross, *The Development of the English Novel*. Prerequisite for credit, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). MR. SUTCLIFFE.

*Rhetoric*

1. RHETORIC, PART I. This course is designed to give practical training in composition as well as a knowledge of rhetorical principles. Besides the study of the text it includes practice in the analysis of the best specimens of English prose, and the writing of papers, mainly expository in character.

Twenty-four lessons (three university credits). \_\_\_\_\_

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). \_\_\_\_\_

## CORRESPONDENCE COURSES

NOTE: Rhetoric 1 and 2 and History of English Literature 1 and 2 meet the present requirement of freshman English.

3. EXPOSITION. Imitative and creative work in the various types of exposition with especial recognition in the latter part of the course of the way in which exposition merges into the other forms of discourse. Prerequisite for credit, Courses 1 and 2.

Twenty-four lessons (three university credits). MRS. VAN DUSEN.

4. DESCRIPTION. An attempt at an untechnical but thoro-going understanding and application of the principles of description. Exercises in descriptive writing. Prerequisite, Course 3.

Sixteen lessons (two university credits). MRS. VAN DUSEN.

5. NARRATION. A study of the principles of narration, point of view, plot, setting, characterization. Exercises and short narratives to be written by the student.

Sixteen lessons (two university credits). MRS. VAN DUSEN.

6. VERSIFICATION. A study of the nature of poetry, and a detailed analysis of English meters and the various English verse forms. The theory accompanied by criticism of current poetry and practice in writing verse. Open for credit to those who have completed the equivalent of freshman and sophomore rhetoric (Courses 1, 2, 3, 4, and 5, above). Open to others without credit.

Twenty-four lessons (three university credits). NICHOLS.

NOTE: See Business Correspondence under Business.

## GERMAN

1. BEGINNING GERMAN. Grammar and easy composition. The course aims to give the student a knowledge of the elements of German grammar, the facility to read easy German and to write simple German sentences.

Forty lessons (six university credits). MR. BURKHARD.

2. INTERMEDIATE GERMAN. Grammar and composition continued; selected readings in easy prose and verse. Course 1 or its equivalent is prerequisite.

Forty lessons (six university credits). MR. BURKHARD.

3. RAPID READING A. Selections from modern narrative and descriptive prose. Assigned outside readings and reports. Prerequisite, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). MR. KROESCH.

4. RAPID READING B. Modern and classical prose and drama. Assigned outside readings and reports. Especial attention given to vocabulary and word building. Prerequisite, Course A or its equivalent.

Twenty-four lessons (three university credits). MR. KROESCH.

7. **ELEMENTARY COMPOSITION A.** Translation of short English selections. Paraphrasing of simple poems. Free narration. Exercises based on topical grammar review. Open to those who are taking or have taken Courses 3 and 4 or their equivalent.  
Sixteen lessons (two university credits). MR. DOWNS.
8. **ELEMENTARY COMPOSITION B.** Translation and grammar review continued. Sample description. Letter-writing. Both A and B must be completed before credit is given for A.  
Sixteen lessons (two university credits). MR. DOWNS.
9. **DRAMA A.** Study of the present-day drama in Germany. Selected plays of Hebbel, Hauptmann, or Sudermann, with assigned readings and reports. Open to those who have completed Courses 1 and 2 and 3 and 4, or who have had four years of preparatory German.  
Twenty-four lessons (three university credits). MR. DAVIES.
10. **DRAMA B.** Study of the German drama of the eighteenth century and through the classic period. Selected plays of Lessing, Goethe, or Schiller, with assigned readings. Prerequisite as in Course 9.  
Twenty-four lessons (three university credits). MR. DAVIES.
11. **SCIENTIFIC GERMAN A.** Readings from general works on biology, anatomy, physiology, and hygiene. This course is intended primarily for medical students. It aims to give the student a scientific vocabulary and to acquaint him with the style of scientific articles. Prerequisite Courses 3 and 4. No credit given until B is completed.  
Sixteen lessons (two university credits). MR. BURKHARD.
12. **SCIENTIFIC GERMAN B.** A continuation of Course 11. No credit is given for A until B is completed.  
Sixteen lessons (two university credits). MR. BURKHARD.
13. **CHEMICAL GERMAN.** The reading of works on chemistry. Vocabulary exercises. Both parts must be completed before credit is given. Prerequisite, Courses 3 and 4 or their equivalent.  
Part A, sixteen lessons (two university credits).  
Part B, sixteen lessons (two university credits). MR. DOWNS.

## GREEK

1. **BEGINNING GREEK A.** The declensions and conjugations and the simpler rules of syntax, together with translation of sentences from Greek into idiomatic English and from English into Greek. Both A and B must be completed before credit is given for Course A.  
Forty lessons (five university credits). MR. SAVAGE.
2. **BEGINNING GREEK B.** Course A continued; general principles, inflections, word formations, syntax, elementary readings, composition.  
Forty lessons (five university credits). MR. SAVAGE.

4. HISTORY—XENOPHON'S ANABASIS. Selections from Books 2, 3, 4; Hadley's *Greek Grammar*; etymology reviewed and syntax studied sufficiently to enable the student to proceed confidently in the translation of the text; the irregular verb. Prerequisite for credit, Courses 1 and 2 or their equivalents.  
Twenty-four lessons (three university credits). MR. SAVAGE.
5. HISTORY—HERODOTUS. Selected readings from Herodotus's history; syntax, dialectical forms, the irregular verb; collateral work.  
Twenty-four lessons (three university credits). MR. SAVAGE.
6. EPIC POETRY—ELEMENTARY COURSE IN HOMER. Selections from the *Iliad* or the *Odyssey*; mythology, scansion, dialectical forms. Open to those who have read in Greek prose three books of the *Anabasis*, or the equivalent.  
Twenty-four lessons (three university credits). MR. SAVAGE.
51. PHILOSOPHY. Plato's *Apology* and selections from other works of Plato or from Xenophon's *Memorabilia*; study of Greek philosophy. Open to those who have had at least two years of Greek. Prerequisite for credit, Courses 4 to 6 or their equivalents.  
Twenty-four lessons (three university credits). MR. SAVAGE.
52. ORATORY. Selected readings from Lysias and Demosthenes; study of the principles of Greek rhetoric and Greek oratory.  
Twenty-four lessons (three university credits). MR. SAVAGE.
53. DRAMATIC POETRY—ELEMENTARY COURSE IN THE DRAMA. Euripides' *Alcestis* or *Medea*; translation, study of mythology and of Greek life. Open to those who have read at least two books of Homer in addition to three books of the *Anabasis*, or the equivalent.  
Twenty-four lessons (three university credits). MR. SAVAGE.

## HISTORY

### HIGH-SCHOOL COURSE

- I. AMERICAN HISTORY. This course is a course in United States history similar to that taken by third- and fourth-year students in the high school. Since it presupposes a course in the same subject in the grades, the approach is made in a somewhat different manner from that in an elementary course. More emphasis is placed on the relative importance of periods and events, on the causes and relations of events, and upon securing a broader view of our country's history. The supplementary reading is assigned with the notion that it may suggest as well as inform. Maps are used to give meaning to many historical events. The following subjects are treated with especial fulness: discovery and exploration, typical colonies and colonial life, passage of control to England, the Revolution, its causes and results, the estab-

lishment of the new government, the rise of democracy and of nationalism, slavery and expansion, the Civil War, reconstruction, the era of big business. The course gives one entrance unit in history.

Part I. Twenty lessons. Fee, \$10.

Part II. Twenty lessons. Fee, \$10. MR. TOHILL.

#### COLLEGE COURSES

1. ANCIENT HISTORY, PART I—GREEK. This course includes a brief preliminary survey of Egypt and Babylonia, showing their influence on later civilization, 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 conquest of Alexander and the diffusion of Greek civilization over the East.

Twenty-four lessons (three university credits). MR. STEPHENSON.

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). MR. STEPHENSON.

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 (A.D. 800-1648).

Twenty-four lessons (three university credits). MR. STEPHENSON.

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). MR. STEPHENSON.

5. ENGLISH HISTORY, 1066 TO PRESENT, PART I—MEDIEVAL. A study of English history from the Norman Conquest to the accession of the Tudors. The work consists of a careful study of a narrative text and of a constitutional manual, supplemented by source study and collateral reading. Special emphasis is placed upon the beginnings of popular government, as shown in jury trial, the limited monarchy idea, and the growth of the House of Commons.

Twenty-four lessons (three university credits). MRS. DROITCOUR.

6. ENGLISH HISTORY, 1066 TO PRESENT, PART II—MODERN. A continuation of Part I, devoted to a study of English history from 1485 to the present. The emphasis is upon the seventeenth-century struggle for political liberty, and upon the reform movements of the nineteenth and twentieth centuries.

Twenty-four lessons (three university credits). MRS. DROITCOUR.

7. UNITED STATES HISTORY, PART I. This is the first half of a comprehensive course in American history. About two thirds of Part I is devoted to the colonial period, the remainder to the Revolution and the closing years of the eighteenth century. The work consists of a study of the text, supplemented by a considerable amount of source study and collateral reading. The student is required to prepare written answers to questions based on the text and on the supplementary readings. Prerequisite for credit, 6 credits in history.  
Twenty-four lessons (three university credits). MR. STEPHENSON.
8. 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). MR. STEPHENSON.

## LATIN

1. BEGINNING LATIN. Inflections; reading easy Latin prose; the study of elementary syntax.  
Forty lessons (six university credits). MR. CRAM.
2. SELECTIONS FROM CAESAR. Forms and syntax; idiomatic translation; historical environment. Prerequisite, Course I or its equivalent.  
Forty lessons (six university credits). MR. CRAM.
3. ORATIONS OF CICERO A. Two orations, study of the life of Cicero, and Latin composition. Open to those who have completed two years of preparatory Latin.  
Twenty-four lessons (three university credits). MR. CRAM.
4. ORATIONS OF CICERO B. Four orations, study of the times of Cicero, and Latin composition. Open to those who have completed Course 3.  
Twenty-four lessons (three university credits). MR. CRAM.
5. VIRGIL'S AENEID A. The course will cover the first two books of the *Aeneid* and include the study of the life and times of Virgil, the principles of Latin prosody, the literary style of the *Aeneid*, and, to a limited extent, Roman mythology. Open to those who have completed three years of preparatory Latin.  
Twenty-four lessons (three university credits). MR. PIKE.
6. VIRGIL'S AENEID B. Books 3, 4, 5, 6 of the *Aeneid*. Textbooks: *Virgil's Aeneid* by Charles Knapp, Bennett's *Latin Grammar*. The student will, besides, be expected to read and report on Sellar's *Virgil*. Open to those who have completed Virgil's Aeneid A.  
Twenty-four lessons (three university credits). MR. PIKE.
7. LIVY, BOOK I. The work will comprise the study of the text, the life, times, and literary style of Livy, and, in some measure, early Roman institutions, and lastly, Latin composition. Textbooks: Westcott's



*Livy*, Book I, Bennett's *Latin Grammar*, and White's *Latin-English Lexicon*. The student will also read and report on Ihne's *Early Rome*. Open to those who have completed four years of preparatory Latin.

Twenty-four lessons (three university credits). MR. PIKE.

8. **PLAUTUS AND TERENCE: SELECTIONS.** The course will consist of a study of the texts, the literary styles of Plautus and Terence, and an outline of the history and technic of the Roman drama. Textbooks: *Plautus' Menaechmi* by Fowler, *Terence's Phormio* by Elmer, and White's *Latin-English Lexicon*. The student will also be required to read and report upon Sellar's *Plautus and Terence in The Roman Poets of the Republic*. Open to those who have completed Course 7.

Twenty-four lessons (three university credits). MR. PIKE.

## MATHEMATICS

### HIGH-SCHOOL COURSES

1. **ELEMENTARY ALGEBRA I.** A course for students who have never studied algebra. The course treats positive and negative numbers; addition, subtraction, multiplication, and division of monomials and polynomials; simple equations in one unknown quantity; elementary special products and factoring; highest common factor and lowest common multiple. Prerequisite, common-school arithmetic.

Twenty lessons. Fee, \$10. MR. BARTON.

2. **ELEMENTARY ALGEBRA II.** This course with Course I constitutes one entrance unit in mathematics. The course treats addition, subtraction, multiplication, and division of fractions including complex fractions; equations in one unknown quantity which involve fractions; graphical representation; simultaneous equations of the first degree; square roots and quadratic surds; quadratic equations in one unknown quantity. Prerequisite, Elementary Algebra I.

Twenty lessons. Fee, \$10. MR. BARTON.

3. **PLANE GEOMETRY I.** The work of this course is elementary geometry, Books I and II. Rectilinear figures and the circle, with the miscellaneous original exercises and some elementary construction problems. Prerequisite, Courses 1 and 2.

Twenty lessons. Fee, \$10. MR. BARTON.

4. **PLANE GEOMETRY II.** This course treats proportion, similar triangles, proportional properties of line segments, proportional properties of chords and secants, trigonometric ratios, areas of polygons, regular polygons and circles. This course with Course 3 counts for one entrance unit in mathematics. Prerequisite, Course 3.

Twenty lessons. Fee, \$10. MR. BARTON.

5. **SOLID GEOMETRY.** This course is designed not only to give a knowledge of the standard theorems and exercises of the text, but to develop the student's own **imagination and initiative** and to give a well-rounded view of the subject by practice in special proofs and original exercises. Prerequisites, Courses 3, 4, or their equivalents. This course gives one-half entrance unit.

Twenty-four lessons. MR. BARTON.

#### COLLEGE COURSES

6. **HIGHER ALGEBRA, PART I.** Brief review of Courses 1 and 2, linear equations in one, two, and three unknowns, with solution by determinants, ratio and proportion, variation, quadratic equations in one and two unknowns, graphs, completion of quadratic equations, progressions, equations in quadratic form, binomial theorem. Prerequisite, Courses 1 and 2 or their equivalents.

Twenty-four lessons (three university credits). MR. BARTON.

NOTE: Courses 5 and 6 meet the extra high-school requirements in mathematics of the College of Engineering.

7. **HIGHER ALGEBRA, PART II.** A continuation of Part I, including a study of variations, quadratic equations, special higher equations, simultaneous equations of the second degree, maxima and minima of functions, logarithms, theory of equations, and solution of numerical higher equations.

Twenty-four lessons (three university credits). MR. BARTON.

8. **TRIGONOMETRY.** A course in plane and spherical trigonometry, designed to meet the needs of beginners and to include the subject usually considered in the ordinary college course. The solution of triangles is treated quite fully, but not to the exclusion of analytical trigonometry. Prerequisite, Course 6 and logarithms. (Students who did not have logarithms in higher algebra may secure special lessons in this subject.)

Twenty-four lessons (three university credits). MR. PRIESTER.

9. **PLANE ANALYTIC GEOMETRY.** This course treats systems of coordinates, loci, the type forms of the equation of the straight line with application; the circle, central and general conic sections, tangents, diameters, asymptotes, some higher plane curves, parametric loci, polar curves. The fundamental problem of the equation and its locus forms the basis of the course. Prerequisite, Courses 7 and 8 above.

Twenty-four lessons (three university credits). MR. BARTON.

10. **DIFFERENTIAL CALCULUS.** A first course in differential calculus treating differentiation of algebraic and transcendental functions with attention to the notion of the limit of a function, continuity of a function and the derivative. Extensive practice in the technic of differentiation by means of exercises and applications to maxima and

minima, tangents, normals, curvature, singular points, velocity, and acceleration. Elementary discussion of Rolle's theorem and the law of the mean, indeterminate forms, and partial differentiation. The course is based upon a textbook with supplementary written lectures and exercises upon many of the topics. Prerequisites, Courses 7, 8, and 9.

Twenty-four lessons (three university credits). MR. BARTON.

- II. INTEGRAL CALCULUS. First course in integral calculus. The integration of various types of functions, the definite integral with applications to areas, surfaces, and volumes of geometric figures, rectification of curves and simple problems of mechanics. Much practice in the technic of integration and the use of tables of integrals, the evaluation of simple double and triple integrals. Prerequisite, Differential Calculus.

Twenty-four lessons (three university credits). MR. BARTON.

NOTE: See also Courses 1, 2, 13, under Engineering.

## MUSIC

- I. HARMONY. Scales, major and minor; intervals; formation of triads, their inversion; the dominant seventh chord, its inversions; modulation; suspension; organ-point, etc.

Twenty-four lessons (three university credits). MR. SCOTT.

## PHILOSOPHY

1. 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 us to an outline of the idealistic view of the world, with practical applications to conduct and religion.

Twenty-four lessons (three university credits). —————

2. LOGIC. A study of the nature and place of thinking in human life and in science. Part I: theory of judgment. Part II: theory of inference. Part III: theory of scientific method.

Twenty-four lessons (three university credits). —————

3. ETHICS. The principles of moral life. Sketch of the historical development of morality followed by an analysis of its meaning and an application to present-day social, economic, and political problems.

Twenty-four lessons (three university credits). —————

4. PRESENT-DAY PHILOSOPHY. A study of four of the great movements in present-day thought—pragmatism, idealism, the philosophy of Bergson, and neo-realism—in the writings of the most distinguished representatives of these schools. Open to students who have six semester credits in philosophy or psychology.

Twenty-four lessons (three university credits). —————

## PHYSICS

1. GENERAL PHYSICS. Mechanics of solids and fluids, sound, and heat. An elementary university course in the fundamental principles of the subject. A theoretical course without laboratory work.  
Twenty-four lessons (three university credits). MR. EDWARDS.
2. GENERAL PHYSICS. Electricity, magnetism, and light. A continuation of General Physics I. Without laboratory work.  
Twenty-four lessons (three university credits). MR. EDWARDS.

## POLITICAL SCIENCE

1. AMERICAN GOVERNMENT. An elementary course in American government and politics intended as a preparation for teaching in secondary schools and for good citizenship. The course deals with the national government, treating its nature and origin. Special attention will be given to the organization of the executive, legislative, and judicial branches of the government, together with the various powers and duties of each department; to the conduct of foreign affairs; and to the present problems of national government.  
Twenty-four lessons (three university credits). MR. QUIGLEY.
2. MUNICIPAL GOVERNMENT. A study of the city problem in the United States. Organization, functions, and administration. Forms of charters. Commission and manager plans. Home rule. Inefficiency, corruption. Civil service and other reform measures. Finance, health, police, education, and other activities. Prerequisite for credit, Course 1.  
Twenty-four lessons (three university credits). MR. ANDERSON.
3. STATE AND LOCAL GOVERNMENT. A complementary course to the one preceding. The constitutional basis of state government; relation of the states to the national and local governments, and to the citizen; organization, functions, and actual workings of state governments, and of county, township, and city governments; public opinion and popular control in state governments; nominations and elections, initiative, referendum, and recall; taxation and finance; social and regulatory legislation. Prerequisite for credit, Course 1.  
Twenty-four lessons (three university credits). MR. CUSHMAN.
4. INTERNATIONAL LAW. Recognition, extinction, and succession of states. Inviolability of territory; freedom of the seas. Declaration of war; rules of war on land and on sea. Neutrality and neutral rights; blockade, contraband, unneutral service, visit and search. Mediation, arbitration, and judicial settlement of international disputes. A world court. Prerequisite for credit, Course 1.  
Twenty-four lessons (three university credits). MR. WRIGHT.

5. **ELEMENTARY MUNICIPAL GOVERNMENT.** This course is intended to set forth in non-technical language the organization and functions of municipal government. Starting with a consideration of the relation of the municipality to the state and the federal government, the various forms of municipal government have been set forth, and their various advantages and disadvantages discussed. Particular attention has been paid to the city-manager plan. The powers and duties of the various departments and officers of the municipal government have been explained with stress not on the detail and red tape of administrative procedure, but rather on the general purpose and character of the officer or department in the light of its relation to the rest of the city government. Certain municipal fields have been given special notice: public instruction, taxation, public utilities, public health, and certain other phases of police administration.

Eight lessons (no university credit). Fee, \$4. MR. TAYLOR.

### 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). MRS. FOSTER.

2. **GENERAL PSYCHOLOGY II.** The study of mental development in its relation to heredity and training, with an investigation of the facts and theories of childhood and adolescence with special reference to their bearing on education. Prerequisite, Course 1.

Twenty-four lessons (three university credits). MRS. FOSTER.

### ROMANCE LANGUAGES

#### FRENCH

1. **BEGINNING FRENCH.** French grammar and reader; modern texts; comprises the usual work of first-year French.

Forty lessons (six university credits). MR. FRELIN.

2. **INTERMEDIATE FRENCH.** Review of grammar; composition; reading of representative authors. Prerequisite, Course 1 or its equivalent.

Forty lessons (six university credits). MR. FRELIN.

5. **ELEMENTARY FRENCH COMPOSITION.** This course is designed to train the student in the use of French. It presupposes a knowledge of French such as is given by Courses 1 and 2. It consists of translations of passages of connected prose dealing with every-day life in France, such as traveling, shopping, going to the theater, etc. Towards the end of the course, the student is expected to translate short clippings from newspapers. Prerequisite, Courses 1 and 2.

Sixteen lessons (two university credits). MISS. GUINOTTE.

6. **ADVANCED FRENCH COMPOSITION.** A continuation of Course 5. It affords practical exercises in prose composition. Prerequisites, Courses 1, 2, and 5 or their equivalents.  
Sixteen lessons (two university credits). MISS GUINOTTE.

## SPANISH

1. **BEGINNING SPANISH.** Grammar and reader. In this course stress will be laid upon grammar, accurate translation, and composition. Exercises in phonetic equivalents will be given with the view of acquiring a careful pronunciation.  
Forty lessons (six university credits). MR. SIRICH.
2. **INTERMEDIATE SPANISH.** Review of grammar; composition; reading of modern Spanish texts. Prerequisite, Course 1 or its equivalent.  
Forty lessons (six university credits). MR. SIRICH.
5. **ELEMENTARY SPANISH COMPOSITION.** Connected prose composition dealing with every-day life in Spain. The aim is the ability to write Spanish. Prerequisite, Courses 1 and 2 or their equivalents.  
Sixteen lessons (two university credits). MR. SIRICH.
6. **ADVANCED SPANISH COMPOSITION.** A continuation of Course 5, which is prerequisite.  
Sixteen lessons (two university credits). MR. SIRICH.

## ITALIAN

1. **BEGINNING ITALIAN.** Rules of pronunciation, grammar, elementary composition, and easy readings in modern prose.  
Twenty-four lessons (three university credits). MISS PHELPS.
2. **INTERMEDIATE ITALIAN.** Continuation of grammar study and composition; readings in prose and verse.  
Twenty-four lessons (three university credits). MISS PHELPS.

## SCANDINAVIAN LANGUAGES AND LITERATURE

## NORWEGIAN

1. **BEGINNING NORWEGIAN.** Elementary study of the language: grammar, composition, select readings in easy prose and poetry.  
Forty lessons (six university credits). MR. BOTHNE.
2. **INTERMEDIATE NORWEGIAN.** Grammar; composition; elementary history of literature; select works of modern authors. Prerequisite, Course 1 or its equivalent.  
Forty lessons (six university credits). MR. BOTHNE.
3. **ADVANCED NORWEGIAN I.** The reading of representative prose and poetry. Prerequisite, Courses 1 and 2 or their equivalents.  
Twenty-four lessons (three university credits). MR. BOTHNE.

4. **ADVANCED NORWEGIAN II.** A continuation of Course 3. Reading in prose and verse.  
Twenty-four lessons (three university credits). MR. BOTHNE.

#### SWEDISH

1. **BEGINNING SWEDISH.** Grammar and composition; select readings in easy prose and verse.  
Forty lessons (six university credits). MR. STOMBERG.
2. **INTERMEDIATE SWEDISH.** Grammar; composition; easy reading. Prerequisite, Course 1.  
Forty lessons (six university credits). MR. STOMBERG.
3. **SWEDISH LITERATURE A.** History of Swedish literature from 1718 to the present time. History of the literature and study of modern authors, including Selma Lagerlöf, Gejerstam, Strindberg. Prerequisites, Courses 1 and 2, and advanced Swedish.  
Twenty-four lessons (three university credits). MR. STOMBERG.
4. **SWEDISH LITERATURE B.** A continuance of Course 3. Open to advanced students. Both courses must be completed before credit is given for the first course.  
Twenty-four lessons (three university credits). MR. STOMBERG.

#### SOCIAL SCIENCE

##### HIGH-SCHOOL COURSE

1. **SOCIAL SCIENCE, PART I.** This is a course whose primary aim is to give citizens an insight into the world in which they are living—an insight which will enable them to understand the economic, social, and political happenings of every-day existence and through their understanding to live more useful lives. Since present institutions are the outgrowth of past experience, the first few weeks will be spent in an historical survey of man's progress up through the industrial revolution. The remaining three quarters of Part I is devoted to a study of the present economic organization of society. Production, consumption, exchange, and transportation are taken up in turn. Much attention is given to certain fundamental principles which should underlie all business dealings. Chief among these are (1) responsibility, which is best illustrated by banking; (2) fairness, which is at stake in the devices of competition used by corporations and trusts, in the wages paid to laborers, and in the prices charged to consumers; and (3) the principle of public service which is enforced by law through public control over combinations in restraint of trade and over the railroads. Such concrete questions as the wisdom of government ownership, the causes of the high cost of living, the justice of the strike and the closed shop are considered impartially from all angles. One-half entrance unit in Group D.  
Twenty lessons. Fee, \$10. MISS FLEMING.

2. **SOCIAL SCIENCE, PART II.** This part continues the economic discussion of Part I by making a study of the present system of the distribution of the products of production. The rules and economic laws which determine the payments of rent, interest, and profits are studied in connection with the actual facts of life which modify these theories. Social conditions resulting from our present economic organization are the next subject of study. The merits and disadvantages of city and country life are contrasted and the current unsolved problems of each, such as crime in the city and inadequate education and recreation in the country, are given some attention. The last part of the course is devoted to a study of political relationships. Here we preface the study of current political problems by an historical account of the development of the present form of the United States government. Political ideals and actual practices of voting and holding offices are stressed more than detailed descriptions of the machinery of government. The course closes with a discussion of the foreign relationships of the United States in the past, present, and future. One-half entrance unit in Group D.

Twenty lessons. Fee, \$10. MISS FLEMING.

### SOCIOLOGY

1. **INTRODUCTION TO SOCIOLOGY.** A study of the evolution and present organization of human society. The evolution of typical social institutions, such as the family, industry, and the state; the influence of the biological and environmental (both physical and social) factors upon man in his social relationships; an introductory analysis of some of the leading social problems of the time; a study of the methods of social organization and control, especially from the standpoints of tradition, custom, and science. This course is intended to serve (1) as an introduction to other more specialized courses in sociology, (2) as a background for a better understanding of the society in which we live and of its problems.

Twenty-four lessons (three university credits). MR. BERNARD.

2. **RURAL SOCIOLOGY.** A study of the conditions and problems of country life. Analysis of environmental, human, and general social conditions; how soil, climate, etc., the quantity and quality of the rural population, the interaction of city and country determine the type of rural communities. Problems of sanitation, coöperation, education, religion, recreation, crime, and dependency growing out of these conditions.

Twenty-four lessons (three university credits). MR. BERNARD.

3. **CHILD WELFARE.** Study of social obligations to the child; development of the child-saving movement in the United States; infant and child mortality, recreation, education; courts, institutions, societies, and other public efforts for the child. A limited amount of field



work must be done. Prerequisite for credit, one year's work in sociology. Open to others without credit.

Twenty-four lessons (three university credits). MR. HODSON.

11. SOCIAL ORGANIZATION. A study of the foundations of democracy, including the organization and structure of groups, the development of social ideals, the factors producing disorganization and reorganization of institutions, and the methods of promoting an intelligent and lasting democracy. Course 1, or an equivalent, prerequisite.

Sixteen lessons (two university credits). MR. BERNARD.

52. FIELD WORK IN RURAL SOCIOLOGY. Students who have completed the work in Rural Sociology (Sociology 2) or its equivalent may, with the consent of the instructor, enroll for more advanced work on some selected rural-community problem. The work will consist of the application of the survey method to the study of the problem selected. Schedules will be provided through the correspondence department. The student will collect the data and will be responsible for some preliminary interpretation of this data. The accuracy of the completed schedules, which will be returned to the instructor, and the ability shown in interpreting the data collected will serve as a basis for judging the quality of the work done. One or two semester hours' credit, according to amount of work done.

Fee, \$4. MR. BERNARD.

## OTHER EXTENSION ACTIVITIES BUREAU OF VISUAL INSTRUCTION

The Bureau of Visual Instruction of the General Extension Division was organized to supply to the schools and other educational institutions of the state lantern slides and motion-picture films on subjects of general interest and educational value.

### SLIDE SERVICE

Slides are sent out under three different plans:

1. Several schools may band together and form a circuit. Each school may receive one set of slides at weekly or bi-weekly intervals. This plan saves transportation charges. Schools should arrange circuits as early in the year as possible.

2. Schools may place individual orders for sets of slides. These will be filled if the slides are available. Bookings for this service should be made as far in advance as possible.

3. Slides may be borrowed like the books of a library. The bureau is accumulating hundreds of slides on various subjects which are being classified with the intention of issuing a catalog of them. Only a limited number may be obtained at one time.

It should be noted: (1) the slide service is free of all charge; (2) the borrower pays transportation charges both ways; (3) slides may be used only one week unless special arrangement is made; and (4) no admission fee is to be charged except where funds go toward the purchase of school, playground, or other equipment, or for the cost of the service.

### FILM SERVICE

The bureau has several hundred reels of film on travel, industries, mechanics, etc. These reels may be borrowed on the same terms as slides with the exception that the borrower must remit an inspection fee of fifteen cents for one-reel programs and twenty-five cents for more than one reel. Most schools pay the yearly inspection fee of \$5 which entitles them to at least eighteen programs.

### INFORMATION SERVICE

The bureau is glad to inform inquirers as to where visual aids may be obtained and to give advice as to purchase of equipment, its repair and management.

## LECTURE AND LYCEUM DEPARTMENT

### EXTENSION LECTURES

Lectures, either single or in series, delivered by members of the University faculty, may be obtained by any community at a purely nominal fee. The lectures offered cover a wide variety of subjects of current interest and are presented in popular form. A community which avails itself

of this opportunity can keep in touch with the important developments of the day and maintain a steady interest in public affairs. The fee for each lecture is \$15 and the local entertainment of the speaker, and is uniform throughout the state. A bulletin giving complete information regarding the lectures available for next season will be sent on request.

#### LYCEUM COURSES

The General Extension Division also offers to the communities of the state professional lyceum courses at cost. A wide variety of talent has been secured for the season 1921-22.

The talent is secured by the cooperation of the extension division of three state universities. The three universities together form one of the largest booking agencies in the country and are able to get the best talent on the most reasonable terms.

By careful railroad-routing and by the complete elimination of profit, the University is able to deliver these courses at a cost so low that even the smallest towns can make them pay.

#### 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 prepared to give assistance to these schools in the selection of plays. A loan library of between four hundred and five hundred dramas is maintained from which selected plays will be sent to committees for reading purposes. No charge is made for this service beyond the cost of postage. In addition, advice is given as to costumes and also with respect to the purchase and the painting of scenery.

It is hoped that in the future it may be possible to send out University dramatic companies to give plays in the several communities of the state during vacations and at week-ends. If interest in this form of service develops, it may be possible to furnish amateurs in the state the assistance of a University dramatic coach. Correspondence is invited from interested schools.

#### COMMUNITY SERVICE

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.

## MUNICIPAL REFERENCE BUREAU

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

## SHORT COURSES

In addition to night classes and correspondence courses, short courses of a week or more are used for disseminating to outsiders in an intensive way the information and expert knowledge which is available at the University or which may be summoned thither for that purpose. In a week or two weeks of concentrated, intensive effort much may be learned about a limited branch of a given subject. In every case the teachers are experts, secured either from the University faculty or from the ranks of those actively engaged in the pursuit of the occupation, trade, or profession under study. In this way short courses are given each year in retail merchandising, in two or three different branches of dentistry for graduate dentists, in banking with special reference to income-tax problems, in social-service work, and in citizenship. New short courses will be added from time to time as the demand arises. In every case the plan is to expound the various phases of the subject and to outline fundamental principles. These courses are held at the University.

## AGRICULTURAL EXTENSION

Agricultural extension including lectures, demonstrations, institutes, and short courses will be carried on as usual under the direction of the Agricultural Extension Division of the College of Agriculture. Address all inquiries regarding such work to the Agricultural Extension Division, University Farm, St. Paul, Minnesota.

## INFORMATION

It often happens that citizens of a state are in need of information on some specific subject not to be found in the ordinary books of reference, and in such cases the average person is at a loss where to turn. The General Extension Division has as one of its functions the business of obtaining and furnishing to inquirers information on the various subjects which from time to time may be called for. This information is obtained by research and by application to the proper university source, and thereby

the division acts as a clearing house for 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.

# INDEX

	Page		Page
Accounting .....	12	Lantern slides .....	36
Admission .....	8	Latin .....	26
Agricultural extension .....	38	Lectures .....	36
Astronomy .....	11	Lyceum courses.....	37
Books and outfit.....	7	Mathematics .....	27
Business courses .....	11	Municipal Reference Bureau.....	38
Business law .....	11	Music .....	29
Commercial law. <i>See</i> Business law		Norwegian .....	32
Community service .....	37	Number of courses carried.....	8
Correspondence study.....	5	Other extension activities.....	36
Cost. <i>See</i> Fees		Philosophy .....	29
Courses of instruction.....	11	Physics .....	30
Credit, university .....	9	Political science.....	30
Entrance .....	6, 9	Procedure .....	7
Drama service .....	37	Professional state teacher's certifi- cate .....	10
Economics .....	14	Psychology .....	31
Education .....	15	Regulations .....	8
Engineering .....	18	Reinstatement .....	9
English .....	20	Resident students .....	10
Examinations .....	10	Rhetoric .....	21
Extension lectures .....	36	Romance languages.....	31
Faculty .....	3	Scandinavian languages and litera- tures .....	32
Fees .....	8	Selection of courses .....	6
Film service .....	36	Short courses .....	38
French .....	31	Slide service.....	36
General information.....	5	Social science.....	33
German .....	22	Sociology .....	34
Grade symbols.....	10	Spanish .....	32
Greek .....	23	Swedish .....	33
High-school courses .....	6	Time allowed for course.....	8
History .....	24	Trade and industrial education.....	17
How to send money.....	7	Unit course .....	6
Information .....	38	Visual instruction .....	36
Information service .....	36		
Italian .....	32		
Industrial education.....	16		
Instruction .....	5		

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

*Sanford Hall*

1921-22



*Vol. XXIV No. 7 April 8 1921*

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

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

## SANFORD HALL.

The residence for women students at the University of Minnesota is situated at the corner of Eleventh Avenue and University Avenue S.E., three blocks from the main entrance to the campus. It is divided into two parts which are known respectively as Sanford Hall East and Sanford Hall West. Each of these parts or wings has its own chaperone, its own dining room, living room, and reception room, and, altogether, a distinct family life. Sanford East includes 39 single rooms and 26 double rooms, accommodating, in all, 89 students. Sanford West has 41 single rooms and 30 double and will therefore accommodate 101 students. The building is heated by steam and lighted by electricity, and each room is provided with hot and cold water. Each single room contains a good-sized closet; and each double room has two closets. The wall coloring of the single rooms is a soft green, while that of the double rooms is buff. The furniture includes dressers, study tables, rugs, chairs, beds, and bedding. Articles in the following list must be supplied by the students:

### *Required*

Toothbrush glass  
Towels  
Napkin ring  
Bureau scarf (bureau top, 21x41 inches)  
Couch cover (colored material, 4 to 6 feet in width and 9 feet in length)

### *Advised*

Window curtains  
Drop light (electric)  
Book case  
Waste basket  
Double blanket

## APPLICATION FOR ADMISSION

Applications for rooms will be considered in the order in which they are received. In the assignment of rooms, the higher classes will have the preference. No assignment will be considered permanent until the registration requirements have been met.

Application for a room should be made on the card which accompanies this bulletin. No application will be registered which is not accompanied by a deposit of \$10. This \$10 fee is retained by the University as long as the student remains in residence. In case of new students and undergraduates, the fee will be refunded if an application is cancelled before September 1 of the ensuing college year. In the case of seniors, the \$10 fee will be deducted from the second residence fee.

The University reserves all rights in connection with the assignment of rooms and the termination of their occupancy. No student may give up a room without the written permission of parent or guardian. No change in the assignment of rooms may be allowed during the first three



weeks of the college year. All undergraduates are requested to leave the dormitory as soon as possible after examinations in June are over, in order that alumnae and senior guests may be accommodated.

Applications for rooms should be addressed to House Director of Sanford Hall, University of Minnesota. The deposit should be sent in the form of a draft or money order, payable to the University of Minnesota.

A limited number of rooms in Sanford Hall will be open for occupancy several days before the opening of the University in the fall. Such rooms will be available for the temporary use of women students who need to come to the city early in order to register and to secure living accommodations for the year. All arrangements for such temporary accommodations must be made in advance. No meals will be served.

## HOUSE RULES AND REGULATIONS

Women members of the faculty live in Sanford Hall to act as chaperones and advisers for the resident students. A general scheme of student self-government is in force.

A trained nurse resides in Sanford whose duty it is to supervise the health of the students and care for them in all cases of illness, except where complete isolation or constant care for a long period of time is required. It is expected that the student will cheerfully comply with the wishes of the nurse in all matters pertaining to the health of the household. This applies particularly to the prompt reporting of sore throats, eruptions, etc. A neglect of such ailments might lead to a serious epidemic.

It is suggested to parents that the nurse be advised at the beginning of the college year concerning the physician to be called in case of illness. If no such advice is received, the matter is left to the discretion of the nurse.

### HOUSE RULES

#### I

Quiet for study shall be observed from eight p.m. throughout the entire evening, with the exception of Saturday evening.

#### II

Social engagements, including the entertaining of callers, shall be limited to three evenings a week, for all students except seniors. Permission may be obtained from the House Chaperone for two additional evenings during each month. Seniors shall be allowed more than three evenings a week, provided they obtain permission from the House Chaperone. All evening engagements lasting later than nine o'clock shall be considered social engagements.

#### III

Students leaving the house to be gone during any part of the evening shall make out proper cards, stating address at which they can be reached and time they expect to return. Upon their return they shall stop at the office and have the time of return recorded on their cards. No student is allowed to leave the house after 9:30 p.m.

Students are expected to return promptly from evening engagements. It is especially desired that girls do not go to restaurants, cafés, or other places of refreshment after evening engagements.

Sunday theater-going is not allowed.

#### REGULATIONS

Matters pertaining to the care of the building are in the hands of the House Director and some of the more important regulations posted in each room and enforced by her are given below.

Students will be held liable for injury to college property occurring through their agency. The occupants of rooms will be held responsible for all damage within the rooms.

No articles shall be tacked or fastened in any way to the walls, furniture, or electric-light fixtures. Pictures and other ornaments must be suspended from the picture moulding only.

Lamp shades of combustible materials are prohibited.

None but "safety" matches shall be used or kept in the building.

Alcohol lamps and chafing dishes are forbidden. A kitchenette is provided.

Any use of kerosene, gasoline, naphtha, benzine, or any similar inflammable fluid is strictly prohibited.

Trunks are not allowed in rooms.

All damages, defects, and leakages should be reported immediately to the House Director; otherwise a fine will be imposed.

No laundry work will be allowed in rooms or bathrooms. The house laundry will be open to students five mornings and four afternoons a week.

Electrical appliances must not be used in the rooms.

#### RATES

Each student occupying a place in Sanford Hall, whether in a single or a double room, is charged \$330 for board and room for the college year. The year is considered as beginning on the day before the University opens for regular work, as ending the day after examinations are over, and as not including the Christmas and spring vacations. There is a specified price for the entertainment of guests at meals. No guests are to be entertained over night except at week ends, when there is a vacancy. At such times a charge of 35 cents is made.

#### PAYMENTS

Payment for board and room must be made in advance in two installments, three fifths being due when registration fees are paid in September, two fifths being due when registration fees are paid for the second semester. Failure to make the payments at the specified times will lead to suspension of registration until the fees are paid. These payments are not subject to return or reduction. A fee of three dollars is required of each student to cover free telephone service, use of laundry, newspapers, and magazines. This fee is due with the first residence fee. A student vacating before the end of the college year will be charged for board and room until the vacancy has been filled. Drafts, checks, or money orders should be made payable to the University of Minnesota.

# *The Bulletin of the University of Minnesota*

*General Information  
for the Year 1921-1922*



*Vol. XXIV No. 8 April 15 1921*

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

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

The *Bulletin* of the University of Minnesota is issued as often as twice a month during the University year.

---

The *Bulletin* comprises—

The *Reports* of the President and of the Board of Regents, the *Register*, the *Bulletin of General Information*, the annual announcements of the individual colleges of the University, announcements of special courses of instruction, and reports of University officers.

These bulletins will be sent gratuitously to all persons who apply for them. The applicant should state specifically which bulletin or what information is desired. Address

The REGISTRAR,  
The University of Minnesota,  
Minneapolis, Minnesota.

*Research Publications.* Containing results of research work. Papers are published as separate monographs numbered in several series.

*Current Problems Series.* Containing papers of general interest in various lines of work.

*School of Mines Experiment Station Bulletin.* Containing results of investigations conducted by the station.

These publications are sent free to libraries and to other institutions publishing similar material. To individuals, a small charge is made. For lists and prices, address

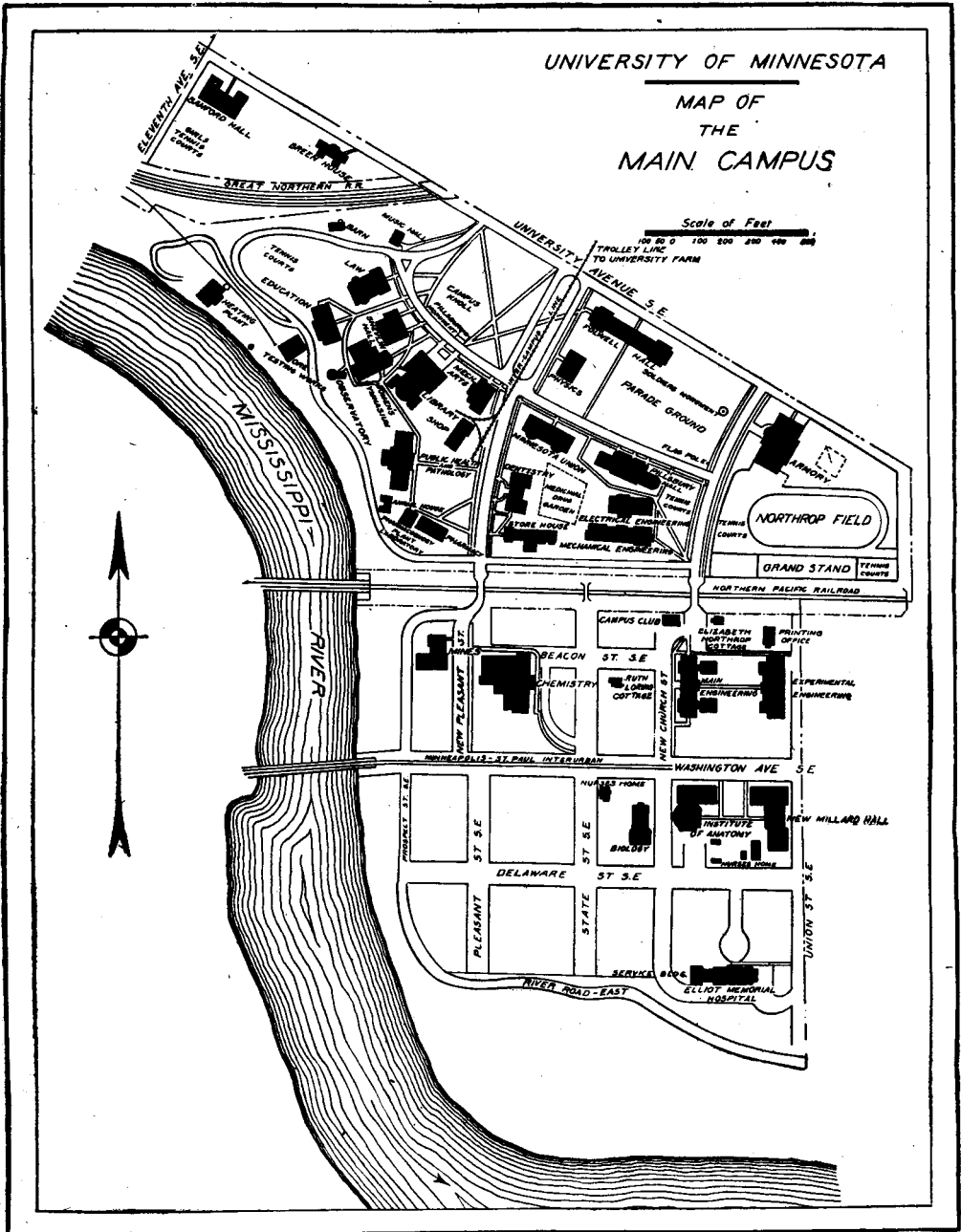
The LIBRARIAN,  
The University of Minnesota,  
Minneapolis, Minnesota.

## NOTICE TO PROSPECTIVE STUDENTS

1. Credentials should be submitted as soon as possible after the close of the spring term, and in no case later than July 1.
2. Students who do not observe this regulation must expect to undergo the inconvenience of delay in being notified of their status.
3. This may lead to embarrassing results in the event that the candidate in question is not qualified for admission, as the time for removing deficiencies is thereby curtailed.
4. Whenever possible, credentials should be sent in directly by the proper official at the school last attended, and should not be presented in person by the student.

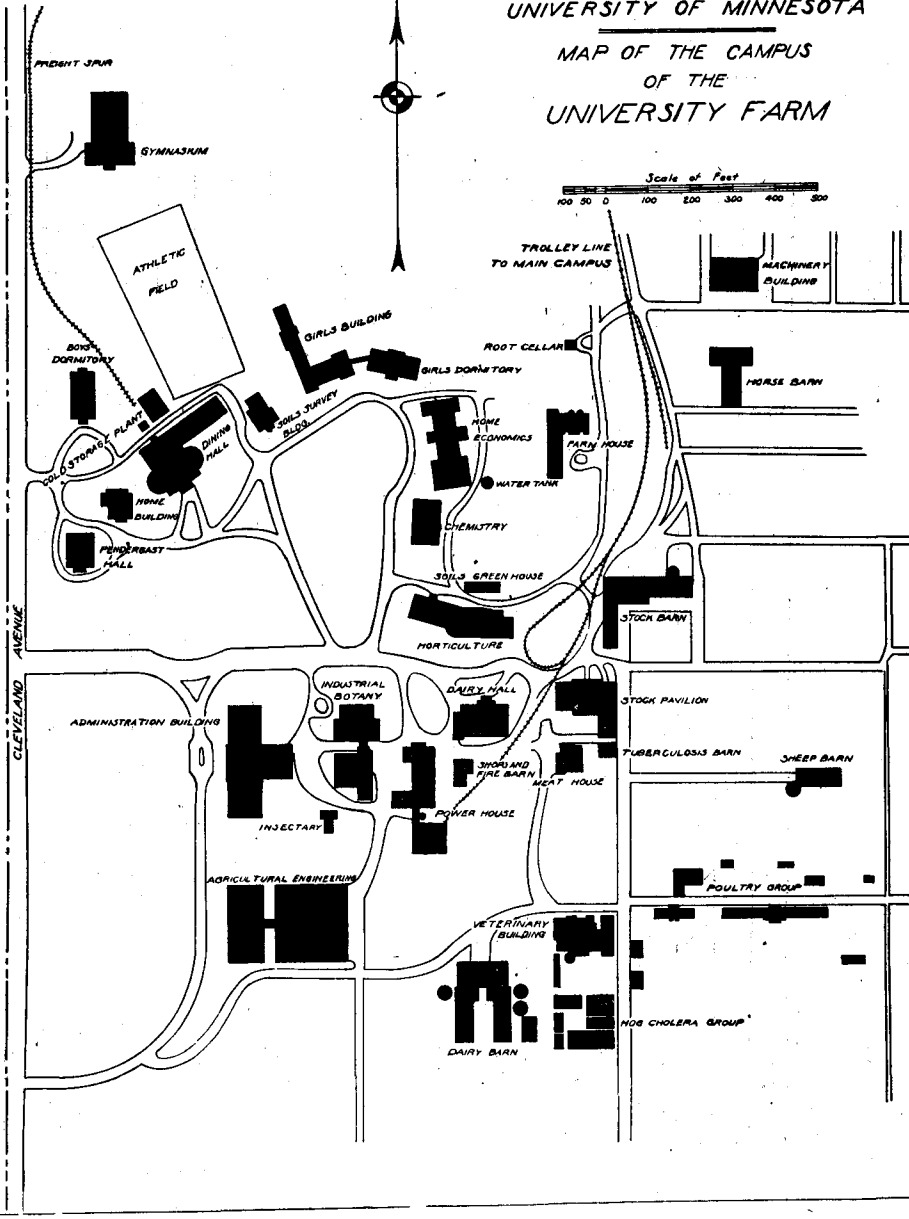
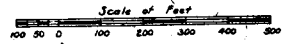
## CONTENTS

	Page
Map of the main campus.....	4
Map of the farm campus.....	5
The University Calendar.....	6
Organization of the University.....	10
The Board of Regents.....	11
Executive officers.....	11
Courses and degrees.....	12-19
The University Library.....	19-20
The Student Health Service.....	20-21
Military Science and Tactics.....	21-22
Degrees.....	22
The University state teacher's certificate.....	22
Admission.....	23-44
General requirements.....	23-25
Admission by examination.....	23
Admission by certificate.....	24
Registration.....	24
List of entrance subjects.....	24-25
Requirements of the individual colleges.....	25-32
College of Science, Literature, and the Arts.....	25-26
College of Engineering and Architecture.....	26-27
College of Agriculture, Forestry, and Home Economics.....	27
Law School.....	27-28
Medical School.....	28-29
School of Nursing.....	29-30
College of Dentistry.....	30
School of Mines.....	30-31
College of Pharmacy.....	31
School of Chemistry.....	31
College of Education.....	31-32
School of Business.....	32
Unclassed students.....	32
Advanced standing.....	33-34
Accredited schools.....	34-37
Description of subjects accepted for admission.....	37-44
Expenses.....	45-51
Fees.....	45-48
Living expenses.....	48-50
Self-support.....	50-51
Scholarships, loans, and prizes.....	52-60
Organizations and publications.....	61-63
Index.....	64-70



Area of Main Campus, 108.5 acres

UNIVERSITY OF MINNESOTA  
 MAP OF THE CAMPUS  
 OF THE  
 UNIVERSITY FARM



Area of University Farm, 422.56 acres



1921							1922													
<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
3	4	5	6	7	8	2	1	2	3	4	5	6	7	..	..	4	5	6	7	1
10	11	12	13	14	15	16	8	9	10	11	12	13	14	9	10	11	12	13	14	15
17	18	19	20	21	22	23	15	16	17	18	19	20	21	16	17	18	19	20	21	22
24	25	26	27	28	29	30	22	23	24	25	26	27	28	23	24	25	26	27	28	29
31	..	..	..	..	..	..	29	30	31	..	..	..	..	30	31	..	..	..	..	..
<b>AUGUST</b>							<b>FEBRUARY</b>							<b>AUGUST</b>						
..	1	2	3	4	5	6	..	..	..	1	2	3	4	..	..	1	2	3	4	5
7	8	9	10	11	12	13	5	6	7	8	9	10	11	6	7	8	9	10	11	12
14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19
21	22	23	24	25	26	27	19	20	21	22	23	24	25	20	21	22	23	24	25	26
28	29	30	31	..	..	..	26	27	28	..	..	..	..	27	28	29	30	31	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>SEPTEMBER</b>							<b>MARCH</b>							<b>SEPTEMBER</b>						
..	..	..	..	1	2	3	..	..	..	1	2	3	4	..	..	..	..	..	1	2
4	5	6	7	8	9	10	5	6	7	8	9	10	11	3	4	5	6	7	8	9
11	12	13	14	15	16	17	12	13	14	15	16	17	18	10	11	12	13	14	15	16
18	19	20	21	22	23	24	19	20	21	22	23	24	25	17	18	19	20	21	22	23
25	26	27	28	29	30	..	26	27	28	29	30	31	..	24	25	26	27	28	29	30
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>OCTOBER</b>							<b>APRIL</b>							<b>OCTOBER</b>						
..	..	..	..	..	..	1	..	..	..	..	..	..	1	1	2	3	4	5	6	7
2	3	4	5	6	7	8	2	3	4	5	6	7	8	8	9	10	11	12	13	14
9	10	11	12	13	14	15	9	10	11	12	13	14	15	15	16	17	18	19	20	21
16	17	18	19	20	21	22	16	17	18	19	20	21	22	22	23	24	25	26	27	28
23	24	25	26	27	28	29	23	24	25	26	27	28	29	29	30	31	..	..	..	..
30	31	..	..	..	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>NOVEMBER</b>							<b>MAY</b>							<b>NOVEMBER</b>						
..	..	1	2	3	4	5	..	1	2	3	4	5	6	..	..	1	2	3	4	
6	7	8	9	10	11	12	7	8	9	10	11	12	13	5	6	7	8	9	10	11
13	14	15	16	17	18	19	14	15	16	17	18	19	20	12	13	14	15	16	17	18
20	21	22	23	24	25	26	21	22	23	24	25	26	27	19	20	21	22	23	24	25
27	28	29	30	..	..	..	28	29	30	31	..	..	..	26	27	28	29	30	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>DECEMBER</b>							<b>JUNE</b>							<b>DECEMBER</b>						
..	4	5	6	7	1	2	3	..	..	..	1	2	3	..	..	..	..	..	1	2
11	12	13	14	15	16	17	4	5	6	7	8	9	10	3	4	5	6	7	8	9
18	19	20	21	22	23	24	11	12	13	14	15	16	17	10	11	12	13	14	15	16
25	26	27	28	29	30	31	18	19	20	21	22	23	24	17	18	19	20	21	22	23
..	..	..	..	..	..	..	25	26	27	28	29	30	..	24	25	26	27	28	29	30
..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..

# UNIVERSITY CALENDAR

1921-1922

1921			
September	17	Saturday	Payment of fees closes, except for new students
September	20-27	Week	Examinations for removal of conditions and entrance examinations Physical examinations for all new students
September	19-24	Week	Registration period, colleges of Science, Literature, and the Arts, and Agriculture, Forestry, and Home Economics
September	26	Monday	First semester evening extension classes begin
September	26-27		Registration days for all colleges not indicated above
September	27	Tuesday	Payment of fees for new students closes
September	28	Wednesday	Fall quarter begins, 8:30 a.m.
October	15	Saturday	Class Scrap Day; all classes dismissed the fourth hour
October	20	Thursday	Senate meeting, 4:30 p.m.
November	5	Saturday	Home Coming Day; classes dismissed the third and fourth hours
November	11	Friday	Armistice Day; a holiday
November	24	Thursday	Thanksgiving Day; a holiday
December	15	Thursday	Senate meeting, 4:30 p.m.
December	21	Wednesday	Fall quarter ends. Christmas vacation begins, 5:20 p.m.
1922			
January	4	Wednesday	Christmas vacation ends, winter quarter begins, 8:30 a.m.
January	20	Friday	First semester evening extension classes close
January	30	Monday	Second semester evening extension classes begin
February	16	Thursday	Senate meeting, 4:30 p.m.
February	22	Wednesday	Washington's Birthday; a holiday
March	23	Thursday	Winter quarter ends, spring vacation begins, 5:20 p.m.
March	29	Wednesday	Spring vacation ends, spring quarter begins, 8:30 a.m.
May	18	Thursday	Senate meeting, 4:30 p.m.
May	19	Friday	Second semester evening extension classes close

May	30	Tuesday	Memorial Day; a holiday
June	11	Sunday	Baccalaureate service
June	13	Tuesday	Spring quarter closes, 5:20 p.m.
June	14	Wednesday	Fiftieth annual commencement
June	17-19		Registration days for summer session
June	20	Tuesday	Summer session begins
July	28	Friday	Summer session closes

*Program of Entrance Examinations 1921-22*

Entrance examinations for admission to the various colleges of the University will be conducted according to the following schedule, in Room 112, Library Building, unless otherwise specified.

Candidates wishing to take any of these examinations should notify the examiner in writing not later than September 1.

Any student finding a conflict in his program should report to the examiner for adjustment.

Tuesday,	Sept. 20	9 a.m.	Business Subjects, Elementary Algebra, Plane Geometry
		2 p.m.	Manual Subjects, Domestic Art and Science, Agriculture, Higher Algebra, Solid Geometry
Wednesday,	Sept. 21	9 a.m.	Astronomy, Botany, Geology, Chemistry, Physiography, Zoology, Physics, Physiology, General Science
		2 p.m.	American Government, History, Economics, Commercial Geography, History of Commerce, Economic History of England, Economic History of the United States, Sociology
Thursday,	Sept. 22	9 a.m.	English
		2 p.m.	German, Greek, French, Latin, Scandinavian, Spanish

A representative of each department will be at the office of the head of the department each forenoon of entrance-examination week from 9:00 to 12:00 to give information and advice.

*SCHEDULE OF CONDITION EXAMINATIONS*

*Examination week, September 23-27, 1921*

Condition examinations will be offered according to the following schedule and will be open to students in all colleges who have conditions for which no previous opportunity for removal has been scheduled.

In case of any department not listed, inquiry should be made at the office of the dean of the respective college.

Friday,	Sept. 23	9 a.m.	Animal Biology, Botany, Physics, Agronomy and Farm Management, Animal Husbandry, Entomology and Economic Zoology, Anatomy
		2 p.m.	Astronomy, Chemistry, Agricultural Biochemistry, Bee Culture, Experimental Engineering, Physiology
Saturday,	Sept. 24	9 a.m.	Economics, Mathematics and Mechanics, History, Education, Agricultural Education, Dairy Husbandry, Farm Engineering, Drainage, Histology
		2 p.m.	French, Spanish, Italian, German, Greek, Latin, Scandinavian, Forestry, Home Economics, Drawing and Descriptive Geometry, Bacteriology
Monday,	Sept. 26	9 a.m.	Comparative Philology, Rhetoric, English, Horticulture, Plant Pathology, Poultry Husbandry, Rural and Agricultural Journalism, Metallurgical subjects, Embryology
		2 p.m.	Political Science, Music, Philosophy, Psychology, Sociology and Anthropology, Social and Civic Work, Soils, Veterinary Medicine, Civil, Electrical, Mechanical Engineering and Architectural subjects, Pathology
Tuesday,	Sept. 27	9 a.m.	Geology and Mineralogy, Pharmacology
		2 p.m.	Mining subjects

In case of conflict, special arrangements must be made with the instructor.

Similar examinations will also be given by certain of the colleges not earlier than the seventh week or later than two weeks preceding the final examination periods of the winter and spring quarters. Announcement of these examinations will appear in the *Official Daily Bulletin*.

No student may take more than one examination to remove a condition.

## ORGANIZATION OF THE UNIVERSITY

The University is organized in schools, colleges, and divisions as follows:

THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

THE COLLEGE OF ENGINEERING AND ARCHITECTURE

THE DEPARTMENT OF AGRICULTURE, comprising—

THE COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

THE SCHOOLS OF AGRICULTURE, comprising—

THE CENTRAL SCHOOL, UNIVERSITY FARM

THE NORTHWEST SCHOOL, CROOKSTON

THE WEST CENTRAL SCHOOL, MORRIS

THE AGRICULTURAL EXPERIMENT STATIONS, comprising—

THE STATE EXPERIMENT STATION, UNIVERSITY FARM

THE NORTHWEST EXPERIMENT STATION, CROOKSTON

THE NORTH CENTRAL EXPERIMENT STATION, GRAND RAPIDS

THE WEST CENTRAL EXPERIMENT STATION, MORRIS

THE NORTHEAST DEMONSTRATION FARM AND EXPERIMENT STATION, DULUTH

THE SOUTHEAST DEMONSTRATION FARM AND EXPERIMENT STATION, WASECA

THE FRUIT BREEDING FARM, ZUMBRA HEIGHTS

THE STATE TREE STATION, OWATONNA

THE FOREST EXPERIMENT STATIONS, ITASCA AND CLOQUET

THE AGRICULTURAL EXTENSION DIVISION

THE SHORT COURSES IN AGRICULTURE

THE LAW SCHOOL

THE MEDICAL SCHOOL, including—

THE SCHOOL OF NURSING

THE COLLEGE OF DENTISTRY, including—

THE SCHOOL FOR DENTAL HYGIENISTS

THE SCHOOL OF MINES, including—

MINNESOTA SCHOOL OF MINES EXPERIMENT STATION

THE COLLEGE OF PHARMACY

THE SCHOOL OF CHEMISTRY

THE COLLEGE OF EDUCATION, including—

THE UNIVERSITY HIGH SCHOOL

THE GRADUATE SCHOOL

THE SCHOOL OF BUSINESS

THE UNIVERSITY EXTENSION SERVICE, comprising—

GENERAL EXTENSION DIVISION

AGRICULTURAL EXTENSION DIVISION

## THE BOARD OF REGENTS

The Hon. FRED B. SNYDER, Minneapolis, President of the Board	1922
LOTUS DELTA COFFMAN, Minneapolis	<i>Ex officio</i>
The President of the University	
The Hon. J. A. O. PREUS, St. Paul	<i>Ex officio</i>
The Governor of the State	
The Hon. J. M. McCONNELL, St. Paul	<i>Ex officio</i>
Commissioner of Education	
The Hon. JOHN G. WILLIAMS, Duluth	1921
The Hon. L. E. POTTER, Springfield	1921
The Hon. CHARLES L. SOMMERS, St. Paul	1921
The Hon. PIERCE BUTLER, St. Paul	1922
The Hon. C. W. GLOTZELTER, Waterville	1922
The Hon. W. J. MAYO, Rochester	1925
The Hon. MILTON M. WILLIAMS, Minneapolis	1925
The Hon. GEORGE H. PARTRIDGE, Minneapolis	1926

## EXECUTIVE OFFICERS

LOTUS DELTA COFFMAN, Ph.D., President  
 JOHN J. PETTIJOHN, B.A., Assistant to the President  
 RODNEY M. WEST, B.A., Registrar  
 ALBERT J. LOBB, Ph.B., LL.B., University Comptroller  
 FRANK K. WALTER, M.A., M.L.S., Librarian  
 JOHN SUNDWALL, Ph.D., M.D., Director of the University Health Service  
 JOHN B. JOHNSTON, Ph.D., Dean of the College of Science, Literature, and the Arts  
 JOSEPH M. THOMAS, Ph.D., Assistant Dean of the Senior College, College of Science, Literature, and the Arts  
 WILLIAM H. BUSSEY, Ph.D., Assistant Dean of the Junior College, College of Science, Literature, and the Arts  
 ROYAL R. SHUMWAY, B.A., Assistant Dean of Students' Work, College of Science, Literature, and the Arts  
 ORA M. LELAND, B.S., C.E., Dean of the College of Engineering and Architecture  
 ROSCOE W. THATCHER, M.A., D.Agr., Dean and Director of the Department of Agriculture  
 EDWARD M. FREEMAN, Ph.D., Dean of the College of Agriculture, Forestry, and Home Economics  
 EVERETT FRASER, B.A., LL.B., Dean of the Law School  
 ELIAS POTTER LYON, Ph.D., M.D., Dean of the Medical School  
 ALFRED OWRE, B.A., M.D., C.M., D.M.D., Dean of the College of Dentistry  
 WILLIAM R. APPLEBY, M.A., Dean of the School of Mines  
 FREDERICK J. WULLING, Ph.D., LL.M., Dean of the College of Pharmacy  
 ORA M. LELAND, B.S., C.E., Dean of the School of Chemistry  
 MELVIN E. HAGGERTY, Ph.D., Dean of the College of Education  
 GUY STANTON FORD, Ph.D., Dean of the Graduate School  
 GEORGE W. DOWRIE, Ph.D., Dean of the School of Business  
 RICHARD R. PRICE, M.A., Director of University Extension  
 JESSIE S. LADD, Dean of Women  
 EDWARD E. NICHOLSON, M.A., Dean of Student Affairs

# THE UNIVERSITY OF MINNESOTA

## COURSES AND DEGREES

THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS offers a four-year course of study leading to the degree of Bachelor of Arts. The work is elective under certain limitations intended to secure a proper balance between breadth of foundation and liberal culture on the one hand and specialized training on the other.

*Course in Training for State and Federal Administration.*—A five-year course leading to the degree of Bachelor of Arts at the end of the first four years. Students whose programs satisfy the requirements of the Graduate School may receive the degree of Master of Arts at the end of the fifth year.

*Course in Training for Municipal Administration and Engineering.*—A five-year course leading to the degree of Bachelor of Science at the end of the first four years. Students whose programs satisfy the requirements of the Graduate School may receive the degree of Master of Arts at the end of the fifth year.

*Course in Training for Diplomatic and Consular Service.*—A five-year course leading to the degree of Bachelor of Science at the end of the first four years. At the end of the fifth year students whose programs satisfy the requirements of the Graduate School may receive the degree of Master of Arts.

*Course in Training for Social and Civic Work.*—A five-year course, during the first four years of which the student secures a broad education with special attention to history, economics, political science, and sociology; the fifth year is devoted to technical subjects with professional training in social work. The degree of Bachelor of Science is given at the end of four years, and either a special certificate or the degree of Master of Arts upon the completion of the fifth year.

*Course in Military Science and Tactics.*—The instruction offered in the Reserve Officers' Training Corps is open to students of this college.

*Course in Arts and Music.*—A four-year course leading to the degree of Bachelor of Arts, in which the theoretical and practical work in music is combined with the study of psychology, modern languages, English literature, and history. The object is to provide a well-rounded cultural course for those who are preparing for professional work in music.

*Combined courses in Arts and Medicine.*—A seven-year course leading to the degrees of Bachelor of Science and Doctor of Medicine, and an eight-year course leading to the degrees of Bachelor of Arts and Doctor of Medicine.

*Combined course in Arts and Law.*—A six-year course leading to the degrees of Bachelor of Arts and Bachelor of Laws.

*Combined course in Arts and Dentistry.*—A seven-year course leading to the degrees of Bachelor of Arts and Doctor of Dental Surgery.

*Combined course in Arts and Chemistry.*—A five-year course leading to the degrees of Bachelor of Arts and Bachelor of Science in Chemistry.

*Americanization Training Course.*—A four-year course, with graduate studies possible, consisting largely of technical courses and field work. The course is a practical application of anthropological knowledge of modern and advanced peoples, and deals with adult immigrants more than with any other people in America. Fundamental courses in economics, history, language, political science, and sociology form an important part of the course of study. The course leads to the degree of Bachelor of Science at graduation, and to the degree of Master of Arts or to a special certificate on the completion of a fifth year.

*Combined course in Arts and Nursing.*—A five-year course leading to the degree of Bachelor of Science and a Certificate in Nursing. The first two years and a summer quarter are spent in the College of Science, Literature, and the Arts. The third and fourth years are spent in hospital work, and the fifth year in both hospital and class work.

*Combined courses in Arts and Architecture.*—A four-year course in architecture and decoration leading to the degree of Bachelor of Science. A six-year course in Arts and Architecture leading to the degree of Bachelor of Science at the end of four years, Bachelor of Science in Architecture at the end of the fifth year, and Master of Science in Architecture at the end of six years.

*Pre-professional training.*—In this college are given also the academic work required for admission to the Medical School, the Law School, the College of Dentistry, the School of Business, and the College of Education, and various non-professional subjects required in other schools and colleges of the University.

THE COLLEGE OF ENGINEERING AND ARCHITECTURE offers four-year courses of study in Civil, Mechanical, and Electrical Engineering and Architecture. These courses lead to the degree of Bachelor of Science in Civil, Mechanical, or Electrical Engineering, or Architecture.

This college also offers work in the Graduate School leading to the degree of Master of Science in the appropriate branch of Engineering or in Architecture.

The professional degree of Civil, Mechanical, or Electrical Engineer will be conferred upon those who have received the degree of Bachelor of Science in Civil, Mechanical, or Electrical Engineering, after four years of engineering experience in positions of responsibility, and who complete the equivalent of one additional year's college work and present a satisfactory thesis. Graduates of the University of Minnesota will be permitted to do the year of graduate study in absentia under the direction of the faculty.

The candidate for the Engineer's degree who holds a Master's degree in engineering must have had four years of engineering experience in positions of responsibility and must also present a satisfactory thesis.



THE COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS offers four-year courses in Agriculture, Forestry, and Home Economics leading to the degree of Bachelor of Science. The course in Agriculture comprises general courses in agricultural education, agronomy, farm management, dairy husbandry, animal husbandry, and horticulture, extension work and special courses in such agricultural sciences as agricultural biochemistry, agricultural economics, entomology, plant pathology, and soils.

The course in Forestry includes courses in technical forestry, commercial lumbering, and wood pulp and distillation products. In addition to the instructional work carried on at University Farm, a portion of the course is given at Itasca State Park, where a well-equipped demonstration forest is available as a laboratory.

The courses in Home Economics include a general course, a teachers' course in the general field of home economics, special teachers' courses in textiles and clothing, foods and home management, and related arts, a course for dietitians, a course for extension workers, and one for institutional managers.

Graduate work is offered in all special lines of agriculture. The special problems are for the most part correlated with the investigational work of the Experiment Station.

*The Schools of Agriculture* offer three-year courses of study, giving special training in farm life and home economics, and adapted especially to the needs and opportunities of farm boys and girls. The Central School is located at the University Farm, St. Paul; the Northwest School, at Crookston; and the West Central School, at Morris.

*The Dairy Short Courses.*—These include a two-weeks course for experienced butter-makers, a three-weeks course for cheese-makers, and a one-week course for ice-cream makers during November and December; and during January and February a six-weeks elementary course in creamery work designed for those who have had but a limited practical experience. These courses offer to young men an opportunity to become more thoroly trained in the science and art of making the largest quantity of butter and cheese of the best possible grade, and teach the fundamentals of ice-cream making and milk-plant management.

*The Farmers' and Home-Makers' Week* is held early in January. Instruction in agriculture and home economics is offered in regular classes, and important conferences are held, many agricultural organizations of the state holding their sessions at this time.

*The Short Course for Traction Engineers and Threshermen* will be given some time during the winter months. This course, which includes both lecture and laboratory work, deals especially with the care, operation, and adjustment of the separator, and is planned to meet the needs of both experienced threshermen and beginners. Some attention is also given to the operation of both steam and gas engines.

*The Editors' Short Course*, held in May, is devoted to instruction in the conduct of the affairs of the rural newspaper and consideration of the problems of the rural press.

*The Boys' and Girls' Week Short Course*, held early in April, gives instruction in the care and management of farm animals, in the growing of field and garden crops, and in cooking, sewing, garment-making, and canning, with special reference to boys' and girls' club work.

*The Experiment Station* conducts investigations in the various lines of agriculture with a view to solving problems of interest and importance to the farmers of Minnesota. Secondarily, its work being closely correlated with that of the College of Agriculture, Forestry, and Home Economics, it offers educational and research advantages to undergraduate and graduate students of this college. The main station is located at the University Farm, St. Paul; there are substations at Crookston, Morris, and Grand Rapids; demonstration farms at Waseca and Duluth; and forest experiment stations at Cloquet and Itasca.

*The Extension Division* of the Department of Agriculture aims to bring to the farmers of the state information leading to the improvement of the farm and the home through the agency of institutes, lectures, demonstrations, and demonstration farms, industrial and agricultural contests, a press bureau, and by correspondence and personal visits.

THE LAW SCHOOL offers a three-year course, leading to the degree of Bachelor of Laws. The so-called "case system" method of teaching law, approved by the leading law schools of the country, is employed. The school unites with the College of Science, Literature, and the Arts in offering a combined six-year course in Arts and Law, leading to the degrees of Bachelor of Arts and Bachelor of Laws, in which the first-year work in law is counted as the equivalent of a year's work toward the academic degree.

THE MEDICAL SCHOOL offers a five-year course, leading to the degree of Doctor of Medicine, comprising two years in the scientific departments of the school, two years in its practical or clinical departments, and one year in a hospital internship or in advanced laboratory study or research. All students are required to secure the degree of Bachelor of Science or of Bachelor of Arts at least four quarters, before receiving the degree of Doctor of Medicine. To this end the College of Science, Literature, and the Arts and the Medical School unite in offering the following courses of study:

1. A combined course, leading to the degrees of Bachelor of Science and Doctor of Medicine, consisting of (a) two years of work in the College of Science, Literature, and the Arts, including certain required subjects (see page 28), and (b) five years in the Medical School.

2. A combined course, leading to the degree of Bachelor of Arts and Doctor of Medicine, consisting of (a) three years of properly selected work in the College of Science, Literature, and the Arts, including the required subjects noted, and (b) five years in the Medical School.

In both cases the M.B. degree is granted at the end of four years' acceptable work in the Medical School and before the one year of required internship.

The bachelor's degree in Arts or Science from other recognized universities or colleges will be accepted toward the degree of Doctor of Medicine.

Graduate and research work is offered to qualified students. (See page 18.)

*The School of Nursing* is conducted in connection with the Medical School, the University Hospital service, and the Miller Hospital, St. Paul. It offers a three-year course, the first six months occupied in preliminary study, the remaining two and one-half years in hospital and out-patient training, leading to the degree of Graduate in Nursing. A combined five-year course in Arts and Nursing is offered by the College of Science, Literature, and the Arts and the School of Nursing, leading to the degrees of Bachelor of Science and Graduate in Nursing. The first two years and a summer quarter are spent in the Arts College; the third and fourth years in hospital work, and the fifth year in both hospital and class work.

*A Course in Public Health Nursing*, covering two periods of four months each, which may be taken separately or in sequence is conducted by the School of Nursing with the assistance of the departments of Education and Psychology, and a number of social-service organizations which, together with the Hennepin County Model Practice Field, provide ample opportunities for field work. A tuition fee of \$25 is paid in each four-month period.

*The Short Course in Embalming*, offered by the General Extension Division, with the coöperation of the Medical School, the School of Chemistry, and the State Board of Health, is a three-month course of study, given annually in the winter quarter. On the successful completion of the work a certificate is granted which is accepted by the State Board of Health in lieu of examination for an embalmer's license. A fee of \$45 is required.

THE COLLEGE OF DENTISTRY offers a four-year course of study leading to the degree of Doctor of Dental Surgery. This course requires as a pre-requisite the completion of one full year of pre-dental work in the College of Science, Literature, and the Arts. It unites with the College of Science, Literature, and the Arts in offering a seven-year course consisting of three years in Arts and four years in Dentistry leading to the degrees of Bachelor of Arts and Doctor of Dental Surgery, which are conferred at the close of the final year in the College of Dentistry. Professional work in the College of Dentistry is regarded as the counterpart of the major sequence which is required of those who complete the course for the Bachelor of Arts degree in the College of Science, Literature, and the Arts. The work of the third year is to be elected from courses offered in the Arts College subject to the approval of the dean of the College of Dentistry and the dean of the College of Science, Literature, and the Arts.

*The School for Dental Hygienists.*—This course consists of two years' work in the University Hospitals and the College of Dentistry, leading to the degree of Graduate Dental Hygienist.

*Graduate work* is open in certain fields of dentistry to students having a baccalaureate or dental degree. (See page 18.)

*Extension Courses.*—Courses in Prosthesis, Oral Surgery, Crown and Bridge Work, Porcelain Jacket Crowns, Orthodontia, and Dental Mechanics will be conducted by the General Extension Division, for the benefit of dental practitioners. A detailed description of these courses with the dates of opening and closing may be obtained by addressing the General Extension Division.

THE SCHOOL OF MINES offers three regular four-year courses, namely, Mining Engineering, Mining Engineering (specializing in Geology), and Metallurgy, leading to the degrees of Engineer of Mines, Engineer of Mines (in Geology), and Metallurgical Engineer, respectively. They are designed to prepare men to enter their profession with a thoro grounding in mathematics, in the sciences, and in the fundamental principles of mining engineering and metallurgy. A system of apprenticeship during summer vacations is a regular part of the curriculum and is required of all students who are candidates for degrees.

THE COLLEGE OF PHARMACY offers the following courses: A regular three-year course, leading to the degree of Pharmaceutical Chemist; a four-year course, leading to the degree of Bachelor of Science in Pharmacy, which includes in addition to the regular three-year course the equivalent of one year in the College of Science, Literature, and the Arts; and two graduate courses, leading respectively to the degrees of Master of Science in Pharmacy and Doctor of Science in Pharmacy, which are open to those who have the bachelor's degree in Pharmacy, and who have shown exceptional scholarship and ability.

THE SCHOOL OF CHEMISTRY offers three courses. Two of these, the four-year course in Chemistry, leading to the degree of Bachelor of Science in Chemistry, and the five-year course in Arts and Chemistry, leading to the degree of Bachelor of Arts after four years and of Bachelor of Science in Chemistry at the end of the fifth year, are designed for those who wish to become teachers of chemistry, to take positions as assistants in research, or to hold positions in chemical industries not requiring special engineering training.

The third course is in Chemical Engineering and leads to the degree of Bachelor of Science in Chemical Engineering at the end of four years and to the degree of Master of Science in Chemical Engineering at the end of the fifth year. It aims to give the student a broad foundation in chemistry, engineering, and allied sciences. The professional degree of Chemical Engineer will be conferred upon those who have received the degree of Bachelor of Science in Chemical Engineering, or its equivalent, when they have completed an additional year's work, have had four years of practical experience in positions of responsibility in chemical engineering, and have presented a satisfactory thesis based upon their professional work. The Master's degree for work in Chemical Engineering will be accepted in lieu of the additional year of college work required for the professional degree.

THE COLLEGE OF EDUCATION offers a two-year course, beginning with the junior year, which furnishes a practical and a theoretical training for

prospective high-school teachers and principals, for principals of elementary schools, for supervisors of special studies, and for superintendents of school systems. It also offers four-year courses in Art Education and Physical Education for Women, beginning with the freshman year. All these courses lead to the degree of Bachelor of Science in Education. A year of graduate work, at the option of the candidate, leads to the degree of Master of Arts.

THE GRADUATE SCHOOL gathers into a single organization and unites for the purpose of administration all the activities of the University in all its schools and colleges in so far as they relate to advanced instruction offered for the second or higher degrees, namely, Master of Arts, Master of Science, and Doctor of Philosophy. The privileges of this school are in general open to all who have received bachelor's degrees from reputable colleges and universities, based on courses substantially equivalent to those at this University.

Graduate work in medicine is maintained jointly by the Medical School and the Mayo Foundation for Medical Education and Research (see special bulletin). The degree of Bachelor of Science (or equivalent) and Doctor of Medicine and one year of intern service in an acceptable hospital are prerequisites for admission to the clinical departments. Properly qualified students may be admitted to the medical laboratory departments (Anatomy, Physiology, Bacteriology, and Pathology) without the medical degree and internship. A number of fellowships and scholarships are provided for selected students undertaking graduate courses in chosen specialties in medicine (see page 52). These courses cover a period of three years and lead to the degree of Master of Science or of Doctor of Philosophy in the various fields.

Graduate work in certain problems related to dentistry is offered to qualified students in the fundamental or laboratory departments mentioned above. Clinical material and opportunities to supplement this research are available from the Dental Clinic, the Medical Dispensary, and the University Hospitals.

THE SCHOOL OF BUSINESS aims to give thoro and adequate training to prospective business executives, and to prepare students to analyze business data accurately and to make practical application of the principles involved. The school offers two full years of study, beginning with the junior year, leading to the degree of Bachelor of Science in Business. The course is one of intensive study and specialization in particular branches of business, adapting the student's curriculum to his future plans. The fields include a general course in business, and courses in accounting, agricultural business, banking, merchandising, foreign trade, employment management, commercial organization, and secretarial work.

THE UNIVERSITY SUMMER SESSION is organized for six weeks in June and July under the authority of the Board of Regents as a regular part of the University. Courses carrying university credit, including all the subjects of the state professional certificate, are offered for college students, experienced teachers, and others who desire the opportunity for

advanced study. Students may secure not more than nine quarter credits at one six-week session, except by special permission.

On the main campus, courses are offered in the colleges of Science, Literature, and the Arts, Education, Engineering, and Dentistry, and in the Law, Business, and Graduate schools. The Medical School offers regular courses in the clinical branches.

On the University Farm campus, the College of Agriculture, Forestry, and Home Economics offers courses in Agriculture and Home Economics adapted to the needs of teachers and others not in attendance during the regular college session, and also to regular students. The Library Training School is held at the same time and place under the direction of the commissioner of education. For a special circular of summer work, inquire at the registrar's office.

**SPECIAL COURSES.**—In practically all of the colleges, students of mature age and adequate preparation are permitted to pursue, under the direction of the faculty, one or two distinct lines of study.

**UNIVERSITY EXTENSION.**—All extension work of the University of Minnesota has been established as an organic unit of the University under the title of Extension Service. The Extension Service is organized in two divisions, each under its own director, the General Extension Division and the Agricultural Extension Division.

The work of the Agricultural Extension Division is indicated on page 15. The General Extension Division conducts evening classes and correspondence courses; provides communities with faculty lectures and lyceum courses of popular lectures, concerts, and entertainments; maintains a municipal reference bureau and a bureau of visual instruction; holds annual short courses in merchandising, dentistry, embalming, banking, citizenship, and social service; offers guidance for the development of community organizations; and gives advice to schools and to other organizations on the selection and production of plays. Bulletins of evening classes and of correspondence and lecture courses may be had upon request. Address the General Extension Division.

### THE UNIVERSITY LIBRARY

The University Library comprises all the collections of books belonging to the institution and contains about 325,000 volumes.

A large part of the library is housed in the Library Building on the main campus. Branch libraries are maintained in connection with each of the colleges, and there are, in addition, small departmental collections attached to several departments.

A catalog of the entire collection is maintained in the General Library, and there are, as well, special catalogs of the libraries of the colleges of Agriculture, Forestry, and Home Economics, Engineering, Law, Medicine, and Mines.

The purpose of the University Library is twofold: (1) to supply the books and references used in connection with the courses of instruction and for outside cultural reading; and (2) to teach students to use them with a minimum of time and effort and a maximum of profit.

The *Library Handbook*, copies of which may be had gratis upon application at the library, contains a large amount of information essential to the proper use of the library, and it should be read carefully by every student.

Registration automatically entitles students to the privileges of the library.

The reference librarian and the assistants are at all times ready to aid students in familiarizing themselves with the library and in directing them in the use of the various catalogs and indexes.

### THE STUDENT HEALTH SERVICE

A health fee of two dollars a quarter is paid by each student of the University for the maintenance of the Student Health Service. This entitles the student to physical examination, and medical service and care when needed.

The offices of the Health Service, and the Students' Hospital and Dispensary are located in Pillsbury Hall, first floor. The services of the hospital and dispensary are available at all hours of the day and night. Physicians of the Health Service are in attendance daily. The telephone call is University of Minnesota (Dinsmore 2760), Station 71.

The facilities of the dispensary are such that one hundred students a day can be given attention. The normal capacity of the hospital is twenty-five beds. In emergencies, the capacity can be increased. Ample provisions are made for the isolation of communicable diseases.

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

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

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

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

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

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

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

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

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

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

## MILITARY SCIENCE AND TACTICS

### REQUIRED WORK

All physically fit male students are required to take instruction in military science for three hours each week during the first two undergraduate years of their course. Previous instruction in this subject at other institutions under an officer of the regular army detailed as professor of military science and tactics exempts the student from so much of this work as the length of his prior training justifies in each case. All students taking this course are given the instruction prescribed for the Basic Course, Senior Division, Reserve Officers' Training Corps. No credits are allowed for this work.

### ELECTIVE WORK

Any student legally eligible for enrolment who has completed the Basic Course, Senior Division, R.O.T.C., or other military work announced as equivalent thereto, may register for and be enrolled in the Advanced Course, Senior Division, R.O.T.C., provided the professor of military science and tactics and the president of the University, respectively, recommend and approve such enrolment in each case.

Students enrolled in the Advanced Corps receive from the government a fixed sum a day as commutation of rations while pursuing this course; they are required to sign an agreement to continue in the course during their time at the University (not to exceed two years), and to attend such summer training camps as are prescribed by the secretary of war, all expense incident to training-camp attendance being borne by the government.

Students who pass successfully the Advanced Course are, upon the recommendation of the president of the University, eligible for appointment as reserve officers of the army, and are also eligible for appointment for a period of six months as temporary lieutenants of the army, with pay at the rate prescribed for the same grade in the regular army.



The Advanced Course embraces three departments: infantry, coast (heavy) artillery, and signal corps, in any one of which the student may be enrolled.

Three credits per quarter will be allowed for work in the advanced R.O.T.C. courses with a maximum of 18 quarter credits for the two-year course. The application of these credits toward any degree offered by the University is subject to determination by the college concerned.

### DEGREES

The candidate for a degree must complete the requirements for graduation in his course. Any person may undergo, at a suitable time an examination in any subject, and if such person passes in all the studies and exercises of the course, he is entitled to an appropriate degree; provided, however, that at least one year's credit is earned at the University, before such degree is granted, and provided further that the examination, in every case, is held before a committee of the faculty appointed for that purpose. If the term of residence is only one year, that year must be the senior year; and in any case he must spend two quarters of the senior year in residence. This last requirement may be waived under such rules as may be established by each college for such exemption.

For detailed information concerning requirements, see pages 12-19; also the bulletin of the appropriate college or school.

### THE UNIVERSITY STATE TEACHER'S CERTIFICATE

The University State Teacher's Certificate is granted to graduates of the College of Education. This certificate by state law authorizes students to teach in the public schools of Minnesota for two years from date of issue. After that time, upon satisfactory evidence of the student's successful teaching experience, the certificate may be made permanent by the endorsement of the commissioner of education and the president of the University.

## ADMISSION GENERAL REQUIREMENTS

Admission to the colleges or schools of the University which accept students directly from the high school is either by examination or certificate. The candidate who enters on the latter plan must present a certificate of graduation from an accredited high school or preparatory school and offer fifteen units of high-school work so chosen as to include those subjects required by the college or school which he desires to enter. No candidate will be admitted with less than fifteen units. In case the candidate did not have an opportunity to take all the required subjects owing to the fact that they were not offered by the high school, the examiner may, however, authorize substitutions in the list of required subjects to the extent of one unit, unless otherwise stated in the requirements of the individual college or school.

Candidates who do not hold a diploma from an approved preparatory school must enter by examination in all the fifteen units required, regardless of the fact that some of these may have been completed in such a school.

All colleges will admit freshman students at the opening of the fall quarter. In addition, freshman students will be admitted at the opening of the winter and spring quarters in the colleges of Science, Literature, and the Arts; Agriculture, Forestry, and Home Economics; and Engineering and Architecture; in the School of Nursing they will be admitted at the opening of the spring quarter. All other students admitted at this time must present credentials of advanced standing from other colleges showing their qualification to continue the work of the winter or spring quarter.

Under List of Entrance Subjects (page 24) is shown the minimum and maximum number of units of any one subject that will be accepted by the various colleges of the University. For a statement of the specific units required in any subject or group, see Requirements of Individual Colleges, page 25-32.

### ADMISSION BY EXAMINATION

Entrance examinations are offered at the University during the opening week, September 20 to 27. Candidates entering by this method must pass examinations in fifteen units so chosen as to satisfy the specific requirements of the college to which entrance is desired. (See Requirements of the Individual Colleges, pages 25-32.) Certificates from the College Entrance Examination Board, from the Minnesota State High School Board, or from the New York Regents' Examinations are accepted in lieu of examinations in the subjects they represent. Those desiring to take examinations should notify the examiner in writing not later than September 1. See schedule of examinations, page 8.

## ADMISSION BY CERTIFICATE

Only *graduates of approved schools* are admitted by certificate.

Graduates of the following schools, provided their preparation satisfies the specific requirements of the college they desire to enter, may be admitted to the freshman class upon presentation of credentials in proper form. (See Registration below.)

1. Minnesota state high schools or other accredited schools in the state.
2. Schools in any other state accredited by the state university of that state.
3. Minnesota state normal schools and normal schools of other states having similar courses.

The student who does not hold a diploma from an approved school may gain admission by examination as indicated on page 23.

For a list of accredited schools in Minnesota, see pages 34-37.

## REGISTRATION

The applicant for admission should request the principal or superintendent to forward to the examiner of the University a complete transcript of his high-school or preparatory-school record showing the number of weeks and hours a week spent upon each study, with the grades entered as *passed*, *passed with credit*, or *passed with honor*. Credential blanks prepared by the University must be used. These blanks may be secured upon application at the registrar's office. Upon receipt of the credentials at the University the examiner will notify the applicant with regard to his admission, and the registrar will send directions for registration.

## LIST OF ENTRANCE SUBJECTS

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

## GROUP A: ENGLISH

English, four units.

- (a) Principles of rhetoric
- (b) Practice in written expression in each of the years of the course, on an average of not less than one hour a week.
- (c) Classics

## GROUP B: LANGUAGES

Latin—

Grammar, one unit  
Caesar, four books, one unit  
Cicero, six orations, one unit  
Virgil, six books, one unit

German—

Grammar, one unit  
Literature, one, two, or three units

Greek—	French—
Grammar, one unit	Grammar, one unit
<i>Anabasis</i> , four books, one unit	Literature, one, two, or three units
Spanish—	Scandinavian Languages—
Grammar, one unit	Grammar, one unit
Literature, one, two, or three units	Literature, one, two, or three units

GROUP C: HISTORY AND SOCIAL SCIENCES

History—	Elementary economics, one-half unit
European, two units	Commercial geography, one-half or one unit
English, one-half or one unit	History of commerce, one-half or one unit
Senior American, one-half unit	Economic history of England, one-half unit
Social Sciences—	Economic history of the United States, one-half unit
American government, one-half or one unit	Sociology, one-half unit

GROUP D: MATHEMATICS

Elementary algebra, one unit	Solid geometry, one-half unit
Plane geometry, one unit	Trigonometry, one-half unit
Higher algebra, one-half unit	

GROUP E: NATURAL SCIENCES

Physics, one unit	Astronomy, one-half unit
Chemistry, one unit	Geology, one-half unit
Botany, one-half or one unit	Physiography, one-half unit
Zoology, one-half or one unit	General science, one unit
Physiology, one-half unit	

GROUP F: VOCATIONAL AND MISCELLANEOUS SUBJECTS

Not more than four units in studies of this group may be counted towards admission. The subjects are no longer designated by the University. The applicant is free to present in this division such studies as are not listed in Groups A, B, C, D, and E, but which are certified by the superintendent or principal as being of acceptable nature and counted towards graduation.

REQUIREMENTS OF THE INDIVIDUAL COLLEGES

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

I. *Regular Bachelor of Arts Course\**

(1) English, four units; or three units of English accompanied by four units of one foreign language, or two units in each of two foreign languages.

\* All courses described on pages 12 and 13.

(2) Mathematics; elementary algebra, one unit; plane geometry, one unit.

(3) Enough additional work to make in all fifteen units, of which not more than four may be in Group F.

### 2. *Graduates of Minnesota State Normal Schools*

Graduates of the Advanced Graduate Course of a Minnesota state normal school are admitted with advanced standing equivalent to one year's credit, and receive the degree of Bachelor of Arts upon completing in this college 135 credits provided they comply with the usual requirements for graduation. Such students will not be permitted to elect the following courses for credit; Education 1, or Psychology 1-2-3.

Individual graduates of the Advanced Latin Course (five years) or of the Advanced English Course (five years) of a Minnesota state normal school, who, on the basis of maturity and ability, present from the president of the normal school certificates of special fitness, will be admitted with advanced standing under the same regulations and proviso.

### 3. *Unclassed Students*

Unclassed students are (1) persons of mature years engaged in teaching or other occupation, but registered in this college without having satisfied the entrance requirements in full: (2) all others who have been permitted to register for less than eleven hours of work. Only by permission of the Administrative Board and upon the presentation of satisfactory reasons for not taking the regular course will an applicant be admitted as an unclassified student. Unless he takes the same examinations or presents the same credentials as are required of those who enter the freshman class he can be admitted only upon vote of the faculty. A new application must be made each quarter.

## COLLEGE OF ENGINEERING AND ARCHITECTURE

*Courses in Civil, Electrical, and Mechanical Engineering and Architecture*

1. English, four units; or English, three units, and foreign language, two units.

2. Mathematics, elementary algebra, one unit; plane geometry, one unit; higher algebra, one-half unit; solid geometry, one-half unit (see note).

3. Enough additional work to make in all fifteen units, of which not more than four may be in Group F.

NOTE.—Students desiring to enter this college who have not the specified credits in higher algebra and solid geometry, but who present the full fifteen acceptable units, will be admitted subject to their taking the necessary course or courses for the satisfaction of these requirements during their first quarter, without credit. They must expect, however, to attend the University Summer Session in the following summer in order to obtain the regular third-quarter's work in mathematics, or mathematics and drawing. To avoid this irregularity in their courses, students are urged to obtain the required higher algebra and solid geometry in high school or the University Summer Session or Extension Division before entering this college.

For all students who intend to enter the College of Engineering and Architecture it is very desirable that physics as well as chemistry be included in the high-school course. Students entering the course in Architecture without chemistry must take this subject in the University.

No students will be admitted to this college at the beginning of the winter quarter unless they present the complete entrance requirements including higher algebra and solid geometry.

#### COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

Students entering this college should submit their credentials to the enrolment committee, University Farm, St. Paul.

1. English, four units; or three units accompanied by four units of one foreign language, or two units in each of two foreign languages.

2. Mathematics: elementary algebra, one unit; plane geometry, one unit.

3. Enough additional work to make in all fifteen units, of which not more than four may be in Group F.

Prospective students are urged to elect chemistry and physics as a part of their high-school course.

Every prospective student in Agriculture is also urged to obtain at least six months' practical experience on a farm before entering college. Those whose farm experience credentials are not satisfactory will be examined as to their familiarity with farm practices, and farm experience will be required during the college course in accordance with the results of these examinations.

#### *Schools of Agriculture*

The schools are not of collegiate grade. For further information see special bulletins.

#### LAW SCHOOL

##### *Regular Students*

Students desiring to enter the Law School must first complete two full years (not less than ninety quarter [sixty semester] credits) of collegiate work in science, literature, and the arts with an honor point for each credit at this or some other university or college of equal rank. In explanation of this requirement it may be noted that on the basis of A, B, C, and D as passing grades, A gives three honor points for each credit; B, two points; C, one point; and D, no point. It is impossible, therefore, for applicants with grades of only C and D to secure admission. (See admission to the College of Science, Literature, and the Arts, page 25.) Such candidates may be admitted upon presenting their credentials to the examiner.

A special pre-legal course is offered by the College of Science, Literature, and the Arts covering those subjects which are particularly desirable as preliminary to the study of law.

The faculty of the Law School recommends that prospective law students devote the major portion of their time while in high school to the study of the following subjects: English, Latin, history, mathematics, French or German, and science.

### *Special Students*

Applicants who are twenty-one years of age and have preliminary education sufficient at least to entitle them to admission to the College of Science, Literature, and the Arts, may, upon furnishing satisfactory evidence of their ability to pursue the law course with profit to themselves and without hindrance to the regular students, at the discretion of the faculty, be admitted to the Law School as special students. Such special students are not candidates for a degree.

Special students entering with seventy-five quarter (fifty semester) credits of academic work may become regular students by complying with the requirements for admission before the beginning of their senior year in the Law School. The additional credits necessary can not be secured while carrying the full course in law.

### MEDICAL SCHOOL

On account of the limited capacity of the school, not more than eighty freshmen will be accepted. Applicants will be selected on the basis of scholarship, character, and general fitness. About sixty will be chosen early in July; the remainder about August 15. All applications must be accompanied by a ten-dollar preliminary fee. This must be paid within ten days, in order to hold a place in the limited registration. The above fee will not be returnable should the student fail to enter. Other qualifications being equal, residents of Minnesota will be given preference when the selection of candidates is made.

Applicants for admission must present two years of academic collegiate work, which are defined as including not less than ninety quarter (sixty semester) credits carrying at least an equal number of honor points. In explanation of this requirement it may be noted that on the basis of A, B, C, and D as passing grades, A gives three honor points for each credit; B, two points; C, one point; and D, no point. A student's grades must average C or higher. It is impossible, therefore, for applicants with grades of only C and D to secure admission. Those having a high ratio of honor points to total credits will be given preference.

The pre-medical academic credits must include the following:

1. Rhetoric, nine quarter (six semester) credits. At Minnesota this requirement is met by English 4-5-6.

2. Chemistry, eighteen quarter (twelve semester) credits, including general chemistry, qualitative analysis, and organic chemistry with laboratory work. At Minnesota, Chemistry 4-5 (or 1-2-3), 11, and 31-32 are necessary. Students are advised also to take chemistry in high school and quantitative chemistry in college.

3. Physics, twelve quarter (eight semester) credits, including proper laboratory work. At Minnesota, Physics 1 and 2, and any two of the following combinations, Physics 21 and 22, 31 and 32, and 41 and 42 meet the requirement. Students are advised to complete them all.

4. Zoology, twelve quarter (eight semester) credits, including proper laboratory work. At Minnesota, Animal Biology 5-6-7 meets this requirement.

5. Foreign Language. Sufficient high school or college training to insure a reading knowledge of French or German medical literature. For French this requirement is fulfilled (a) by passing any two of Courses 8, 9, 10 (Scientific French) at Minnesota or by presenting acceptable credits covering similar work done elsewhere; (b) by passing an examination; the minimum preparation demanded for admission to this examination is fifteen credits of French. For German the language requirement is fulfilled (a) by passing Course 31-32 (Medical German) at Minnesota or by presenting acceptable credits covering similar work done elsewhere; (b) by passing an examination in Scientific German; the minimum preparation for admission to this examination is two years of German.

6. Pre-medical students are advised to secure preparation in some or all of the following subjects: Latin (high school or college), higher mathematics, psychology, sociology, drawing, and comparative anatomy.

Applicants whose pre-medical academic work has been taken elsewhere than at the University of Minnesota must present to the examiner certified credentials of both preparatory and college work, showing subjects, credits, and grades.

The degree of Bachelor or Doctor of Medicine is conferred only upon those who have received the degree of Bachelor of Arts or Bachelor of Science from this or some other recognized university or college. Combined courses offered by the College of Science, Literature, and the Arts and the Medical School lead to these degrees. (See page 15.)

#### *Special Students*

Physicians and others who would profit by the work may be admitted as special students. Such students are not candidates for a degree.

#### *Unclassed Students*

By unclassified students is meant those who may be candidates for the M.B. or M.D. degrees but who on account of deficiencies can not receive legal time credit for attendance.

#### *School of Nursing*

Graduation from an approved high school or other preparatory school on the accredited list is a prerequisite for admission. Preference, however, 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 to the committee satisfactory evidence of physical and mental fitness and of good character and will undergo a general physical examination by the school physician.

Upon receipt of credentials at the examiner's office, applicants will be notified with regard to the details of registration.

All applicants matriculated will be required to take the preliminary course of instruction covering a period of six months, and must pass the examinations at its close. This period will be 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 that time.



The course in Public Health Nursing is offered to registered nurses or to members of senior classes of recognized schools of nursing who are recommended by their teaching staffs.

#### COLLEGE OF DENTISTRY

On account of the limited capacity of the college not more than ninety freshmen can be admitted. Application for admission should be in the examiner's office not later than July 15. Residents of Minnesota will be given prior consideration for vacancies existing at the date of their application. All applications must be accompanied by a ten-dollar preliminary fee, which will be credited toward the first quarter's tuition, or returned if the applicant is not accepted.

Applicants for admission must present one year of collegiate work in science, literature, and the arts, completed at this or some other recognized college or university. (See Admission to the College of Science, Literature, and the Arts, page 25.) High-school physics or its equivalent must be completed by candidates before admission to the dental course proper.

The pre-dental academic work must include the following:

1. Rhetoric, fifteen quarter (ten semester) credits. At Minnesota this requirement is met by Rhetoric A-B-C.
2. Biology, twelve quarter (eight semester) credits. At Minnesota this requirement is met by Animal Biology 5-6-7.
3. Chemistry, twelve quarter (eight semester) credits, including general chemistry and qualitative analysis. This requirement is met at Minnesota by Chemistry 4-5 and 11.
4. Shop Practice or Technical Drawing, six quarter (four semester) credits. At Minnesota this requirement is met by Mechanical Engineering 11-12-13, or Drawing and Descriptive Geometry 41-42-43.

Students who can spend two years in the pre-dental work are advised to take the two year pre-medical course.

Those whose pre-dental work has been taken elsewhere than at the University of Minnesota must present to the examiner certified credentials of both preparatory and college work, showing the subjects completed, credits, and grades.

#### *School for Dental Hygienists*

The requirement for admission to the School for Dental Hygienists is graduation from an accredited high school.

#### SCHOOL OF MINES

1. English, three units.
2. Mathematics: elementary algebra, one unit; plane geometry, one unit.
3. Enough additional work to make in all fifteen units, of which not more than four may be in Group F.

It is recommended that students who desire to enter this school take higher algebra and solid geometry in high school.

Freshmen will be divided into two classes, as follows:

- A. Those entering with credits in higher algebra and solid geometry.

B. Those entering without credits in higher algebra and solid geometry. Students in Class B will carry a special course in mathematics during their freshman year.

#### COLLEGE OF PHARMACY

1. English, four units; or English, three units, and a foreign language, two units.
2. Mathematics: elementary algebra, one unit; plane geometry, one unit.
3. Latin, one unit.
4. Enough additional work to make in all fifteen units, of which not more than four may be in Group F.

Prospective students in pharmacy are urged to secure high-school preparation in each of physics, chemistry, botany, and physiology.

Owing to the limited capacity of this college not more than sixty freshmen can be admitted. Applications for admission should be in the examiner's office not later than August 1.

#### SCHOOL OF CHEMISTRY

##### *Arts and Chemistry Course (five years)*

Students entering this course matriculate in the College of Science, Literature, and the Arts and must meet the requirements for entrance to that college.

##### *Courses in Chemistry and Chemical Engineering*

1. English, three units. (After 1921; this requirement will be English, four units; or English, three units, and foreign language, two units.)
2. Mathematics, elementary algebra, one unit; plane geometry, one unit; higher algebra, one-half unit; solid geometry, one-half unit (see note).
3. Enough additional work to make in all fifteen units, of which not more than four may be in Group F.

NOTE.—Students desiring to enter the School of Chemistry who have not the specified credits in higher algebra and solid geometry, but who present the full fifteen acceptable units, will be admitted subject to their taking the necessary course or courses for the satisfaction of these requirements during their first quarter, and without credit. They must expect, however, to attend the University Summer Session in the following summer in order to obtain the regular third-quarter's work in mathematics, or mathematics and drawing. To avoid this irregularity in their courses, students are urged to obtain the required higher algebra and solid geometry in high school or the University Summer Session or Extension Division before entering this school. It is also very desirable that physics and chemistry be included in the high-school course; in fact, if chemistry is presented for entrance, the student's work in the first two years will be greatly simplified.

#### COLLEGE OF EDUCATION

Applicants for admission to this college must present credentials showing the completion of a regular four-year high-school course. For all

work excepting the courses in Art Education and Physical Education the completion of two full years of collegiate work (not less than ninety quarter credits carrying not less than ninety quarter honor points) in Science, Literature, and the Arts at this or some other college or university of equal rank is required. In explanation of this requirement it may be noted that on the basis of A, B, C, and D as passing grades, A gives three honor points for each credit; B, two points; C, one point; and D, no point. It is impossible, therefore, for applicants with grades of only C and D to secure admission.

Graduation from advanced graduate normal courses (two years beyond the high school) is considered equivalent to (1) and (2) above.

Graduates of a five-year normal course, if individually recommended by the normal-school president, are allowed sixty-three quarter credits and are admitted as unclassified students pending the completion of twenty-seven additional credits.

Graduates of the three-year course in the state normal schools of Minnesota may receive not more than one hundred and thirteen quarter credits; credits earned in the three-year normal-school course shall be applied, in case they are deemed of equivalent merit, in the College of Education, to courses leading to certificates for supervisors in elementary grades, as principals in state graded schools, as teachers in junior high schools or in normal-school departments in high schools; students coming from the three-year course in normal schools shall not receive certificates in high-school subjects from the University without completing the prescribed courses of the University for such certificates.

#### SCHOOL OF BUSINESS

Candidates for admission to the degree courses offered by this school must have completed the two-year pre-business course given in the College of Science, Literature, and the Arts or the College of Agriculture of this University, or its equivalent in some other recognized college or university. (See admission to the College of Science, Literature, and the Arts, page 25, and the College of Agriculture, page 27.)

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

Permission to enter as special students may be obtained from the dean in case of mature business men and women, provided they are graduates of accredited high schools, with tested executive experience. If later, they decide to become candidates for a degree, such students must satisfy all the requirements for admission to the degree course.

#### ADMISSION AS UNCLASSIFIED STUDENTS

Only by permission of the faculty of the school or college which he desires to enter, may an applicant be admitted as an unclassified student. A new application must be made each quarter to the committee in charge. No unclassified student shall be admitted to the School of Mines.

## ADMISSION TO ADVANCED STANDING

1. *From other colleges*

This University accepts credits from all reputable colleges and universities toward advanced standing. Such credits are accepted as far as they represent courses equivalent to those offered in this institution. The certified record of courses taken in other institutions must be upon the official blank of the institution granting the certificate and should show:

(a) The subject studied, the catalog course number, and the descriptive title.

(b) The number of weeks and hours a week spent upon each subject.

(c) The value of the course expressed in credits.

(d) The result. The exact grades should be stated, accompanied by an explanation of the marking system employed.

(e) A letter or statement of honorable dismissal.

Upon receipt of the student's credentials the examiner will notify the applicant concerning his classification and the registrar will send directions for registration.

All statements concerning advanced standing and classification are provisional, subject to the satisfactory completion of one year's work at the University by the applicant.

Candidates wishing to gain advanced standing by examination are allowed examinations without charge, provided such be taken within six weeks after matriculation.

2. *From Minnesota normal schools*

Graduates of the Advanced Graduate Course of a Minnesota state normal school are admitted to the College of Science, Literature, and the Arts with one year (forty-five quarter credits) of advanced standing. Graduates of such advanced courses are admitted to the College of Education with an allowance of ninety quarter credits towards graduation.

Individual graduates of the Advanced Latin Course (five-year) or of the Advanced English Course (five-year) of a Minnesota state normal school who, on the basis of maturity and ability, present certificates of special fitness from the president of the normal school, will be admitted to the College of Science, Literature, and the Arts with forty-five quarter credits of advanced standing. Graduates of such courses are admitted to the College of Education with an allowance of sixty-three quarter credits towards graduation.

Graduates of the three-year course in the state normal schools at Minnesota may receive not more than one hundred and thirteen credits in the College of Education; credits earned in the three-year normal-school course shall be applied, in case they are deemed of equivalent merit, in the College of Education, to courses leading to certificates for supervisors in elementary grades, as principals in state graded schools, as teachers in junior high schools or in normal-school departments in high schools; students coming from the three-year course in normal schools shall not receive certificates

in high-school subjects from the University without completing the prescribed courses of the University for such certificates. No credit is allowed for this course in the College of Science, Literature, and the Arts.

State normal schools at the following places are recognized: Duluth, Mankato, Moorhead, St. Cloud, Winona, Bemidji.

### 3. Junior colleges

In accordance with the policy of the University to encourage able schools to give one or two years of college work, the University Senate has prescribed conditions under which such work may be recognized for advanced standing. Copies of the standards may be had upon inquiry at the registrar's office. The following schools in Minnesota have complied with the requirements: Concordia College, Moorhead; Concordia College, St. Paul; Hibbing Junior College; Rochester Junior College; St. John's College, Collegeville; Stanley College, Minneapolis; Villa Sancta Scholastica, Duluth; Augsburg Seminary, Minneapolis; St. Benedict's College, St. Joseph; St. Mary's Hall, Faribault; Eveleth Junior College; Winona State Normal School; Pipestone Junior College.

### 4. Miscellaneous

Credit in shop work and drawing will be given in the College of Engineering and Architecture for work in manual training, or for practical experience, provided the applicant gives evidence of proficiency in such work, and is qualified to pursue advanced work. The student must register for the regular work and at the same time make application to the department concerned for advanced credit.

## LIST OF ACCREDITED PREPARATORY SCHOOLS

Graduates of the following Minnesota state high schools will be admitted to the University of Minnesota without conditions, provided their credentials satisfy the specific requirements of the college to which entrance is desired:

Ada	Anoka	Bemidji
Adams	Appleton	Benson
Adrian	Argyle	Bird Island
Aitkin	Arlington	Biwabik
Akeley	Atwater	Blackduck
Albert Lea	Aurora	Blooming Prairie
Alden	Austin	Blue Earth
Alexandria	Bagley	Brainerd
Amboy	Barnesville	Breckenridge
Annandale	Belle Plaine	Browns Valley

Buffalo	Fergus Falls	Lake Crystal
Buhl	Fertile	Lake Park
Caledonia	Forest Lake	Lakefield
Cambridge	Fosston	Lamberton
Canby	Frazee	Lanesboro
Cannon Falls	Fulda	Le Roy
Carlton	Gaylord	Le Sueur
Cass Lake	Gilbert	Le Sueur Center
Chaska	Glencoe	Lindstrom-Center City
Chatfield	Glenwood	Litchfield
Chisholm	Glyndon	Little Falls
Clarkfield	Graceville	Long Prairie
Cleveland	Grand Meadow	Luverne
Cloquet	Grand Rapids	Lyle
Cokato	Granite Falls	McIntosh
Coleraine	Hallock	Mabel
Greenway	Halstad	Madelia
Olcott	Hancock	Madison
Cottonwood	Harmony	Mahnomen
Crookston	Hastings	Mankato
Crosby-Ironton	Hawley	Mantorville
Dassel	Hayfield	Maple Lake
Dawson	Hector	Mapleton
Deer River	Henderson	Marshall
Delano	Herman	Melrose
Delavan	Heron Lake	Milaca
Detroit	Hibbing	Minneapolis
Dodge Center	Hinckley	Central
Duluth	Hopkins	East
Central	Houston	North
Denfeld	Howard Lake	South
Eagle Bend	Hutchinson	West
East Grand Forks	International Falls	Minneota
Elbow Lake	Ivanhoe	Montevideo
Elk River	Jackson	Montgomery
Elmore	Janesville	Monticello
Ely	Jordan	Moorhead
Eveleth	Kasota	Mora
Excelsior	Kasson	Morris
Fairfax	Kenyon	Morristown
Fairmont	Kerkhoven	Morton
Faribault	Lake Benton	Mound
Farmington	Lake City	Mountain Iron

Mountain Lake	Rochester	Stewartville
Nashwauk-Keewatin	Roseau	Stillwater
New Prague	Royalton	Thief River Falls
New Richland	Rush City	Tower
New Ulm	Rushford	Tracy
North St. Paul	St. Charles	Two Harbors
Northfield	St. Cloud	Tyler
Norwood-Young	St. Francis	Villard
America	St. James	Virginia
Olivia	St. Louis Park	Wabasha
Ortonville	St. Paul	Wadena
Osakis	Central	Walker
Owatonna	Humboldt	Warren
Park Rapids	John A. Johnson	Warroad
Paynesville	Mechanic Arts	Waseca
Pelican Rapids	St. Peter	Waterville
Perham	Sandstone	Wayzata
Pine City	Sauk Center	Welcome
Pine Island	Sauk Rapids	Wells
Pine River	Shakopee	West Concord
Pipestone	Sherburn	Wheaton
Plainview	Slayton	White Bear
Preston	Sleepy Eye	Willmar
Princeton	South St. Paul	Windom
Proctor	Spring Grove	Winnebago
Red Lake Falls	Spring Valley	Winona
Red Wing	Springfield	Winthrop
Redwood Falls	Staples	Worthington
Renville	Stephen	Zumbrota

Graduates of the following private schools will be admitted to the freshman class under the regulations governing the admission of high-school graduates:

Collegeville	Fergus Falls
St. John's College	Park Region Luther College
Duluth	Frontenac
Cathedral High School for Boys	Villa Maria
Cathedral High School for Girls	Graceville
Villa Sancta Scholastica	St. Mary's Academy
Faribault	Hutchinson
Bethlehem Academy	Hutchinson Theological Seminary
St. Mary's Hall	Minneapolis
Shattuck Military Academy	Blake School for Boys
	Northrop Collegiate Institute

Minnehaha Academy	St. Paul
Minnesota College	Bethel Academy
St. Margaret's Academy	College of St. Catherine
Stanley Hall	Oak Hall (Backus School for Girls)
Montevideo	St. Joseph Academy
Windom Institute	St. Paul Academy
Moorhead	St. Thomas College
Concordia College	Summit School
Owatonna	Visitation Convent
Pillsbury Academy	St. Peter
Red Wing	Academy, Gustavus Adolphus College
Academy of the Red Wing Semi- nary	Winona
Luther Ladies' Seminary	Cathedral High School
St. Joseph	Cotter High School
Convent of St. Benedict	St. Claire Seminary
	St. Mary's College

### DESCRIPTION OF SUBJECTS ACCEPTED FOR ADMISSION

The following statements indicate in a general way the preparation which the University expects in the various subjects accepted for admission. The number of units in parentheses following each subject indicates the maximum credit accepted by any one college of the University and does not mean that all colleges will accept the maximum stated. See pages 25 to 32 for statements of the requirements of the individual colleges.

#### GROUP A. ENGLISH

(Three or four units)

In order to secure a definite plan of study and unity of method on the part of preparatory schools, the entrance requirement in English is outlined below somewhat in detail. To satisfy this requirement a course of not less than four hours a week must be pursued during the time specified above. The headings under which instruction will naturally fall are:

- I. The principles of rhetoric.
- II. Practice in written expression.
- III. English classics.

#### I

The work in the principles of rhetoric should include the principles and technical terms of ordinary texts upon the subjects, whether acquired by the direct study of such text or mainly by the study of selected English masterpieces. It should not be forgotten that this is not an end in itself, but simply a means of teaching the student the correct use of English.



## II

Not less than an hour a week in each of the four years of the course should be devoted to work in composition, which should be criticized both orally and in writing by the teacher. Such subjects should be chosen as will best make this written work an expression of the lives and interests of the students, who should be taught to observe accurately, think logically, and write correctly and forcefully.

## III

The preparation in English Literature should consist in the study of a limited number of English classics and in the reading of a larger number. The following lists of books, headed respectively *reading* and *study*, are quoted from the report of the National Conference on Uniform Entrance Requirements in English. They will be found suggestive to those preparing students for the University. In connection with both lists, the student should be trained in reading aloud and be encouraged to commit to memory some of the more notable passages both in verse and in prose. As an aid to literary application, he is further advised to acquaint himself with the most important facts in the lives of the authors whose works he reads with their place in literary history.

A. READING.—The aim of this course is to foster in the student the habit of intelligent reading and to develop a taste for good literature, by giving him a first-hand knowledge of some of the best authors. He should read carefully the selections prescribed, but should not concentrate his attention upon details to the neglect of the main purpose and charm of what he reads.

With a view to large freedom of choice, the books provided for reading are arranged in the following groups, from which at least ten units are to be selected, two from each group:

Group 1. The *Old Testament*, comprising at least the chief narrative episodes in Genesis, Exodus, Joshua, Judges, Samuel, Kings, and Daniel, together with the books of Ruth and Esther; the *Odyssey*, with the omission, if desired, of Books I, II, III, IV, V, XV, XVI, XVII; the *Iliad*, with the omission, if desired, of Books XI, XIII, XIV, XV, XVII, XXI; Virgil's *Aeneid*. The *Odyssey*, *Iliad*, and *Aeneid* should be read in English translations of recognized literary excellence.

For any unit of this group a unit from any other group may be substituted.

Group 2. *Shakespeare*.—*A Midsummer Night's Dream*; *Merchant of Venice*; *As You Like It*; *Twelfth Night*; *The Tempest*; *Romeo and Juliet*; *King John*; *Richard II*; *Richard III*; *Henry V*; *Coriolanus*; *Julius Caesar*; \* *Macbeth*; \* *Hamlet*.\*

Group 3. *Prose Fiction*.—Two to be selected.—Malory's *Morte d'Arthur* (about 100 pages); Bunyan's *Pilgrim's Progress*, Part I; Swift's *Gulliver's Travels* (voyages to Lilliput and Brobdingnag); De Foe's *Robinson Crusoe*, Part I; Goldsmith's *Vicar of Wakefield*; Frances Burney's *Evelina*; Scott's novels (any one); Jane Austen's novels (any one); Maria Edgeworth's *Castle Rackrent*, or *The Absentee*; Dickens' novels (any one); Thackeray's novels (any one); George Eliot's novels (any one); Mrs. Gaskell's *Cranford*; Kingsley's *Westward Ho!* or *Hereward, the Wake*; Reade's *The Cloister and the Hearth*; Blackmore's *Lorna Doone*; Hughes's *Tom Brown's School-days*; Stevenson's *Treasure Island*, or *Kidnapped*, or *Master of Ballantrae*; Cooper's novels (any one); Poe's selected *Tales*; Hawthorne's *The House of Seven Gables*, or *Twice-Told Tales*, or *Mosses from an Old Manse*; a collection of *Short Stories* by various standard writers.

Group 4. *Essays, Biography, etc.*—Two to be selected.—Addison and Steele's *The Sir Roger de Coverley Papers*, or selections from the *Tattler* and the *Spectator* (about 200 pages); Boswell's selection from the *Life of Johnson* (about 200 pages);

\* If not chosen for study under (B).

Franklin's *Autobiography*; Irving's *Sketch Book* (about 200 pages), or *Life of Goldsmith*; Southey's *Life of Nelson*; Lamb's *Essays of Elia* (about 100 pages); Lockhart's *Life of Scott* (about 200 pages); Thackeray's lectures on Swift, Addison, and Steele in the *English Humorists*; Macaulay's *Lord Clive*, *Warren Hastings*, *Milton*, *Addison*, *Goldsmith*, *Frederick the Great*, *Madame d'Arblay* (any one); Trevelyan's *Life of Macaulay* (about 200 pages); Ruskin's *Sesame and Lilies*, or selections (about 150 pages); Dana's *Two Years before the Mast*; selections from Lincoln, including at least the two *Inaugurals*, the speeches in Independence Hall and at Gettysburg, the *Last Public Address*, and the *Letter to Horace Greeley*, together with a brief memoir or estimate; Parkman's *The Oregon Trail*; Thoreau's *Walden*, Lowell's *Selected Essays* (about 150 pages); Holmes's *The Autocrat of the Breakfast Table*; Stevenson's *An Inland Voyage*, and *Travels with a Donkey*; Huxley's *Autobiography*, and selections from *Lay Sermons*, including the addresses on *Improving Natural Knowledge*, *A Liberal Education*, and *A Piece of Chalk*; a collection of essays by Bacon, Lamb, De Quincey, Hazlitt, Emerson, and later writers; a collection of letters by various standard writers.

Group 5. *Poetry*.—Two to be selected.—Palgrave's *Golden Treasury (First Series)*, Books II and III with special attention to Dryden, Collins, Gray, Cowper, and Burns; Palgrave's *Golden Treasury (First Series)*, Book IV, with special attention to Wordsworth, Keats, and Shelley (if not chosen for study under B); Goldsmith's *The Traveler* and *The Deserted Village*; Pope's *The Rape of the Lock*; a collection of English and Scottish *Ballads*, as, for example, some *Robin Hood* ballads. *The Battle of Otterburn*, *King Estmere*, *Young Beichan*, *Bewick and Grahame*, *Sir Patrick Spens*, and a selection from later ballads; Coleridge's *The Ancient Mariner*, *Christabel*, and *Kubla Khan*; Byron's *Childe Harold*, Canto III or IV, and *The Prisoner of Chillon*; Scott's *The Lady of the Lake*, or *Marmion*; Macaulay's *The Lays of Ancient Rome*, *The Battle of Naseby*, *The Armada*, *Ivry*; Tennyson's *The Princess*, or *Gareth and Lynette*; *Lancelot and Elaine*, and *The Passing of Arthur*; Browning's *Cavalier Tunes*, *The Lost Leader*, *How They Brought the Good News from Ghent to Aix*, *Home Thoughts from Abroad*, *Home Thoughts from the Sea*, *Incident of the French Camp*, *Hervé Riel*, *Pheidippides*, *My Last Duchess*, *Up at a Villa—Down in the City*, *The Italian in England*, *The Patriot*, *The Pied Piper*, "*De Gustibus*"—, *Instans Tyrannus*; Arnold's *Sohrab and Rustum*, and *The Forsaken Merman*; selections from *American Poetry*, with special attention to Poe, Lowell, Longfellow, and Whittier.

B. STUDY.—This part of the requirement is designed to insure a natural and logical continuation of the student's earlier reading, with greater stress laid upon form and style, the exact meaning of words and phrases, and the understanding of allusions. The books provided for study are arranged in four groups, from each of which one selection is to be made.

(1) Shakespeare's *Julius Caesar*, *Macbeth*, *Hamlet*.

(2) Milton's *L'Allegro*, *Il Penseroso*, and either *Comus* or *Lycidas*; Tennyson's *The Coming of Arthur*, *The Holy Grail*, and *The Passing of Arthur*; the selections from Wordsworth, Shelley, and Keats, in Book IV of Palgrave's *Golden Treasury (First Series)*.

(3) Burke's *Speech on Conciliation with America*; Macaulay's *Two Speeches on Copyright* and Lincoln's *Speech at Cooper Union*; Washington's *Farewell Address* and Webster's *First Bunker Hill Oration*.

(4) Carlyle's *Essay on Burns*, with a selection from Burns's *Poems*; Macaulay's *Life of Johnson*; Emerson's *Essays on Manners*.

## GROUP B. LANGUAGES

### Latin

1. Work of the first year should comprise: drill in the fundamentals of grammar as contained in any good first-year Latin book; forms to be thoroly mastered; con-

stant practice in pronunciation and training for the ear; attention called to English words derived from the Latin words studied.

2. Work of the second year should consist at first of easy passages of continuous prose such as the extracts from Eutropius and the *Viri Romae* in the Beason and Scott or any good second-year Latin book. This may be followed by extracts from Caesar judiciously selected by the teacher. The text from Caesar may be varied by selections from Nepos or Ovid. The use of a good second-year book is recommended rather than a straight text of Caesar. Elementary composition should be given during the year and the relation between Latin and English emphasized. The total amount of text for the year might approximate the amount contained in the first three books of Caesar.

3. The third year may be well spent on Cicero's *Orations* with perhaps some of his selected letters. The amount usually covered may be indicated by saying that any six from the following list seem satisfactory: *Against Cataline*, *Poet Arceas*, *Ligarius*, *Marcellus*, *Manillian Law* (to count as two), *The Fourteenth Philippic*.

4. Virgil is usually read the fourth year. If a teacher prefers to read five rather than six books the fifth may be omitted. A pupil's feeling for adequate renderings of the poetic expression of the Latin should be cultivated. Constant metrical reading of the text is advocated as soon as the mechanics of the meter have been mastered.

In place of the above, the University will accept the work recommended in the report of the Cleveland Commission on College Entrance Requirements in Latin.

### Greek

*Greek Grammar* (one unit).—The work of the first year should include the study of forms, inflections, word formation, principles of syntax, elementary composition and reading. The contents of White's *First Greek Book* represents approximately the ground which the student is expected to cover.

Xenophon's *Anabasis* (one unit).—The work of the second year should comprise a careful reading of four books of the *Anabasis*, or an equivalent amount of Greek prose, together with the study of syntax, etymology, and the irregular verb. Emphasis should also be laid upon a correct pronunciation.

### German (four units)

In the first year the student should acquire:

1. Correctness and ease of pronunciation; the ability to read from the text with the proper sentence accent.

2. A reading vocabulary of a thousand words; facility in expressing his thoughts in simple sentences. As a means to this, from 75 to 100 pages of narrative prose, and some poetry, should be read. Using the subject matter of the daily reading lesson as a basis, the teacher should, through rapid question and answer, develop the student's power of self-expression in the foreign idiom.

3. The essentials of German grammar, to be taught inductively in conjunction with the oral development of the reading lesson indicated in (2). Toward the last of the year the essentials should be reviewed with accuracy and in detail, with the help of sentences and free composition. Some free composition, or written answers to questions, should be required frequently after the first weeks.

In the second year the student should:

1. Read 200-300 pages of prose and poetry. The better students should be encouraged to private reading of simple texts. The use of classics in the second year is discouraged. A very simple text should be chosen for the first weeks to make the transition from the beginning course less abrupt. Other texts should follow of which the language is sufficiently modern to lend itself well to oral treatment of the subject matter in class. This course should continue the effort of the first year to develop,

by means of question and answer in German, the accurate and immediate knowledge of the language through direct imitation and spontaneous use of the idiom of the text. This work should be supported by frequent written exercises based upon the text read.

2. Translate selected passages of the text into idiomatic English. To translate sentences which the student already understands is a waste of time. Often a paraphrase, or a brief explanation in German, of a difficult passage is more satisfactory than translation.

3. Review typically the essentials of German grammar, including the chief rules of orthography and syntax.

Students presenting three or four years of high-school German may enter University courses suited to their degree of advancement. The work of the third and fourth years should secure grammatical accuracy, enlarge the reading and speaking vocabulary, and provide an introduction to the literature. To this end the use of much good narrative prose and selected poetry in the third year is recommended, and the reading and discussion of several dramas including classics, in the fourth year. Selection of too difficult texts is a serious error and should be avoided.

### *French* (four units)

Work of the first year should comprise:

1. Careful drill in pronunciation.
2. Rudiments of grammar, including inflection of the more common irregular verbs.
3. Abundant practice in turning simple English into French.
4. Reading of 100 to 175 pages of simple French, including ample practice in sight translation.
5. Writing of French from dictation.

Work of the second year should comprise:

1. Complete and thoro drill in grammar.
2. Drill in connected prose composition.
3. Reading of 250 to 400 pages of modern prose and poetry.
4. Continued practice in writing French from dictation.
5. Practice in the understanding of simple French when spoken or read.

Work of the third and fourth years: If a third and fourth year are offered, they should consist of (1) continued study of grammar, (2) advanced connected prose composition, (3) reading of more difficult French with emphasis on the literary side, and (4) oral practice.

### *Spanish* (four units)

Courses in Spanish should follow the same plan as for French.

### *Scandinavian Languages*

*Norwegian* or *Swedish* (four units).—The student should acquire the principles of grammar, ability to read and translate ordinary prose and easy poetry as well as to translate from English, and a fair acquaintance with the history of the Scandinavian countries. Two additional years' work in literature will be accepted.

## GROUP C. HISTORY AND SOCIAL SCIENCES

### *History*

*European History* (two units).—(a) Ancient and medieval to 1648 A.D. and modern 1648 A.D. to the present.

or

(b) Ancient up to 800 A.D. and medieval and modern 800 A.D. to the present.

*English History* (one-half or one unit).—The Saxon period should be passed over rapidly. In the remainder of the work, besides the narrative, constitutional points should receive attention, and easily accessible documents should receive careful study.

*Senior American History* (one-half or one unit).—No attempt should be made to cover the whole field in this time. In the study of any period in the nineteenth century special attention should be paid to economic development and the westward movement.

### *Social Sciences*

*American Government* (one-half or one unit).—This should be a study of our government, national, state, and local, as it is organized and actually operated to-day. The instruction should aim to impart information essential to intelligent, active citizenship, such as the division of the government into departments, their organization and function; the methods of nominating, electing, and appointing men to office; of framing and amending constitutions, city charters, and statutes; of drawing grand and petit juries and the duty of the citizen to serve on them; the distinction between common law, state law, and constitutional law, between equity, civil, and criminal cases.

*Elementary Economics* (one-half unit).—Insofar as is consistent with the lack of maturity of high-school students, they should master the principles which underlie the economic system. Such historical and descriptive matter should be employed as will enable the student to apply his principles to actual business situations.

*History of Commerce* (one-half or one unit).—This forms the natural introduction to the study of present economic conditions. It would be well to give special attention to the economic history of England and the United States. The work should be based on a textbook, supplemented by carefully directed map work and assigned readings. This should be preceded by a year course of medieval and modern European history.

*Commercial Geography* (one-half or one unit).—This describes and seeks to explain the commerce of to-day. The work should cover the ways in which commerce depends on nature and on man, the development of means of transportation and communication, and a detailed study of the several commercial regions of the world with reference to resources, industries, transportation facilities, and commerce. It should be based on a textbook supplemented by map work and assigned readings.

*Sociology* (one-half unit).—This course should consist largely of a study of community social problems, but should not neglect the larger and more general social problems of the state and nation, such as immigration, poverty and crime and their treatment, defective classes, family adjustment, conservation, and social measures for health protection. Social theory should be studied in this course insofar as it assists in an understanding of the social problems, but not as an end in itself. Good results should be obtainable by a well trained teacher from using the community in which the school is located as laboratory material for study, if such work is planned with tact. A good elementary text and supplementary readings are essential.

### GROUP D. MATHEMATICS

*Elementary Algebra* (one unit).—Positive and negative numbers; addition; subtraction; multiplication; division; factoring; highest common divisor and lowest common multiple by factoring; fractions; equations of the first degree in one, two, and three unknowns, with numerous problems involving such equations; involution (omitting the binomial theorem); evolution (omitting cube root); elementary manipulations of surds; irrational equations that lead to equations of the first degree; pure quadratic equations; affected quadratic equations by the method of completing the square and by factoring, with problems involving such equations.

*Higher Algebra* (one-half unit).—A review of elementary algebra with more difficult problems and with some demonstrational work; the factor theorem; the binomial theorem for positive integral exponents; cube root; fractional negative, and zero exponents; surds, radicals, and imaginaries; the solution of affected quadratic equations by formula; equations in the quadratic form; simultaneous quadratic equations; arithmetic and geometric progressions. The course in higher algebra should be taken by students in their third or fourth high-school year.

*Plane Geometry* (one unit).—Any of the standard texts on this subject will furnish the necessary preparation. Isoperimetry, symmetry, and maxima and minima of figures are not required. The exercises requiring solutions and demonstrations should not be omitted.

*Solid Geometry* (one-half unit).—Any of the standard texts on this subject will furnish the necessary preparation. The exercises requiring solutions and demonstrations should not be omitted.

*Trigonometry* (one-half unit).—Definitions and relations of the six trigonometric functions as ratios; circular measurement of angles.

The principal formulas, in particular for the sine, cosine, and tangent of the sum and the difference of two angles, of the double angle and the half angle, the product expressions for the sum or the difference of two sines or of two cosines, etc.; the transformation of trigonometric expressions by means of these formulas.

Solution of trigonometric equations of a simple character.

Theory and use of logarithms (without the introduction of work involving infinite series).

The solution of right and oblique triangles and practical applications.

#### GROUP E. NATURAL SCIENCES

*Physics* (one unit).—It is suggested that the year's work be confined to four of the seven subjects mentioned below.

(1) Mechanics of solids, (2) liquids and gases, (3) sound, (4) heat, (5) light, (6) and (7) electricity and magnetism (to count as two subjects, but not to be divided).

*Chemistry* (one unit).—The full year's work should include a study of both the non-metals and metals with laboratory experiments illustrating the common chemical laws and the commoner chemical reactions.

*Botany* (one-half or one unit).—One-half unit: The course should cover the external form and functions of the parts of the flowering plant, including its development from the seed. A part of the work should consist of becoming familiar with the common plants of the neighborhood, both cultivated and native.

One unit: In addition to the work required for one-half unit the course should embrace the microscopic structure of the parts of the flowering plant and a study of selected lower forms. The one year's course should embrace essentially what is covered by Bergen's *Elements of Botany*, Andrew's *Plants the Year Around*, and J. G. Coulter's *Plant Life and Plant Uses*.

*Zoology* (one-half or one unit).—Animals should be studied as living units in their relation to one another and their environments. This study should include development stages as well as the habits, general structure, and special adaptations of the adult stage. The aim of the teacher should be to foster a love for animate nature and to develop accuracy in observation and description.

*Physiology* (one-half unit).—A good recent text should be used. Illustrative material, such as skeleton, manikin, and charts, should be available. Single experiments should be carried out, particularly on the students themselves. Practical application and hygiene should be emphasized.

*Astronomy* (one-half unit).—An elementary course in general astronomy as presented in any good modern textbook will satisfy this requirement.

*Geology* (one-half unit).—These subdivisions should receive special attention: physiographic geology, the building of the land and the evolution of its existing contours; geodynamics, the modifying of the earth by atmosphere, water, terrestrial heat, plants, and animals, and a brief survey of historical geology.

*Physiography* (one-half unit).—The following topics should be emphasized: meteorology, the leading facts relating to the atmosphere and its phenomena, including some acquaintance with the work of the United States weather bureau; land sculpture, including the origin, development, and degradation of land forms; and the influence of these processes on the physical environment of man.

*General Science* (one unit).—The course should consist of an elementary study of the applications of science to the affairs of the every-day life. Such topics as atmosphere and the weather, house-heating and ventilation, foods, water supply,

hygiene, and disease preventions are types of the topics which should make up the course. It is not intended that the course should be organized like the special science and it should not be organized with the idea of preparing students for work in the special sciences. The justification of the course must be in terms of its own intrinsic value as a training for life. This point of view is expressed in most of the late textbooks on general science.

#### GROUP F. VOCATIONAL AND MISCELLANEOUS SUBJECTS

The studies of Group F are no longer designated by the University. This group contains all subjects not listed in the Groups A, B, C, D, and E, which are certified by the high-school superintendent as of acceptable nature and counted towards the graduation of the student.

## EXPENSES

### FEES

#### TUITION FEE

The University year, extending from October to June, is divided into three terms called quarters. The tuition fee, which includes all laboratory charges (except in the School of Chemistry), is payable at the beginning of each quarter.

The quarterly tuition fees for the several schools and colleges of the University are as stated below:

#### *College of Science, Literature, and the Arts:*

Quarterly fee, resident.....	\$ 20.00
Quarterly fee, non-resident.....	30.00
Additional quarterly fee for those electing music:	
Instrumental and vocal (one lesson a week).....	25.00
Instrumental and vocal (two lessons a week).....	45.00

#### *College of Engineering and Architecture:*

Quarterly fee, resident.....	\$ 30.00
Quarterly fee, non-resident.....	40.00

#### *College of Agriculture, Forestry, and Home Economics:*

Quarterly fee, resident.....	\$ 20.00
Quarterly fee, non-resident.....	30.00

#### *Law School:*

Quarterly fee, resident.....	\$ 30.00
Quarterly fee, non-resident.....	40.00

#### *Medical School:*

Quarterly fee, resident.....	\$ 60.00
Quarterly fee, non-resident.....	70.00
School of Nursing, preliminary course, tuition fee.....	25.00
Public Health Nursing (four-month period).....	25.00

#### *College of Dentistry:*

Quarterly fee, resident.....	\$ 60.00
Quarterly fee, non-resident.....	70.00
School for Dental Hygienists.....	35.00

#### *School of Mines:*

Quarterly fee, resident.....	\$ 30.00
Quarterly fee, non-resident.....	40.00

#### *College of Pharmacy:*

Quarterly fee, resident.....	\$ 30.00
Quarterly fee, non-resident.....	40.00



*School of Chemistry:*

Quarterly fee, resident.....	\$ 30.00
Quarterly fee, non-resident.....	40.00

*College of Education:*

Quarterly fee, resident.....	\$ 20.00
Quarterly fee, non-resident.....	30.00

*School of Business:*

Quarterly fee, resident.....	\$ 30.00
Quarterly fee, non-resident.....	40.00

*Graduate School:*

Quarterly fee, resident and non-resident.....	\$ 10.00
---	----------

## DEPOSIT FEE

*Deposit Fee:*

At the student's first registration each year, in addition to the tuition fee, a deposit fee of five dollars (\$5.00) (Medicine, Dentistry, and Pharmacy, ten dollars) is required of every student to cover the following charges:

Examination for removal of condition at set time or postponed physical examination.....	\$1.00
Rental of post-office box, University post-office (required of all).....	\$0.50 a year
Locker rental.....	\$0.75 to 1.50 a year
Locker-key deposit .....	\$0.25
Case-book deposit (Law School), laboratory breakages, library fines, or damage to University property.	

The unused balance of the deposit fee will be returned at the end of each year. If, at any time during the college year, the charges against a student shall warrant a renewal of the deposit, a second fee of five dollars (\$5.00) will be required.

*Military Deposit:*

Military deposit (required of all students taking Military Drill) ....	\$10.00
--	---------

*Laboratory Deposit:*

A laboratory deposit of five dollars (\$5.00) is also required of students registered for courses in chemistry to cover the cost of materials; the unused balance will be returned at the end of the course.

## PENALTY FEES

*Registration penalties.*—A penalty fee for late registration, late change of registration, or late payment of fees shall be two dollars (\$2.00) and one dollar (\$1.00) additional for each day of delay after classes begin, provided that no student shall pay more than twelve dollars (\$12.00) of penalty in any given quarter.

*Library fines.*—All overnight books taken from the "Reserves" must be returned at 8:30 the following morning. If not returned at that hour

a fine of twenty-five cents will be imposed, and an additional ten cents will be charged for every hour or fraction of an hour thereafter that the book is retained.

Books issued during the day for reading-room use must be returned within two hours. If not returned promptly a fine of twenty-five cents for the first hour and ten cents additional for every hour or fraction of an hour thereafter that the book is overdue, will be charged. The two-hour limit will not be enforced between 6 p.m. and 10 p.m.

## SPECIAL FEES

The following special items are included in the expenses of a student:

Minnesota Union membership (required of men).....	\$1.00 a quarter
Shevlin Hall fee (required of women).....	1.00 a quarter
Health fee (required of everyone).....	2.00 a quarter
Gymnasium fee (required of women taking three-hour gymnasium courses).....	2.50 a quarter
Gymnasium fee (required of women taking two-hour gymnasium courses).....	2.00 a quarter
(Maximum charge for one quarter is \$3.50)	

The following special items may be included:

Special examination for removal of condition, at other than the set time*.....	\$5.00
Examination on subject taken out of class*.....	5.00
(No fee for such examination on first entering the University, if taken within the first six weeks.)	

## STUDENTS EXEMPT FROM FEES

All fellows, scholars, assistants, and instructors, and all members of the teaching staff, and scientific bureaus or experiment stations when regularly enrolled as students in the Graduate School shall not be required to pay tuition fees.

## FEES FOR STUDENTS OF ONE COLLEGE TAKING WORK IN ANOTHER

Where a student of a given college or school elects courses in another, such courses being accepted by the college in which the student is registered as a part of its curriculum, the tuition shall be that of the college in which he is registered.†

If, at any time, such student desires credit for this course towards the degree offered by the second college, he shall pay such additional tuition as is required by the second college, charged in accordance with the schedule indicated below.

\* Such an examination may be taken only upon approval of the appropriate committee.

† A student paying full fees in a given college, electing courses in a lower-fee college, shall pay no additional fees for the work so elected, but if electing in a higher-fee college may have the option of paying the pro rata fees of both or the full fees of the first and pro rata fees of the second.

## FEE SCHEDULE FOR STUDENTS CARRYING LESS THAN FULL WORK

Students carrying less than the complete schedule of work may pay fees on a credit-hour basis. The following table indicates the charge for each college, also the minimum amount that may be paid by any student.

COLLEGE OR SCHOOL	Credit Hour Fee	Credit Hour Fee
	Resident	Non-resident
Science, Literature, and the Arts.....	\$1.75	\$2.50
Engineering and Architecture.....	2.50	3.25
Agriculture, Forestry, and Home Economics..	1.50	2.25
Law .....	2.75	3.75
‡Medicine .....	2.50	3.00
‡Dentistry .....	2.50	3.00
Mines .....	2.50	3.25
‡Pharmacy .....	1.25	1.75
Chemistry .....	2.50	3.25
Education .....	1.75	2.50
Graduate School.....	1.00	1.00
Business .....	2.75	3.75

## LIVING EXPENSES

## BOARD AND ROOM

*Women*

*Sanford Hall.*—Sanford Hall, the one dormitory for women, accommodates eighty-seven women, about one third of whom may be freshmen. The charge for room and board is three hundred dollars (\$300) for the university year. The addition to the dormitory, nearly completed, will accommodate one hundred women. The rooms are all engaged for the coming year.

*Coöperative Cottages.*—Three coöperative cottages, each in charge of a chaperone, offer comfortable homes for about twenty-six women. One cottage, the Elizabeth Northrop, is for the exclusive use of women medical students. By assisting with the work of the houses, the students are able to keep expenses within moderate bounds. In assigning students to these cottages, preference is given to women earning a part of their expenses. These rooms are all engaged at the present time. Occasionally a vacancy occurs. Application may be made to the dean of women.

*Home-Management Houses.*—Two residences for women, located near the Agricultural College campus, are maintained by the Division of Home Economics, furnishing accommodations for a small number of students. The charge is ninety dollars (\$90) for each quarter, payable in advance. This sum covers the cost of living in the houses with the exception of luncheons for the first five days of the week. Applications should be sent

‡ In these three colleges the prorating is on the basis of clock hours.

to the Chief of the Division of Home Economics, University Farm, St. Paul. A deposit fee of ten dollars (\$10) is required when a room is reserved.

*Rooming Houses.*—About one hundred and seventy-five houses are approved by the University as residences for women. Attention is called to the ruling of the Board of Regents that women students are not allowed to reside in any house which is not on the approved list except by special arrangement with the dean of women. Women students do not reside in any house where men are taken as roomers. All women students should bring at least three sheets, two pillowcases, and towels, all to be marked with the full name of owner. No electric light stronger than forty watt is to be allowed in a student's room. No electric appliances are to be used except by permission of the householder. Room rent varies from eight to fifteen dollars a month; board at the present time is eight dollars a week.

Three meals on the cafeteria plan are served at Shevlin Hall daily, with the exception of Sunday.

For further information and lists of addresses, application may be made to Mrs. M. E. Staples, Head of Housing Bureau, Shevlin Hall.

### Men

A list of approved boarding and rooming houses may be had upon request at the Manager's Office of the Minnesota Union.

At the Minnesota Union, the men's club house on the campus, three meals a day are served on the cafeteria plan, at practically cost prices. Last year (1920-21) the average price paid for breakfast was twenty cents; for luncheon and dinner, thirty cents each. Board by the week varies from six to nine dollars a week.

### GENERAL EXPENSES

The following tables give estimates of the freshman students' expenses in college, omitting clothing, railroad fare, and vacation expenditures. To live within the minimum rate, a student must forego all luxuries and economize in every expenditure.

#### MISCELLANEOUS EXPENSES COMMON TO STUDENTS IN ALL COLLEGES

	Minimum	Average	Liberal
Health fee.....	\$ 6.00	\$ 6.00	\$ 6.00
Minnesota Union or Shevlin Hall fee....	3.00	3.00	3.00
Gymnasium suit (approximately).....	8.00	8.00	8.00
Laundry .....	28.00	36.00	60.00
Room rent.....	81.00	100.00	120.00
Board .....	175.00	225.00	325.00
Incidentals .....	60.00	200.00	300.00
	<hr/>	<hr/>	<hr/>
	\$361.00	\$578.00	\$822.00

## EXPENSES FOR BOOKS AND INSTRUMENTS

	Minimum	Average	Liberal
Science, Literature, and the Arts, Education, Agriculture, Forestry, and Home Economics, Mines, Business, Chemistry, and Pharmacy.....	\$ 20.00	\$ 25.00	\$ 30.00
Engineering and Architecture.....	50.00	60.00	75.00
Law .....	30.00	35.00	45.00
Medicine .....	30.00	35.00	50.00
Dentistry .....	150.00	160.00	175.00
	<u>\$280.00</u>	<u>\$315.00</u>	<u>\$385.00</u>

## ESTIMATED EXPENSES FOR THE YEAR

	Minimum	Average	Liberal
Science, Literature, and the Arts, Education, Agriculture, Forestry, and Home Economics.....	\$456.00	\$678.00	\$927.00
Chemistry, Mines, and Business.....	486.00	708.00	957.00
Pharmacy .....	491.00	713.00	962.00
Engineering and Architecture.....	516.00	743.00	1002.00
Law .....	486.00	708.00	962.00
Medicine .....	581.00	803.00	1062.00
Dentistry .....	711.00	938.00	1172.00

An additional fee of \$10 should be added for students residing outside of the state of Minnesota.

## SELF SUPPORT

The Bureau of Employment is maintained for the purpose of assisting all students who seek employment, and of developing in all proper ways opportunities for self-help. The opportunities for men are necessarily more varied than those for women. Communications from students and graduates in regard to obtaining employment should be addressed to this bureau. Students or prospective students applying for the first time must appear at the office in person.

For the benefit of those who are without support of any kind it may be said that a number of students, with the aid of the money saved during the summer, are earning all their college expenses. Some are able to meet their expenses during the college year, but this can be done only by students of unusual force and adaptability, or with exceptional opportunities. The average student must meet stern competition; he must live economically; he must guard his health while preserving a fair balance between time given to studies and to outside work.

It is not a good policy to begin life in a new community entirely without resources. A prospective student should have at least one hundred and fifty dollars or the equivalent in addition to tuition fees; even

then it will be necessary for him to do outside work and live very economically. Before he can place himself in a self-supporting position he may have to try again and again, and meanwhile his living expenses will be accumulating. An adequate reserve fund under such conditions will secure peace of mind, health of body, and the benefits of the college year.

The Twin Cities offer exceptional opportunities to the self-supporting student. Students are employed in housework, in the care of children, and as clerks, bookkeepers, stenographers, salesmen and saleswomen, solicitors, telegraph operators, mechanics, assistants, musicians, librarians, waiters, laborers, janitors, telephone operators, and in many other capacities. Considerable work can be secured within walking distance.

Applicants for employment should bear in mind that, while every effort is made to secure work for all who need it, positions can not be assigned in the order in which applications are made. The places available are of so varied a nature that it would be impossible to assign them in order, without regard to the ability and qualifications of different applicants. The employer must be given the best person for his particular position. This means that fitness must be the first consideration. Whenever possible, however, the order of applications is followed.

Those who find themselves without funds at the beginning of the college year should register in some of the evening extension courses and seek employment during the day rather than run the risk of not being able to finance themselves while carrying regular university work. By choosing extension courses for which university credit is allowed, students can make their future university course much easier and give themselves more time for outside work. The correspondence courses offered by the Extension Division are open to all except resident students. Students who can meet the usual requirements for college entrance are allowed university credit for the most of these courses.

SCHOLARSHIPS, LOANS, AND PRIZES  
GRADUATE FELLOWSHIPS AND SCHOLARSHIPS

*The Shevlin Fellowships*

Four annual Shevlin Fellowships of \$500 each are open to graduates of any acceptable college or university, one each in the colleges of Agriculture, Chemistry, Medicine, and Science, Literature, and the Arts respectively. Applications for these fellowships must be made on or before March 1. Blank applications can be obtained from the dean of the Graduate School.

*The Class of 1890 Fellowship*

As a gift of the class of 1890 the annual income from the sum of \$2,500 is open to a graduate of the College of Science, Literature, and the Arts or the College of Engineering and Architecture of the University of Minnesota who has shown distinguished ability and initiative as a student and who desires to make further preparation for public service.

*The Albert Howard Scholarship*

This scholarship of \$120 a year is awarded to graduates of the College of Science, Literature, and the Arts of the University of Minnesota.

*United States Radiator Corporation Scholarship*

A scholarship of \$500 is given by the United States Radiator Corporation for special research work in heating. It is available to graduate students in engineering who have taken work in heating and ventilating, and is given for research work in these lines. The holder of this scholarship submits a thesis, and the approval of his work comes under the College of Engineering and Architecture.

*The DuPont Fellowship in Chemistry*

This fellowship, established by the E. I. DuPont de Nemours and Company, yields \$750 annually. The holder devotes his entire time to graduate study and is not required to render any service to the University.

*Minneapolis Civic and Commerce Association Scholarship*

An annual scholarship of \$500, given by the Minneapolis Civic and Commerce Association, is open to graduate students in engineering who have taken work in municipal engineering. The holder will devote part of his time to appropriate work with the Bureau of Municipal Research and will submit a thesis for the approval of the faculty of the College of Engineering and Architecture. Not offered in 1921-22.

*The Northern Insulating Company Scholarship*

The Northern Insulating Company of St. Paul offers a scholarship of \$500 for research work in heating and insulating materials. The student holding this scholarship must be a graduate of the College of Engineering and Architecture who has shown special ability along these lines. A thesis must be submitted, the work and thesis to be approved by the College of Engineering and Architecture.

*Teaching Fellowships, Assistantships, and Scholarships*

The following fellowships, assistantships, and scholarships are open to graduates of any acceptable college or university. They carry stipends ranging from \$225 to \$1,200 with remission of tuition in the Graduate School. Applications may be made through the dean of the Graduate School on or before March 15.

Agriculture .....	16 Assistants
Animal Biology.....	{ 2 Teaching Fellows 8 Assistants 2 Scholars
Anthropology .....	{ 1 Assistant 1 Scholar
Astronomy .....	1 Scholar
Botany .....	6 Teaching Fellows
Chemistry .....	22 Assistants
Comparative Philology.....	1 Scholar
Economics .....	{ 2 Teaching Fellows 2 Scholars
Education .....	{ 4 Assistants 1 Scholar
English .....	{ 1 Assistant 21 Scholars
Geology and Mineralogy.....	2 Scholars
German .....	{ 3 Teaching Fellows 2 Scholars
History .....	{ 5 Teaching Fellows 2 Assistants 2 Scholars
Mathematics .....	{ 21 Teaching Fellows 2 Assistants 1 Scholar
*Medicine and Surgery:	
(a) Medical School.....	{ 16 Fellows 12 Assistants 5 Scholars
(b) Mayo Foundation.....	107 Fellows
Philosophy .....	1 Scholar
Physics .....	{ 4 Teaching Fellows 10 Assistants
Political Science.....	3 Scholars
Psychology .....	{ 6 Teaching Fellows 1 Scholar
Romance Languages.....	{ 4 Teaching Fellows 1 Scholar
Scandinavian .....	1 Scholar
Sociology and Anthropology....	{ 1 Assistant 2 Scholars

\* Special requirements. Address inquiries to dean of the Graduate School.



## UNDERGRADUATE SCHOLARSHIPS

*The Moses Marston Scholarship in English*

This scholarship, the annual income from a fund of \$1,000, is to be used to further English study, and is awarded by the English Department as a recognition of special capacity for literary and linguistic studies.

*National City Bank Scholarships*

The National City Bank of New York City offers to students of the University one or more scholarships each year for the purpose of training young men in banking and foreign trade. The arrangements will include certain periods of practical work and study in the National City Bank. Further information may be had from the office of the School of Business. Applications must be in the hands of the dean of this school by March 1.

*Minnesota State Pharmaceutical Association Scholarship*

A scholarship amounting to \$90 is awarded annually by the Minnesota State Pharmaceutical Association to the student, a citizen of the United States and a resident of Minnesota for at least five years, who has earned the highest general rating in the work of the second year of the regular course in the College of Pharmacy. If such student should discontinue attendance at the college, the said sum is to be awarded to the student next highest in standing who meets the other requirements.

*The Fairchild Scholarship*

The Fairchild Scholarship, amounting to \$300, is awarded to that first-year student in any of the colleges holding membership in the American Conference of Pharmaceutical Faculties who has had two years of drug-store experience, is a high-school graduate, and who passes the best competitive examination to be conducted by or under the auspices of a committee made up of members appointed jointly by the American Pharmaceutical Association, the American Conference of Pharmaceutical Faculties, and the National Association of Boards of Pharmacy. Fuller particulars may be had from the dean of the college.

*The Lions Club Scholarship*

The Lions Club offers an annual scholarship amounting to \$100 which is available for a student in the Americanization training course.

*The Elizabeth Carse Scholarship*

The Elizabeth Carse Scholarship, amounting to \$50 each year, is awarded to a student in the senior class of the College of Education on the basis of scholarship and general efficiency.

*The St. Paul College Club Scholarships*

The St. Paul College Club offers annually six scholarships of \$150 each to women students. Applications may be made to the dean of women before May 1.

*The Minneapolis College Women's Club Scholarship*

The Minneapolis College Women's Club offers annually three scholarships of \$150 each, to be awarded to women in the junior or senior class. Applications may be made to the dean of women before May 1.

*The W. S. G. A. Scholarship*

The Women's Self-Government Association of the University offers annually four scholarships of \$100 each, to be awarded to women of the junior or senior class. Applications may be made to the dean of women before May 1.

*The Faculty Women's Club Scholarship*

The Student Section of the Faculty Women's Club offers annually a scholarship of \$100, to be awarded to some woman student. Applications may be made to the dean of women before May 1.

*The Woman's Club Scholarship*

The Arts and Letters Section of the Woman's Club of Minneapolis offers annually a scholarship of \$100, to be awarded to a woman student, preferably in the College of Science, Literature, and the Arts. Applications may be made to the dean of women before May 1.

*The Nina Morais Cohen Scholarship*

The Nina Morais Cohen Scholarship of \$100 is awarded annually to a woman student of Jewish descent. Applications may be made to the dean of women before May 1.

*The George H. Partridge Scholarships*

Through the generosity of Mr. George H. Partridge several scholarships, amounting to \$500 annually, are available for young women of high scholarship and fine character. These scholarships are awarded by selection without special application. Fuller particulars may be had from the dean of women.

*The Mrs. Elbert L. Carpenter Scholarships*

Through the generosity of Mrs. Elbert L. Carpenter, scholarships amounting to \$150 annually, are available for young women of high scholarship and fine character. These scholarships are awarded by selection without special application. Fuller particulars may be had from the dean of women.

*The Mrs. G. C. Christian Scholarship*

Through the generosity of Mrs. G. C. Christian a scholarship, amounting to \$100 annually, is available for young women of high scholarship and fine character. This scholarship is awarded by selection without special application. Fuller particulars may be had from the dean of women.

*The Argosy Club Scholarship*

The Argosy Club offers annually a scholarship of \$100 which is awarded to a woman student in the Americanization training course.

*The Pathfinder Club Scholarship*

The Pathfinder Club offers annually a scholarship of \$50 which is awarded to a woman student in the Americanization training course.

*The Get Together Club Scholarship*

The Get Together Club offers a scholarship of \$50, which is available to students of the Division of Home Economics. In awarding it, the character, the scholarship, and the need of the applicant will be considered. Preference will be given to students in the junior and senior classes. Applications for this scholarship may be made to the chief of the Division of Home Economics.

*The Phi Upsilon Omicron Scholarship in Home Economics*

The Twin City chapter of Phi Upsilon Omicron offers a scholarship of \$50, which is available to students of the Division of Home Economics. Any student in the division will be eligible but preference will be given to freshmen and sophomores. The award will be in the hands of a faculty committee; applications should be made to the chief of the Division of Home Economics.

*Sharples Prize Scholarship*

A senior scholarship for women in the College of Agriculture, Forestry, and Home Economics (both graduate and undergraduate) who have completed eight quarters, or five semesters, work toward graduation. The amount of the scholarship is \$500 contributed by the Sharples Separator Company of West Chester, Pennsylvania. Selection is made on character, scholarship, and special training.

*Caleb Dorr College Scholarships*

Contributed by the late Caleb Dorr of Minneapolis. A number of scholarships of approximately \$200 each, are given as "rewards of industry and attainment" to students in the College of Agriculture, Forestry, and Home Economics. Seven scholarships were granted in 1920-21. Character, scholarship, and public service are bases for awards. The faculty committee may prescribe additional bases when these seem desirable.

*Caleb Dorr Research Fellowships*

The late Caleb Dorr of Minneapolis has caused to be set aside \$20,000, the income of which is to be devoted toward "establishing and maintaining research fellowships in the Department of Agriculture." No definite allotment has yet been made, but the fellowships will probably be approximately \$500 each. No awards were made in the year 1920-21. For the basis of selection and for the number of fellowships available in 1921-22, consult the dean of the College of Agriculture, Forestry, and Home Economics.

*School of Music Scholarship*

The School of Music offers for the year 1921-22 scholarships amounting to \$600. In awarding these, the character, scholarship, and the needs of the applicants will be considered. Application may be made to Professor Carlyle Scott.

## LOAN FUNDS

Unless otherwise stated, all applications for loans should be made to the president.

*The Faculty Women's Club Emergency Fund*

The Faculty Women's Club has established a small emergency fund to be used for assisting women students. It is intended that this fund should give help to students who are embarrassed by inability to meet incidental expenses. Applications may be made to the dean of women at any time.

*The Gilfillan Trust Fund*

The annual income from this fund of \$50,000, established by Judge John B. Gilfillan of Minneapolis, is available as a loan to worthy students of the University who are residents of Minnesota.

*The Elliot Trust Fund*

The annual income from this fund of \$5,000, established by the will of the late Mrs. Mary H. Elliot, is loaned without interest to students in the School of Mines. The financial needs of the applicant, his scholarship, moral character, enthusiasm shown in his work, and promise of usefulness in his profession will be taken into consideration.

*The Ludden Estate Loan Fund*

The annual income from this fund of approximately \$10,000, established by the will of the late John D. Ludden of St. Paul, is available for loans to any student of the University of Minnesota.

*The Ludden Real Estate Loan Fund*

An annual income of \$3,000, derived from real estate willed to the University by the late John D. Ludden of St. Paul, is available for loans to any student of the University of Minnesota.

*The Loan Fund for Women Students of the University*

This fund was established by Mrs. George Edgar Vincent and the Faculty Women's Club, and is periodically increased by contributions from the Faculty Women's Club. Small loans from this fund are available for women students of high scholarship and fine character. Applications may be made to the dean of women at any time.

*The Minneapolis Colony of New England Women Loan Scholarship*

A loan scholarship of \$100 is available annually for a woman student of New England birth or ancestry who is a member of the junior or

senior class. Applications, accompanied by testimonials, may be made to the dean of women before May 1.

*The Minnesota Federation of Women's Clubs Loan Scholarships*

The Minnesota Federation of Women's Clubs has charge of three loan scholarships which provide money to be loaned to young women who are residents of Minnesota, the sum borrowed not to exceed \$250. These loan scholarships are as follows:

(a) The Lydia Phillips Williams Memorial Scholarship, to be loaned to a woman student in any department of any college of the state.

(b) The Professor Maria Sanford Scholarship, to be loaned to a woman student in some college of the University of Minnesota.

(c) The Annabelle Collins Coe Scholarship, to be loaned to a woman student at the University of Minnesota or in any college of the state.

Before making a request for these loans applicants should obtain consent of parents or guardians. Applications, accompanied by testimonials, may be made to the dean of women before May 1.

*The Duluth Branch of the Association of Collegiate Alumnae Loan Scholarship*

The Duluth Branch of the Association of Collegiate Alumnae loans each year a scholarship of \$300 to a woman student selecting a course which leads to a bachelor's degree in arts, philosophy, science, literature, or education. This loan scholarship is not restricted to students in institutions of this state. Applications should be sent to the dean of women early in the year so that they may be forwarded to the Duluth Branch of the Association of Collegiate Alumnae.

*The Ludden Trust Fund*

The income from \$10,000, a gift of the late John D. Ludden of St. Paul, is available for loans to students in the Department of Agriculture. Application blanks may be obtained from the dean of the Department of Agriculture.

*Caleb Dorr Loan Fund*

A loan fund open to students in the College of Agriculture, Forestry, and Home Economics, contributed by the late Caleb Dorr of Minneapolis. The amount is variable and the conditions of the loan are similar to other loan funds.

*Students' Trust Funds*

The class of 1902 and the class of 1916 each has established a fund of \$100 which is available for temporary loans to deserving students who are not below the junior class in the School of Agriculture. Applications may be made to the principal of the school.

*The Home Economics Self-Government Association Loan Fund*

The sum of \$250 is available for small emergency loans to women in the Division of Home Economics whose character and scholarship

recommend them for assistance. Applications may be made to the dean of women at any time.

### PRIZES

#### *The John S. Pillsbury Prize*

Three prizes of \$100, \$50, and \$25 respectively, are awarded annually for the best work in the Department of Rhetoric and Public Speaking, as evidenced finally by an oration in public.

#### *The Frank H. Peavey Prize*

This prize of \$100 is awarded to the members of the team winning the annual freshman-sophomore debate.

#### *The Freshman-Sophomore Oratorical Contest*

The sum of \$100 is available to furnish prizes for the winners of the first three places in the freshman-sophomore oratorical contest.

#### *The Frank O. Lowden Prize*

The annual income from \$3,000 is available to orators competing in the Northern Oratorical League. A prize of \$100 will be given to the orator winning the first place and \$50 to the winner of second place.

#### *The Alumni Weekly Gold Medal*

This medal is awarded annually by the faculty committee on debate and oratory to that member of the graduating class who has, in the judgment of the committee, made the best record in forensics during his college course. The medal is awarded only to a student who has shown himself broad-minded, unselfish, industrious, and willing to work courteously and enthusiastically with others so as to serve the highest interests of public speaking in the University.

#### *The '89 Memorial Prize in History*

A prize of \$50 each year is given for the best thesis in history, written from the sources, by a member of the graduating class.

#### *The Journal Prizes in History*

Mr. H. V. Jones of the *Minneapolis Journal* offers each year a first prize of \$50 and a second prize of \$25 for the two best papers in history written by undergraduates. Literary form will be taken into prominent consideration. Papers must be submitted before May 17.

#### *The William Jennings Bryan Prize*

A prize of \$50 will be awarded every fourth year to the writer of the best essay upon a topic in Political Science to be announced. The essay, which is limited to ten thousand words, must be handed to one of the instructors in Political Science by May 1. The next award will be made in 1922.

*Harris Political Science Prizes*

Two prizes of \$150 and \$100 are given annually by Professor N. D. Harris, of Evanston, Illinois, to the writers of the two best essays upon certain specified subjects in the fields of state and local government, foreign politics, or foreign relations. The contest is open to undergraduate men in Indiana, Illinois, Minnesota, Iowa, Michigan, and Wisconsin.

*The Menorah Prize*

The Intercollegiate Menorah Association, through the generosity of Mr. Arthur M. Harris, of Minneapolis, offers an annual prize of \$100 for the best paper written on any subject in history, literature, religion, philosophy, or sociology relating to Jews or Judaism, to be approved by a faculty committee. The prize is open to any student in the University.

*The Rollin E. Cutts Prize in Surgery*

The income from \$500 is awarded in the form of a gold medal to that member of the senior class of the Medical School who presents the best thesis showing original work upon a surgical subject.

*The Edwin Ames Jaggard Prize in Legal History*

A prize of \$50 is awarded each year to the student in the Law School whose contributions to the pages of the *Minnesota Law Review* during such year shall be adjudged by the Law Faculty to be most meritorious.

*The American Law Book Company Prize*

A complete set of the *Cyclopedia of Law and Procedure* is awarded by the Law Faculty to that student in the third-year class who shall have maintained the highest grade of scholarship throughout the three-years' course leading to the degree of Bachelor of Laws.

*The Briggs Prize in Foundry Practice*

Seventy-five dollars annually, in two prizes, accompanied by gold medals, will be awarded to sophomores in the College of Engineering and Architecture for the best essays relative to foundry practice. No prize will be awarded if less than five essays are submitted in competition. Essays should contain about 3,000 words, and must be submitted to the instructor in rhetoric on or before May 1.

*The American Institute of Architects' Medal*

This medal is awarded annually by the American Institute of Architects to the senior in each of the leading architectural colleges of the United States who has the highest scholastic standing throughout his course.

*The Conference Medal*

The Conference Medal is awarded each year by the Intercollegiate Conference Athletic Association to the man, graduating in the senior class of each conference university, who, through a course of four scholastic years' residence in the same university, has the highest degree of achievement in his athletic, as well as in his scholastic, work.

## ORGANIZATIONS AND PUBLICATIONS

### SELF-GOVERNMENT ORGANIZATIONS

*The Minnesota Union* was organized in the spring of 1908 "to promote the best interest and welfare of the University of Minnesota, and comradeship among its members, and to erect and maintain a suitable club house for such purposes." All men students of the University are active members of the Union and are assessed a membership fee of one dollar a quarter, payable at the time of registration. The legislature gave the Chemistry Building for the use of the Union and appropriated \$17,500 for remodeling.

The dining-room, operated on the cafeteria plan, serves three meals a day at practically actual cost. Students are advised to ascertain the Union prices for board before making arrangements elsewhere.

The Minnesota Union maintains for the convenience of its members, a pool- and billiard-room, smoking-rooms, writing- and study-rooms, barber shop, game-rooms, private dining-rooms for student and faculty lunches, ball-rooms, and the Little Theater.

The Union gives periodical social activities in the nature of an open house. Reservations for rooms are made through the manager or through the Information Bureau.

*The Women's Self-Government Association* is open to all women students of the University. Its purpose is to create a sense of unity and fellowship among the women, to promote and maintain the highest standards of university life, and to regulate all matters of student conduct not falling under the jurisdiction of the faculty. The headquarters of the association are in Shevlin Hall. Members of the association will be in readiness during the opening days to meet new students and to serve them in every way possible. The dues are fifty cents a year.

*The All-University Council* is composed of representatives elected from the senior class of each college or school. Its function is mainly that of a student self-governing body, representing the student body in matters affecting student interest, controlling their activities to a large extent, and endeavoring to unify the spirit and promote the best possible welfare of the University.

*College councils.*—Several of the colleges of the University have their own councils articulating with the All-University Council and having similar functions.

### MISCELLANEOUS ORGANIZATIONS

There are at the University more than two hundred student organizations representing religious, ethical, literary, scientific, dramatic, athletic, social, and other activities.



## PUBLICATIONS

The *Bulletin* of the University of Minnesota includes the *Reports* of the President and of the Board of Regents, the *Annual Register*, the *Bulletin of General Information*, the annual announcements of the individual colleges of the University, announcements of special courses of instruction, reports of University officers, etc.

*Research Publications* of the University of Minnesota contain reports of original investigations made by members of the University. The several series offer the opportunity for the publication of comprehensive monographs and of papers of special importance to the people of the state. The following series are issued: Bibliographical series, Studies in the Social Sciences, Studies in Engineering, Studies in the Biological Sciences, Studies in Language and Literature, Current Problems.

*Current Problems Series* contains papers of general interest in relation to various lines of work.

*Minnesota Law Review*.—A legal magazine published monthly, December to June inclusive, by the faculty and students of the Law School.

*School of Mines Experiment Station Bulletins* contain reports of results of investigations conducted by the State Mines Experiment Station.

*Bulletins* of the Minnesota Geological Survey include reports of work done in Minnesota by the Minnesota Survey in coöperation with the United States Geological Survey; also, preliminary reports published independently by the Minnesota Survey in order to prevent loss by delaying the use of information of economic value. The most recent reports are: *Surface Formations and Agricultural Conditions of Northwestern, of Northeastern, and of Southern Minnesota*; *Preliminary Report on the Clays and Shales of Minnesota, Geology and Ore Deposits of the Cuyuna Iron Range, and Peat Deposits in Minnesota*; *Report on the Magnetite Deposits of the Eastern Mesabi Range*.

*Minnesota Botanical Studies*.—A series of technical papers, appearing at irregular intervals, giving the reports of the Botanical Survey of Minnesota, and the results of botanical investigations by students and members of the staff of the Department of Botany.

*Minnesota Plant Studies*.—A series of semi-popular booklets, designed primarily for the use of students and of the people of the state who are interested in knowing the plants of their neighborhood.

Lists with prices of preceding publications will be furnished by the University Librarian.

*Agricultural Experiment Station Bulletins* give the results of experiments carried on at University Farm and at the substations at Duluth, Crookston, Grand Rapids, Morris, and Waseca, as rapidly as such work is completed, or as soon as conclusions of economic value are reached. At least four such bulletins are published annually. The *Annual Report of the Agricultural Experiment Station* summarizes the business and work of the Agricultural Experiment Station and substations each year.

*Minnesota Farmers' Library* and *Special Bulletins* are series of popular instructive bulletins issued by the Agricultural Extension Division, designed for reprinting by the newspapers of the state. the Experiment Station and substations, or on demonstration farms, and approved as good practice for Minnesota farmers. *University Farm Press News* is a semimonthly clip-sheet containing brief instructive articles, designed for reprinting by the newspapers of the state.

*The Visitor* is a news letter issued monthly by the Division of Agricultural Education of the College of Agriculture, Forestry, and Home Economics. It is sent principally to teachers of agriculture, superintendents of schools, and to students of education in the College of Agriculture, Forestry, and Home Economics.

*The Daily Bulletin* is the official organ of the administration. It contains announcements of meetings of regents, of faculties, of committees, and notices of importance to every department of the University.

*The Minnesota Daily*, the University newspaper, is published five times each week during the University year by the Minnesota Daily Association. Its staff is composed entirely of students.

*The Minnesota Farm Review* is a weekly operated under the direction of a committee representing the faculty, the alumni, and the students of the Department of Agriculture, and edited by the Division of Publications and Journalism, as a laboratory for students in journalism.

*The Gopher*, the Junior Annual, is a book published annually by the junior class of the University.

*The School of Forestry Annual* is a book published annually by the students of the Forestry Division.

*The Technologist* is issued once a month by the association of engineering students. It is devoted to the publication of articles upon engineering subjects.

*The Agrarian* is a book published annually by the senior class of the School of Agriculture.

*The Minnesota Alumni Weekly* is issued each Monday during the University year. It is published in the interests of the alumni and the University.

# INDEX

	Page		Page
Academic courses. <i>See</i> College of Science, Literature, and the Arts		Admission units. <i>See</i> Units of admission	
Academic-Dentistry course . . . . .	12, 16, 30	Advanced standing—	
Academic-Law course . . . . .	12, 15, 27, 28	from all other colleges . . . . .	33-34
Academic-Medical course . . . . .		blanks prescribed . . . . .	33
. . . . .	12, 15, 16, 28, 29	examinations . . . . .	33
Academic-Chemistry course . . . . .	13, 17, 31	procedure . . . . .	33
Accredited schools—		graduates of Minnesota normal schools . . . . .	33-34
credentials, how far accepted . . . . .	34	in the individual colleges:	
high schools . . . . .	34-36	Education . . . . .	33-34
private schools . . . . .	36, 37	Engineering and Architecture	34
Admission—		Science, Literature, and the Arts . . . . .	26, 33
accredited schools . . . . .	34-37	junior colleges . . . . .	34
certificate from . . . . .	24	provisional basis . . . . .	33
application for . . . . .	24	Agricultural Education. <i>See</i> College of Agriculture, Forestry, and Home Economics	
by certificate . . . . .	24	Agricultural Experiment Stations . . . . .	10, 14-15
by examination . . . . .	23	Agricultural Extension Division . . . . .	10, 15, 19
conferences with departments, examination week . . . . .	8	Agriculture. <i>See</i> College of Agriculture, Forestry, and Home Economics, Department of Agriculture, Schools of Agriculture	
dates of . . . . .	8, 23	All-University Council . . . . .	61
College of Dentistry . . . . .	30	American Government, as entrance subject . . . . .	25
College of Pharmacy . . . . .	31	Americanization Training course. . . . .	13
Medical School . . . . .	28	Animal Biology, as entrance subject . . . . .	25, 43
entrance subjects:		Architecture. <i>See</i> Arts and Architecture course; College of Engineering and Architecture	
by groups . . . . .	24, 25	Art Education. <i>See</i> College of Education	
described in detail . . . . .	37-44	Arts and Architecture course . . . . .	13
substitutions . . . . .	23	entrance requirements . . . . .	25-26
from schools outside the state . . . . .	24	Arts and Chemistry course—	
requirements . . . . .	23-32	description . . . . .	13, 17
in general . . . . .	23-25	entrance requirements . . . . .	26-27
in the individual colleges:		fees . . . . .	45
Agriculture, Forestry, and Home Economics . . . . .	27	Arts and Music course—	
Agriculture, Schools . . . . .	27	description . . . . .	12
Business . . . . .	32	entrance requirements . . . . .	25-26
Chemistry . . . . .	31	fees . . . . .	45
Dentistry . . . . .	30	Assistants, exempt from tuition fee, etc. . . . .	47
Education . . . . .	31-32	Assistantships . . . . .	56
Engineering and Architecture . . . . .	26-27	Astronomy, as entrance subject . . . . .	25, 43
Forestry . . . . .	27		
Graduate School . . . . .	18		
Home Economics . . . . .	27		
Law School . . . . .	27-28		
Medical School . . . . .	28-29		
Mines . . . . .	30-31		
Nurses . . . . .	29-30		
Pharmacy . . . . .	31		
Science, Literature, and the Arts . . . . .	25-26		
spring quarter . . . . .	23		
winter quarter . . . . .	23		
<i>See also</i> Advanced standing			

	Page
Bachelor of Arts course—	
description .....	12
entrance requirements .....	25-26
Board and room—	
men .....	49
women .....	48-49
Botany, as entrance subject.....	25, 43
Boys' and Girls' Week Short	
Course .....	15
Bulletins .....	2, 62
of extension courses.....	19
Bureau of Employment.....	50-51
Bureau of Visual Instruction....	19
Business. <i>See</i> School of Business	
Calendar, University .....	6-9
Campus maps .....	4-5
Central School of Agriculture... 10, 14	
Certificate, admission by.....	24
Cheese-makers, course for.....	14
Chemistry, as entrance subject.. 25, 43	
<i>See also</i> School of Chemistry	
Civil Engineering. <i>See</i> College	
of Engineering and Architecture	
College councils .....	61
College entrance examination-	
board certificates .....	23
College of Agriculture, Forestry,	
and Home Economics—	
admission requirements .....	23, 27
condition examinations .....	8-9, 46
courses of study.....	14-15
degrees .....	14, 22
elective work .....	14, 19
entrance examinations .....	8, 23
extension work .....	15, 19
fees .....	45-48
for part-time students.....	48
graduate work .....	14, 18
living expenses of students... 48-49	
practical experience required.. 27	
registration .....	7, 24, 27
research work .....	14, 15
scholarships .....	52-57
special courses .....	14, 19
student loan funds.....	57-59
summer session .....	18-19
teachers' courses .....	14
College of Dentistry—	
admission requirements .....	23, 30
combined courses .....	12, 16, 30
condition examinations .....	8-9, 46
courses of study.....	16-17
degrees .....	16, 22
entrance examinations .....	8, 23
extension courses .....	17, 19
fees .....	45-48
for part-time students.....	48
graduate work .....	18
living expenses of students... 48-49	

	Page
College of Dentistry (continued)	
registration .....	7, 24
limited .....	30
selection of candidates.....	30
School for Dental Hygienists.. 16, 30	
special courses .....	19
student loan funds.....	57-59
summer session .....	18-19
College of Education—	
admission requirements...23, 26, 31-32	
advanced standing .....	32
condition examinations .....	8-9, 46
courses of study.....	18
degrees .....	18, 22
entrance examinations .....	8, 23
fees .....	45-48
for part-time students.....	48
graduate work .....	18
living expenses of students... 48-49	
registration .....	7, 32
scholarships .....	50-57
special courses .....	19
student loan funds.....	57-59
summer session .....	18-19
teacher's certificate .....	22
teachers' courses .....	18-19
College of Engineering and	
Architecture—	
admission requirements .....	23, 26
condition examinations .....	8-9, 46
courses of study.....	13
degrees .....	13, 22
entrance examinations .....	8, 23
extension work .....	19, 26
fees .....	45-48
for part-time students.....	48
graduate work .....	13, 18
living expenses of students... 48-49	
prizes .....	59-60
registration .....	7, 26-27
scholarships .....	50-57
special courses .....	19
student loan funds.....	57-59
summer session .....	18-19
College of Pharmacy—	
admission requirements .....	23, 31
condition examinations .....	8-9, 46
courses of study .....	17
degrees .....	17, 22
entrance examinations .....	8, 23
fees .....	45-48
for part-time students.....	48
graduate work .....	18
living expenses of students... 48-49	
registration .....	7, 31
limited .....	31
scholarships .....	50-57
special courses .....	19
student loan funds.....	57-59

	Page		Page
College of Science, Literature, and the Arts—		Dentistry. <i>See</i> College of Den- tistry	
admission requirements . . . . .	23, 25-26	Department of Agriculture, or- ganization . . . . .	10
winter and spring quarters . . .	23	Dietitians, course for . . . . .	14
advanced standing . . . . .	26, 33-34	Diplomatic and Consular Service, course in . . . . .	12
combined courses . . . . .		Domestic Art and Science. <i>See</i> Home Economics	
12, 13, 15, 16, 17, 27, 28-29, 30, 31		Dormitories for women . . . . .	48
condition examinations . . . . .	8-9, 46	Drawing, advanced standing in College of Engineering and Architecture . . . . .	34
courses of study . . . . .	14-15	Economic History, as entrance subject . . . . .	25, 42
degrees . . . . .	14, 22	Economics, as entrance subject . .	25, 42
entrance examinations . . . . .	8, 23	Editors' Short Course . . . . .	14
extension work . . . . .	19	Education. <i>See</i> College of Educa- tion	
fees . . . . .	45-48	Electrical Engineering. <i>See</i> Col- lege of Engineering and Archi- tecture	
for part-time students . . . . .	48	Embalming. <i>See</i> Short Course in Embalming	
graduate work . . . . .	13	Employment Bureau . . . . .	50-51
living expenses of students . . .	48-49	Engineering. <i>See</i> College of En- gineering and Architecture	
pre-professional training . . . . .	13	English, as entrance subject . . . .	24, 37-39
prizes . . . . .	59-60	<i>See also</i> Admission require- ments under the various colleges and schools	
registration . . . . .	7, 25-26	Entomology . . . . .	14
scholarships . . . . .	50-57	Entrance examinations—	
special courses . . . . .	19, 26	admission by . . . . .	23
student loan funds . . . . .	57-59	conflicts in . . . . .	8
summer session . . . . .	18-19	dates . . . . .	8, 23
unclassified students . . . . .	32	college entrance examination—	
College libraries . . . . .	19-20	board certificates . . . . .	23
Combined courses—		high-school board certificates . .	23
arts and architecture . . . . .	13	place . . . . .	8
arts and chemistry . . . . .	13, 17, 31	program . . . . .	8
arts and dentistry . . . . .	12, 16, 30	Entrance requirements. <i>See</i> Ad- mission	
arts and law . . . . .	12, 15, 27-28	Evening extension courses . . . . .	19
arts and medicine . . . . .	12, 15-16, 28-29	dates . . . . .	7-8
arts and music . . . . .	12, 25-26	for self-supporting students . . .	50-51
arts and nursing . . . . .	13, 16, 29-30	Examinations—	
Commencement Day . . . . .	8	dates . . . . .	8, 9
Commercial Geography, as en- trance subject . . . . .	25, 42	for admission . . . . .	8, 23
Community centers, assistance by General Extension Division . . .	19	for advanced standing . . . . .	33-34
Condition examinations—		for removal of conditions:	
dates . . . . .	8-9	dates . . . . .	8-9
fees . . . . .	46	fees . . . . .	46
number limited . . . . .	8-9	special, fees . . . . .	47
Coöperative cottages . . . . .	48	Executive officers of the Univer- sity . . . . .	11
Correspondence courses . . . . .	19		
for self-supporting students . . .	54		
Courses and degrees . . . . .	12-19		
Creamery-Butter-Makers, course for . . . . .	14		
Dairy and Animal Husbandry. <i>See</i> College of Agriculture, Forestry, and Home Economics			
Dairy Short Courses . . . . .	14		
Degrees, general requirements . .	22		
<i>See also</i> under the various colleges and schools			

# INDEX

Expenses—			
board and room:			
men .....	49		
women .....	48-49		
fees .....	45-48		
for first-year students in the various colleges.....	49-50		
Experiment Stations—			
Agricultural .....	10, 15		
School of Mines.....	10		
Extension Service—			
Agricultural Extension Division .....	10, 15, 19		
General Extension Division.....	10, 19, 51		
Farm experience, as entrance requirement for College of Agriculture .....	27		
Farmers' and Home-Makers' Week.....	14		
Farmers' Institute work.....	14		
Fees—			
deposit fee .....	46		
exemption from, in certain cases .....	47		
for part-time students.....	48		
health fee .....	20-21, 47		
penalty for late registration...	46		
refunds .....	46		
special .....	47		
students in one college taking work in another.....	47		
tuition fee.....	45-46		
when payable.....	7, 45, 46		
Fellowships .....	18, 53, 56		
holders exempt from tuition fee .....	47		
Field work—			
forestry .....	14		
mines .....	17		
Forest Experiment Stations.....	10, 14		
Forestry. <i>See</i> College of Agriculture, Forestry, and Home Economics			
French, as entrance subject.....	25, 41		
General Science, as entrance subject .....	25, 43		
Geology, as entrance subject.....	25, 43		
German, as entrance subject.....	24, 40-41		
Graduate School—			
admission requirements .....	18		
assistantships .....	53		
courses offered:			
agriculture .....	14		
architecture .....	13		
dentistry .....	17-18		
education .....	17-18		
engineering .....	13		
forestry .....	14		
Graduate School (continued) courses offered:			
medicine .....	16, 18		
pharmacy .....	17		
science, literature, and the arts .....	18		
degrees .....	18		
fees .....	46		
exemption from.....	47		
for part-time students.....	48		
fellows .....	52-53		
scholarships .....	52-53		
summer session .....	18-19		
Greek, as entrance subject.....	25, 40		
Gymnasium fees.....	47		
Gymnasium suits, cost.....	47		
Health fee.....	20, 47		
Health Service.....	20-21		
High schools, accredited.....	34-36		
History, as entrance subject.....	25, 41-42		
History of commerce, as entrance subject .....	25, 42		
Holidays, dates.....	7, 8		
Home Economics. <i>See</i> College of Agriculture, Forestry, and Home Economics			
Home Management houses.....	48		
Horticulture. <i>See</i> College of Agriculture, Forestry, and Home Economics			
Institutional managers, course for .....	14		
Itasca State Park.....	14		
Junior colleges.....	34		
Languages, as entrance subjects.....	24-25, 40-41		
<i>See also</i> Admission requirements under the various colleges and schools			
Lantern slide loan system. <i>See</i> Bureau of Visual Instruction			
Latin, as entrance subject.....	24, 39-40		
for College of Pharmacy.....	31		
for Law School.....	27		
for Medical School.....	29		
Law School—			
admission requirements.....	24, 27-28		
case system.....	15		
combined courses.....	12, 15, 27-28		
condition examinations.....	8-9, 46		
courses of study.....	15, 27-28		
degrees .....	15		
fees .....	45-48		
for part-time students.....	47		
living expenses of students.....	48, 50		

Page	Page
Law School (continued)	Minnesota Union—
pre-legal course in the College	description .....
of Science, Literature, and	membership fee.....
the Arts.....12, 15, 27	Municipal Administration and
prizes .....	Engineering course.....
registration .....	Municipal reference bureau.....
regular students.....	Music course. <i>See</i> Arts and
scholarships .....	Music course
special students.....	Natural sciences, as entrance sub-
student loan funds.....	jects .....
Library, University.....	25, 43
Library Training School.....	New students—
Living expenses. <i>See</i> Expenses	funds necessary for.....
Loan funds.....	by colleges .....
Lycæum courses.....	registration, time .....
Manual subjects—	Non-resident fees.....
advanced credit in engineering	Normal school graduates. <i>See</i>
college .....	Minnesota state normal schools
unit defined.....	Northwest School of Agriculture. 10, 14
Maps of main and farm campuses	Norwegian. <i>See</i> Scandinavian
Mathematics, as entrance sub-	Languages
ject .....	Nurses. <i>See</i> School of Nursing
for College of Engineering... 26-27	Organization of the University.. 10
for School of Chemistry..... 31	Organizations, student..... 61
for School of Mines..... 30-31	Pharmacy. <i>See</i> College of Phar-
<i>See also</i> Admission require-	macy
ments under the various	Physical Education for Women.
colleges and schools	<i>See</i> College of Education
Mature students, special work. 19, 26, 32	Physics, as entrance subject... 25, 43
Mayo Foundation..... 18, 53	Physiography, as entrance sub-
Medical School—	ject .....
admission requirements .....	25, 43
combined courses .....	Physiology, as entrance subject.. 25, 43
condition examinations..... 8-9, 46	Pre-professional training..... 13
courses of study..... 15-16	Private schools, accredited..... 36-37
degrees .....	Prizes .....
entrance examinations..... 8, 23	59-69
fees .....	Pro rata fees .....
for part-time students..... 48	Public Health Nursing Course... 16, 30
graduate work..... 18	Publications .....
living expenses of students. 48-49, 50	62-63
prizes .....	Regents .....
registration .....	11
limited .....	Registration—
28	credential blanks.....
scholarships .....	dates for various colleges.....
52-59	penalty for late.....
School of Nursing..... 16, 29-30	46
Short Course in Embalming... 16	transcripts of records... 23, 24, 33-34
special courses..... 19, 29	Requirements for entrance. <i>See</i>
student loan funds..... 57-58	Admission
summer session..... 18-19	Research work. <i>See</i> Graduate
Merchants' Short Course..... 19	School
Military Science and Tactics. 12, 21-22	Reserve Officers' Training Corps. 21-22
Mining. <i>See</i> School of Mines	Roman Languages. <i>See</i> French,
Minnesota state normal schools.. 33-34	Spanish
admission from..... 24, 33	Rooming houses—
advanced standing:	lists for men.....
in College of Education... 31-32	49
in College of Science, Litera-	lists for women .....
ture, and the Arts.... 25-26, 33-34	48-49

# INDEX

69

	Page		Page
Sanford Hall.....	48	Schools of Agriculture—	
Scandinavian languages, as entrance subject.....	25, 41	description.....	14
Scholars, exempt from tuition fees.....	47	graduates, conditions of admission to University.....	25-26
Scholarships—		length of courses.....	12-13
graduate.....	52-53	student loan funds.....	57-58
undergraduate.....	54-57	Science, Literature, and the Arts.	
School for Dental Hygienists....	16	<i>See</i> College of Science, Literature, and the Arts	
School of Business—		Sciences. <i>See</i> Natural Sciences; Social Sciences	
admission requirements.....	24, 32	Self-government organizations...	61
advanced standing.....	33-34	Self-support.....	50-51
courses of study.....	18	Senate meetings, dates.....	7, 8
degrees.....	18, 22	Shevlin fellowships.....	52
entrance examinations.....	8, 23	Shevlin Hall fee.....	47
fees.....	45-46	Shop work, advanced credit in College of Engineering and Architecture.....	34
for part-time students.....	47	Short Course for Traction Engineers.....	14
graduate work.....	18	Short Course in Embalming....	16, 19
living expenses of students....	48-51	Short courses—	
pre-business course.....	13, 18, 32	boys' and girls' week.....	15
scholarships.....	54-57	dairy short courses.....	14
special students.....	19-32	dentistry.....	17
student loan funds.....	57-58	editors' short course.....	14
School of Chemistry—		embalming.....	16, 19
admission requirements.....	23, 31	farmers' and home-makers' week.....	14
advanced standing.....	33-34	merchandising.....	19
condition examinations.....	8-9, 46	traction engineers.....	14
courses of study.....	17	Social and Civic Work course... ..	12
degrees.....	17, 22	Social sciences, as admission subjects.....	25, 42
entrance examinations.....	8, 23	Sociology as entrance subject... ..	25, 42
extension work.....	19	Spanish, as entrance subject... ..	25, 41
fees.....	45-46	Special courses.....	19
for part-time students.....	48	Special students—	
graduate work.....	18	in general.....	19, 32
living expenses of students....	48-51	law.....	28
registration.....	7, 24	medical.....	29
scholarships.....	54-57	State and Federal Administration course.....	12
special courses.....	19	State normal schools. <i>See</i> Minnesota state normal schools	
student loan funds.....	57-58	State teacher's certificates.....	22
School of Mines—		subjects offered in summer sessions.....	18-19
admission requirements.....	24, 30-31	Student employment.....	50-51
condition examinations.....	8-9, 46	Student Health Service.....	20-21
courses of study.....	17	Student loan funds.....	57-58
degrees.....	17, 22	Student organizations.....	61
entrance examinations.....	8, 23	Student publications.....	62-63
fees.....	45-46	Summer Session.....	8, 18-19
for part-time students.....	48	Swedish. <i>See</i> Scandinavian languages	
living expenses of students....	48-51		
registration.....	7, 24		
student loan funds.....	57-58		
summer apprenticeships.....	17		
School of Nursing—			
admission requirements.....	23, 29		
combined course.....	13, 16		
courses of study.....	13, 17		
degrees.....	13, 22		
fees.....	45-46		



	Page		Page
Teacher's certificate .....	22	University summer session. <i>See</i>	
Textiles and clothing, special		Summer Session	
teachers' course.....	14	University year.....	7-8
Traction engineering course.....	14		
Unclassed students.....	19, 22	Vacations, dates .....	7, 8
College of Education.....	32	Vocational subjects, group for ad-	
fees .....	48	mission .....	25, 44
School of Mines.....	32		
Science, Literature, and the		West Central School of Agricul-	
Arts .....	26	ture .....	10, 14
Units of admission—		Women students—	
definition .....	25-26	approved boarding houses.....	48
maximum and minimum in any		coöperative cottages.....	48
one subject .....	23, 24-25	expenses .....	45-48
number required.....	23	home management houses.....	48
substitutions .....	23	loan funds .....	57-58
University calendar.....	7-8	scholarships .....	54-57
University Library.....	19-20	Women's Self-Government Asso-	
University Extension. <i>See</i> Exten-		ciation .....	61
sion Service			
University state teacher's certifi-		Zoology, as entrance subject.....	25-43
cate .....	22		

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

*The School of Agriculture*  
*Announcement for the Year*  
**1921-1922**



*Vol. XXIV No. 9 April 27 1921*

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

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

1921							1922													
<b>JULY</b>							<b>JANUARY</b>							<b>JULY</b>						
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa
..	..	..	..	..	1	2	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	5	6	7	..	..	..	..	..	..	1
3	4	5	6	7	8	9	8	9	10	11	12	13	14	2	3	<b>4</b>	5	6	7	8
10	11	12	13	14	15	16	15	16	17	18	19	20	21	9	10	11	12	13	14	15
17	18	19	20	21	22	23	22	23	24	25	26	27	28	16	17	18	19	20	21	22
24	25	26	27	28	29	30	29	30	31	..	..	..	..	23	24	25	26	27	<b>28</b>	29
31	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..
<b>AUGUST</b>							<b>FEBRUARY</b>							<b>AUGUST</b>						
..	1	2	3	4	5	6	..	..	..	1	2	3	4	..	..	1	2	3	4	5
7	8	9	10	11	12	13	5	6	7	8	9	10	11	6	7	8	9	10	11	12
14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19
21	22	23	24	25	26	27	19	20	21	<b>22</b>	23	24	25	20	21	22	23	24	25	26
28	29	30	31	..	..	..	26	27	28	..	..	..	..	27	28	29	30	31	..	..
<b>SEPTEMBER</b>							<b>MARCH</b>							<b>SEPTEMBER</b>						
..	..	..	..	1	2	3	..	..	..	1	2	3	4	..	..	..	..	..	1	2
4	5	6	7	8	9	10	5	6	7	8	9	10	11	3	4	5	6	7	8	9
11	12	13	14	15	16	17	12	13	14	15	16	17	18	10	11	12	13	14	15	16
18	19	20	21	22	23	24	19	20	21	22	<b>23</b>	<b>24</b>	<b>25</b>	17	18	19	20	21	22	23
25	26	27	<b>28</b>	29	30	..	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	30	31	..	24	25	26	27	28	29	30
<b>OCTOBER</b>							<b>APRIL</b>							<b>OCTOBER</b>						
..	..	..	..	..	1	2	..	..	..	..	..	..	1	1	2	3	4	5	6	7
2	3	4	5	6	7	8	2	3	4	5	6	7	8	8	9	10	11	12	13	14
9	10	11	12	13	14	<b>15</b>	9	10	11	12	13	14	15	15	16	17	18	19	20	21
16	17	18	19	20	21	22	16	17	18	19	20	21	22	22	23	24	25	26	27	28
23	24	25	26	27	28	29	23	24	25	26	27	28	29	29	30	31	..	..	..	..
30	31	..	..	..	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>NOVEMBER</b>							<b>MAY</b>							<b>NOVEMBER</b>						
..	..	1	2	3	4	<b>5</b>	..	1	2	3	4	5	6	..	..	..	1	2	3	4
6	7	8	9	10	<b>11</b>	12	7	8	9	10	11	12	13	5	6	7	8	9	10	11
13	14	15	16	17	18	19	14	15	16	17	18	19	20	12	13	14	15	16	17	18
20	21	22	23	<b>24</b>	25	26	21	22	23	24	25	26	27	19	20	21	22	23	24	25
27	28	29	30	..	..	..	28	29	<b>30</b>	31	..	..	..	26	27	28	29	30	..	..
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
<b>DECEMBER</b>							<b>JUNE</b>							<b>DECEMBER</b>						
..	..	..	..	1	2	3	..	..	..	..	1	2	3	..	..	..	..	..	1	2
4	5	6	7	8	9	10	4	5	6	7	8	9	10	3	4	5	6	7	8	9
11	12	13	14	15	16	17	11	12	<b>13</b>	14	15	16	17	10	11	12	13	14	15	16
18	19	20	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	18	19	<b>20</b>	21	22	23	24	17	18	19	20	21	22	23
<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	25	26	27	28	29	30	..	24	25	26	27	28	29	30
..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..

CALENDAR  
SCHOOL OF AGRICULTURE  
1921-1922

1921

October	3	Monday	First term begins; entrance examinations, registration, payment of fees
October	4	Tuesday	Regular class work begins
November	11	Friday	Armistice Day; a holiday
November	24	Thursday	Thanksgiving Day; a holiday
December	22	Thursday	First term closes; Christmas vacation begins 4:30 p.m.

1922

January	9	Monday	Second term begins; entrance examinations, registration, payment of fees
January	10	Tuesday	Regular class work begins
February	22	Wednesday	Washington's Birthday; a holiday
March	25	Saturday	Second term closes
March	28	Tuesday	Alumni Day
March	29	Wednesday	Thirty-third annual commencement

# THE SCHOOL OF AGRICULTURE

## FACULTY

LOTUS DELTA COFFMAN, Ph.D., President  
WILLIAM WATTS FOLWELL, LL.D., President Emeritus  
CYRUS NORTHROP, LL.D., President Emeritus  
ROSCOE W. THATCHER, B.S., M.A., D.Agr., Dean of the Department of  
Agriculture  
DEXTER D. MAYNE, Principal  
RODNEY M. WEST, B.A., Registrar  
ANNA P. BREZLER, B.A., Matron, Girls' Dormitories  
JOHANNA HOGNÅSON, B.A., Matron, Boys' Dormitories  
HARRIET W. SEWALL, B.A., Librarian  
WILLIAM H. ALDERMAN, B.S.A., Chief of the Division of Horticulture  
FREDERICK J. ALWAY, Ph.D., Chief of the Division of Soils  
ELMER O. ANDERSON, B.S., Dairy Husbandry  
PHILIP A. ANDERSON, B.S., Animal Husbandry  
ELIZABETH L. BACON, B.A., Textiles and Clothing  
WINIFRED BAILEY, B.A., Physical Training  
PERCY B. BARKER, M.A., Agronomy and Farm Management  
LOUIS B. BASSETT, Farm Implements  
WILLIAM A. BILLINGS, D.V.M., Bacteriology  
ALBERT G. BLACK, B.S., Farm Management  
JOHN D. BLACK, Ph.D., Chief of the Division of Agricultural Economics  
ANDREW BOSS, Chief of the Division of Agronomy and Farm Management  
WILLIAM BOSS, Chief of Division of Farm Engineering  
•WILLARD L. BOYD, D.V.S., Veterinary Medicine  
ANNA P. BREZLER, B.A., Social Training  
CARLOTTA BROWN, Millinery  
CLARA M. BROWN, B.A., Textiles and Clothing  
LEROY CADY, B.S. in Agr., Horticulture  
NORRIS K. CARNES, B.S., Animal Husbandry  
JONAS J. CHRISTIANSEN, Plant Diseases  
CHESTER D. DAHLE, B.S., Dairy Husbandry  
FRANC P. DANIELS, B.S., Horticulture  
FLORENCE A. DEFIEL, B.A., Biology  
J. GRANT DENT, Mechanics Laboratory  
JEAN M. DORSEY, B.S., in H.E., Foods and Home Management  
AMANDA EBERSOLE, B.S., Textiles and Clothing  
CLARENCE H. ECKLES, M.S.A., D.Sc., Chief of the Division of Dairy  
Husbandry  
KATHLEEN E. EGGAR, B.A., Mathematics  
BEN W. FEILD, Major, U.S.A., Military Drill  
HALLY J. FISHER, R.N., Home Nursing  
CLIFFORD P. FITCH, M.S., D.V.M., Chief of the Division of Veterinary  
Medicine

- EDWARD M. FREEMAN, Ph.D., Chief of the Division of Plant Pathology and Botany
- MARGUERITE GODSEY, Business Training
- ROSS A. GORTNER, Ph.D., Chief of the Division of Agricultural Biochemistry
- THOR W. GULLICKSON, B.S., Dairy Husbandry
- AUGUST HAEDECKE, Forage Crops
- ALFRED L. HARVEY, B.S., Animal Husbandry
- ELIZABETH HAUSE, B.A., Rhetoric
- CARL E. HENDRICKSON, B.A., Entomology
- JOHANNA HOGNASON, B.A., Mathematics
- MAURICE G. JACOBSON, Drawing
- FRANCIS JAGER, Chief of the Division of Bee Culture
- LYLE G. JAMES, B.A., Entomology
- PEDER L. JOHNSRUD, B.S. in Agr., Mathematics
- ALLEN D. JOHNSTON, Blacksmithing
- KATHERINE KESTER, B.A., Rhetoric
- MONICA LANGTRY, B.A., Rhetoric
- ROBERT C. LANSING, M.A., Chief of the Section of Rhetoric
- ALVIN H. LARSON, B.S., Agricultural Botany
- LOU LOMBARD, Foods and Cookery
- GUSTAV A. LUNDQUIST, M.A., Rural Sociology and Economics
- EDMUND C. MCCANN, Sergeant, U.S.A., Military Drill
- MARK A. MCCARTY, B.S., Animal Husbandry
- OLIVE B. MACCOMBER, Textiles and Clothing
- BERNICE M. MACDONALD, Piano
- GROVER C. MATTHEWS, Beekeeping
- DEXTER D. MAYNE, Parliamentary Law
- MAUDE J. MILLER, B.S., Foods and Home Management
- PAUL L. MILLER, M.A., Coöperative Accounting
- D. C. MITCHELL, B.S. in C.E., Director of Gymnasium
- MARTHA B. MOORHEAD, M.D., Hygiene and Home Nursing
- GEORGE H. NESOM, B.A., B.S., Soils
- ESTHER E. OLSON, B.A., Business Training
- ABE PEPINSKY, Music
- WALTER H. PETERS, B.S.A., Acting Chief of the Division of Animal Husbandry
- ALLAN B. RAYBURN, B.S. in Agr., Dairy Husbandry
- MYRON H. REYNOLDS, B.S., M.D., D.V.M., Veterinary Medicine
- HELEN RIDER, B.S., Foods and Cookery
- WILLIAM A. RILEY, Ph.D., Chief of the Division of Entomology and Economic Zoology
- HARRY B. ROE, B.S. in Eng., Drainage and Roads
- ARTHUR G. RUGGLES, M.A., Entomology
- DORA SCHAEETGEN, Piano
- ROSE SCHAEETGEN, Violin
- ARTHUR C. SMITH, B.S., Chief of the Division of Poultry Husbandry
- ARTHUR J. SOUBA, B.S., Agricultural Botany

## SCHOOL OF AGRICULTURE

EARL A. STEWART, B.Pd., B.S., Agricultural Physics  
 GIRARD STURTEVANT, Colonel, U.S.A., Commandant  
 JOHN SUNDWALL, M.D., Hygiene  
 VERNIE SWENSON, B.A., Rhetoric  
 GEORGE S. TAYLOR, B.A., Chemistry  
 JAMES B. TORRANCE, B.S. in Agr., Farm Motors  
 ARTHUR G. TYLER, Farm Engineering  
 WILLIAM R. WEHREND, Instrumental Music  
 MILDRED WEIGLEY, B.S., Chief of the Division of Home Economics  
 HALL B. WHITE, B.S. in Agr., Carpentry and Farm Buildings  
 JOHN W. WILBUR, B.S., Dairy Husbandry  
 MABEL WILLSON, Piano  
 CLINTON G. WORSHAM, B.S., Farm Accounts  
 GRACE B. WYNNE, Vocal Music

## COMMITTEES

*Executive.*—The Executive Committee of the Department of Agriculture  
*Advisory to Administration.*—Principal, Preceptress, Matron Boys' Dormi-  
 tories, Secretary; Chairmen of following committees: Curriculum, Stu-  
 dents' Work and Eligibility, Enrollment and Program, Dormitory and  
 Dining-Hall, Summer Practice, Social and Entertainment, Rules. Sub-  
 Committee, Dormitory and Dining-Hall.—MR. W. BOSS, MR. CADY,  
 MISS HOGNASON, MISS BREZLER  
*Curriculum.*—MR. FITCH, MISS BROWN, MR. W. BOSS, MR. A. M. FIELD, MR.  
 LANSING  
*Entertainment.*—MR. MAYNE, MR. A. BOSS, MISS HOGNASON, MISS BREZLER  
*Students' Work and Eligibility.*—MR. BASSETT, MR. P. A. ANDERSON, MRS.  
 DORSEY, MR. WHITE, MISS HOGNASON  
*Rules.*—MR. LUNDQUIST, MR. BARKER, MR. DANIELS  
*Enrollment.*—MR. MAYNE, MISS LOMBARD, MR. LUNDQUIST  
*Summer Practice.*—MR. A. BOSS, MR. JOHNSRUD, MR. LUNDQUIST, MR.  
 MAYNE, MR. REYNOLDS

## GENERAL INFORMATION

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

### HOW TO GET TO THE SCHOOL

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

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

Monday and Tuesday, October 3 and 4, members of the Y. M. C. A. wearing lettered badges will be at the Union Station in St. Paul, and at the Great Northern, Milwaukee, and St. Louis stations in Minneapolis to meet and direct new students. Take the Como-Harriet or Como-Hopkins car from either St. Paul or Minneapolis, and get off at Doswell Avenue. The dormitories are about a ten-minute walk from the car line. Students with a large amount of hand baggage are advised to change to the Inter-Campus Special at Eustis Avenue. This car goes directly 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 3, 1921, and close March 25, 1922. The fall term will close at 4:30 p.m., Thursday, December 22, and the winter term will begin Monday, January 9, 1922.

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

### PURPOSE

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

### ADMISSION

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

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



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

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

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

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

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

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

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

#### COURSES OF STUDY

The courses of study offered cover a wide range of subjects and are largely vocational in character; but provision is made for some instruction in English, mathematics, and other academic subjects. The courses are briefly outlined on pages 17-23. Instruction is given in the workshop, laboratories, barns, and fields, as well as in the classroom. The courses require three winters of six months each for completion. 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. Courses in both agriculture and home economics are offered.

## HOME PROJECTS

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

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

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

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

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

## RULES AND REGULATIONS

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

## HOME LIFE ON THE CAMPUS

The life of the 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 is strictly forbidden. Anyone not in accord with these restrictions and not willing to lend a hand toward promoting a strong moral growth should not come to the School of Agriculture.

## STUDENTS IN DORMITORIES

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

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

#### ASSEMBLY

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

#### HOLIDAYS

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

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

#### REQUIREMENTS FOR GRADUATION

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

1. The prescribed course of study, including all of the required work and enough elective work to make a total of 108 credit hours. (Credits earned prior to 1919-20 will be reduced to current credit basis.) For boys at least half of the elective credit must be in agricultural subjects.
2. Military drill and gymnasium, 12 credit hours.
3. An honorable standing in department.
4. An essay of not less than one thousand words, upon a topic connected with agriculture or home economics, typewritten on paper of approved size for binding and filing in the library.
5. For young men, 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, including room, board, and laundry, do not exceed \$250. This amount does not include traveling and personal expenses.

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

The cost to the student for board is the actual cost of maintaining the table (including management). Each term's board is paid in advance. No deduction in charge is made for any absence of less than five days.

If students are compelled to be absent for that length of time, they are allowed half rates, if they make arrangements before leaving.

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

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

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

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

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

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

*Free tuition.*—The state will pay the tuition of any student who served in the army, navy, or marine corps of the United States during any war in which the United States has been involved, including members of the National Guard or who, upon the call of the President performed military service outside the borders of Minnesota in any trouble with Mexico and of any student who performed overseas service as a regularly enlisted full-time worker of the Red Cross, engaged in nursing the sick or assisting in the care of soldiers in any government hospital, field, or camp which service has been officially recognized by the national government. The amount of this free tuition is not to exceed \$200 for any person and the benefits of this act will not extend beyond July 1, 1924. State tuition will not be paid for those who have received \$200 or more under the State Bonus Law. The amount to be paid in any year will be limited by the legislative appropriation for that year. Application for this free tuition should be made to the registrar's office at the time of registration. This applies only to students who at the time of enlistment were citizens and residents of the state of Minnesota. Tuition includes all of the regular term charges listed below except the deposits, dormitory room, board, gymnasium suit, etc.

TABLE OF CHARGES

Tuition fee, per term. Residents of the state.....	\$ 3.00
Non-residents .....	6.00
Deposit as guaranty for the return of books and other material.....	5.00
Gymnasium fee. Required of every student. Per term.....	1.00
Post-office box fee. Per term.....	.20
Textbook rental fee. For those not desiring to purchase their books. Per term	2.00
Health fee. Per term.....	2.00

## SCHOOL OF AGRICULTURE

## TABLE OF CHARGES (continued)

Room in dormitory. (Price subject to change.) Per week, \$1.50, per term....	\$18.00
Board. Per term. (Price subject to change).....	66.00
Laundry. Per term. (Price subject to change.) Required of all in dormitories	6.00
Gymnasium suits—boys. (Price subject to change).....	4.20
Girls. (Price subject to change).....	8.30
Average cost drawing instruments, notebooks, stationery, and supplies. Per year .....	\$10.00-12.00

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

	Fall term	Winter term
Student in dormitory (resident).....	\$103.20	\$ 98.20
Non-resident .....	106.20	101.20
Day student (resident).....	13.20	8.20
Non-resident .....	16.20	11.20
Not in attendance first term, add \$5 to the winter term charges given above.		

## DORMITORIES

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

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

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

## STUDENTS' HEALTH SERVICE

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

The offices of the Health Service and the Students' Hospital and Dispensary are located in the Boys' New Dormitory, first floor. The services of the hospital and dispensary are available at all hours of the day and night. The telephone call is Nestor 2870.

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

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

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

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

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

(a) Provision for maintaining the health of normal, physically sound students. Coöperation with the Department of Physical Education regarding physical exercise. Education along lines of right living. Guarding environment.

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

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

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

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

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

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

#### CLASS TRUST FUNDS

The Class of 1902 and the Class of 1916 each left with the school a fund of \$100 "to assist by temporary loans, at a reasonable rate of interest, deserving students needing such help." Application for loans should be made to the principal.

#### THE LUDDEN TRUST

The late Honorable John D. Ludden, of St. Paul, gave the University of Minnesota \$10,000, to be held, invested, and reinvested by the University

through its Board of Regents, and the income thereof to be collected, received, and applied by said Board of Regents to the financial assistance of students of either sex in the School of Agriculture.

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

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

#### THE DORR FUND

This fund consists of \$50,000 willed by the late Caleb Dorr, of Minneapolis, for the benefit of the Department of Agriculture of the University.

The income from \$20,000 of the fund is to be devoted to establishing and maintaining research fellowships in agriculture. The income from another \$20,000 shall be applied to scholarships or donations to undergraduate students in the College and School of Agriculture, and the income from the remaining \$10,000 shall be used for interest-bearing loans to students in the college and school.

#### CALEB DORR CASH SCHOLARSHIP PRIZES

Cash prizes amounting to \$200 each year are offered to the students securing the highest standings in general scholarship. Of this amount \$75 will be offered each term in five prizes of \$25, \$20, \$15, \$10, \$5 each. All students carrying the full work of 18 credit hours per term are eligible for these prizes. One prize of \$50 will be awarded at the close of the second term for the senior student graduating from the School of Agriculture with the highest scholarship and student-activity record for the first five terms.

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

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

Besides the above, annual scholarship prizes of \$200 each, divided into smaller awards, are given for excellence in extemporaneous speaking, community betterment, essay-writing, and declamation. The rules governing these scholarships may be found in the booklet of information supplied to each student at the time of his registration.

#### GIDEON MEMORIAL PRIZE IN HORTICULTURE

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

#### ORGANIZATIONS

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

#### PUBLICATIONS

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

*The Minnesota Farm Review.*—The *Minnesota Farm Review* is a weekly newspaper owned by the alumni of the School of Agriculture, but edited by students as an educational newspaper of the whole University Department of Agriculture for the benefit of students, graduates, faculty, and members of the community. The editorial work is done under the supervision of the Division of Publications.



## LIBRARY

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

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

## ZOOLOGICAL MUSEUM

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

## COURSES OF STUDY

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

For description of the courses listed in the following outline and for schedule of classes see pages 24-49.

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

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

Every student in agriculture who plans to graduate is expected to select one of the following courses of study: (a) general farming, (b) livestock production, (c) crop production, or (d) farm mechanics.

Adults desiring a special course should consult the Enrollment Committee.

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

### GENERAL FARMING

#### FRESHMAN YEAR

##### REQUIRED—FIRST TERM

Business English, 3(f,w)  
 Hygiene, 1(f,w)  
 Farm Arithmetic, 3(f,w)  
 Types and Market Classes, 2(f,w)  
 Drawing and Farm Buildings, 3(f,w)  
 Agricultural Botany, 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 3

##### REQUIRED—SECOND TERM

English Classics, 3(f,w)  
 Corn, 2(f,w)  
 Soils, 3(f,w)  
 Breeds, 3(f,w)  
 Animal Biology, 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 4

#### ELECTIVES

Advanced Farm Arithmetic, 3(f,w)  
 Physiology, 3(f,w)  
 Blacksmithing I, 3(f,w)  
 Carpentry, 3(f,w)  
 Farm Motors I, 3(f,w)  
 Mechanical Laboratory, 3(f,w)  
 Dairy-Barn Practice, 2(f)  
 Elementary Beekeeping, 3(f,w)  
 Spelling, 1(f,w)  
 Penmanship, 1(f,w)

Advanced Beekeeping, 3(f,w)  
 Elements of Music I, 2(f,w)  
 Elements of Music II, 2(f,w)  
 Violin,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Piano,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Instrumental Music,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Vocal Music,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Orchestra,  $\frac{1}{2}$ (f,w)  
 Chorus,  $\frac{1}{2}$ (f,w)  
 Home Project, 1 to 3

<sup>1</sup> Students excused from Military Drill are required to register for Gymnasium, 1(f,w).

<sup>2</sup> A special fee of \$15 is charged for this course.

## JUNIOR YEAR

## REQUIRED—FIRST TERM

English Grammar, 3(f,w)  
 Forage Crops and Potatoes, 3(f,w)  
 Stock-Judging, 3(f,w)  
 Farm Horticulture, 3(f,w)  
 Feeds and Feeding, 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 3

## REQUIRED—SECOND TERM

Composition I, 3(f,w)  
 Cereal Crops, 3(f,w)  
 Farm-Dairying, 3(f,w)  
 Poultry, 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 6

## ELECTIVES

Algebra I, 7(f,w)  
 Geometry I, 7(f,w)  
 Industrial History, 3(f)  
 Insect Pests of Plants, 3(f)  
 Chemistry of Plant and Animal Life I, 3(f,w)  
 Mechanics and Water Supply, 3(f,w)  
 Parliamentary Law, 1(f,w)  
 Management of Laying Flock, 1(f,w)  
 Physiology and Hygiene of Breeding, 2(f)  
 Commercial Fruit-Growing, 3(f)  
 Elements of Bacteriology, 3(w)  
 Coöperative Accounting, 3(f,w)

Algebra II, 7(f,w)  
 Geometry II, 7(f,w)  
 Meats, 3(w)  
 Blacksmithing II, 3(w)  
 Chemistry of Plant and Animal Life II, 3(f,w)  
 Heat and Electricity, 3(w)  
 Incubating and Brooding, 3(w)  
 Seed-Testing, 2(w)  
 Plant Propagation, 3(w)  
 Farm Motors II, 3(f,w)  
 Commercial Vegetable-Gardening, 3(w)  
 Veterinary Studies, 5(w)  
 Floriculture, 3(w)

## SENIOR YEAR

## REQUIRED—FIRST TERM

Public Speaking, 3(f,w)  
 Civics, 3(f,w)  
 Breeding, 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 9

## REQUIRED—SECOND TERM

Composition II, 3(f,w)  
 Rural Sociology, 3(w)  
 Farm Management, 5(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 7

## ELECTIVES

Livestock Production, 3(f)  
 Dairy Stock-Feeding, 3(f)  
 Farm Crop-Breeding, 2(w)  
 Drainage and Roads, 3(f)  
 Farm Implements, 3(f)  
 Farm Records and Accounts, 3(f,w)  
 Animal Parasites, 3(w)  
 Elementary Economics, 3(f)  
 English Literature I, 5(f)  
 Landscape-Gardening, 3(f,w)

Advanced Public Speaking, 3(f,w)  
 Plant Diseases, 3(f)  
 Farm Buildings, 3(f)  
 Weeds, 2(f)  
 Rural Economics, 3(w)  
 Milk Production, 3(w)  
 Livestock Management, 2(w)  
 English Literature II, 5(w)  
 Dairy Stock Selection, 3(w)

## LIVESTOCK PRODUCTION

## FRESHMAN YEAR

## REQUIRED—FIRST TERM

Business English, 3(f,w)  
 Hygiene, 1(f,w)  
 Farm Arithmetic, 3(f,w)  
 Types and Market Classes, 2(f,w)  
 Drawing and Farm Buildings, 3(f,w)  
 Agricultural Botany, 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 3

## REQUIRED—SECOND TERM

English Classics, 3(f,w)  
 Corn, 2(f,w)  
 Soils, 3(f,w)  
 Breeds, 3(f,w)  
 Animal Biology, 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 4

<sup>1</sup> Students excused from Military Drill are required to register for Gymnasium 1 (f, w).

## COURSES OF STUDY

19

### ELECTIVES

Advanced Farm Arithmetic, 3(f,w) Physiology, 3(f,w) Blacksmithing I, 3(f,w) Carpentry, 3(f,w) Farm Motors I, 3(f,w) Elementary Beekeeping, 3(f,w) Mechanical Laboratory, 3(f,w) Dairy-Barn Practice, 2(f) Spelling, 1(f,w) Penmanship, 1(f,w) Poultry, 3(f,w)	Farm Horticulture, 3(f,w) Advanced Beekeeping, 3(f,w) Elements of Music I, 2(f,w) Elements of Music II, 2(f,w) Violin, $\frac{1}{2}$ (f,w) <sup>2</sup> Piano, $\frac{1}{2}$ (f,w) <sup>2</sup> Instrumental Music, $\frac{1}{2}$ (f,w) <sup>2</sup> Vocal Music, $\frac{1}{2}$ (f,w) <sup>2</sup> Orchestra, $\frac{1}{2}$ (f,w) Chorus, $\frac{1}{2}$ (f,w) Home Project, 1 to 3
---	--

### JUNIOR YEAR

REQUIRED—FIRST TERM	REQUIRED—SECOND TERM
English Grammar, 3(f,w) Forage Crops and Potatoes, 3(f,w) Stock-Judging, 3(f,w) Physiology and Hygiene of Breeding, 2(f) Feeds and Feeding, 3(f,w) Military Drill, 2(f,w) <sup>1</sup> Electives, 4	Composition I, 3(f,w) Meats, 3(w) Farm-Dairying, 3(f,w) Veterinary Studies, 5(w) Military Drill, 2(f,w) <sup>1</sup> Electives, 4

### ELECTIVES

Insect Pests of Plants, 3(f) Chemistry of Plant and Animal Life I, 3(f,w) Mechanics and Water Supply, 3(f,w) Algebra I, 7(f,w) Industrial History, 3(f) Parliamentary Law, 1(f,w) Geometry I, 7(f,w) Management of Laying Flock, 1(f,w) Commercial Fruit-Growing, 3(f) Algebra II, 7(f,w) Geometry II, 7(f,w) Coöperative Accounting, 3(f,w)	Heat and Electricity, 3(w) Cereal Crops, 3(f,w) Plant Propagation, 3(w) Blacksmithing II, 3(w) Incubating and Brooding, 3(w) Farm Motors II, 3(f,w) Commercial Vegetable-Gardening, 3(w) Elements of Bacteriology, 3(w) Seed-Testing, 2(w) Chemistry of Plant and Animal Life II, 3(f,w) Floriculture, 3(w)
---	---

### SENIOR YEAR

REQUIRED—FIRST TERM	REQUIRED—SECOND TERM
Public Speaking, 3(f,w) Civics, 3(f,w) Livestock Production, 3(f) or Milk Production, 3(w) Breeding, 3(f,w) Military Drill, 2(f,w) <sup>1</sup> Electives, 6	Composition II, 3(f,w) Rural Sociology, 3(w) Farm Management, 5(f,w) Military Drill, 2(f,w) <sup>1</sup> Electives, 5

### ELECTIVES

Plant Diseases, 3(f) Farm Crop-Breeding, 2(w) Farm Buildings, 3(f) Drainage and Roads, 3(f) Farm Implements, 3(f) Animal Parasites, 3(w) Farm Records and Accounts, 3(f,w) Elementary Economics, 3(f) English Literature I, 5(f)	Landscape-Gardening, 3(f,w) Weeds, 2(f) Dairy Stock-Feeding, 3(f) Rural Economics, 3(w) Dairy Stock Selection, 3(w) English Literature II, 5(w) Livestock Management, 2(w) Advanced Public Speaking, 3(f,w)
--	--

<sup>1</sup> Students excused from Military Drill are required to register for Gymnasium 1 (f, w).

<sup>2</sup> A special fee of \$15 is charged for this course.

## SCHOOL OF AGRICULTURE

## CROP PRODUCTION

## FRESHMAN YEAR

## REQUIRED—FIRST TERM

Business English, 3(f,w)  
 Hygiene, 1(f,w)  
 Farm Arithmetic, 3(f,w)  
 Types and Market Classes, 2(f,w)  
 Drawing and Farm Buildings, 3(f,w)  
 Agricultural Botany, 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 3

## REQUIRED—SECOND TERM

English Classics, 3(f,w)  
 Corn, 2(f,w)  
 Soils, 3(f,w)  
 Farm Horticulture, 3(f,w)  
 Animal Biology, 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 4

## ELECTIVES

Advanced Farm Arithmetic, 3(f,w)  
 Poultry, 3(f,w)  
 Physiology, 3(f,w)  
 Blacksmithing I, 3(f,w)  
 Carpentry, 3(f,w)  
 Farm Motors I, 3(f,w)  
 Dairy-Barn Practice, 2(f)  
 Mechanical Laboratory, 3(f,w)  
 Breeds, 3(f,w)  
 Elementary Beekeeping, 3(f,w)  
 Spelling, 1(f,w)

Penmanship, 1(f,w)  
 Advanced Beekeeping, 3(f,w)  
 Elements of Music I, 2(f,w)  
 Elements of Music II, 2(f,w)  
 Violin,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Piano,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Instrumental Music,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Vocal Music,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Orchestra,  $\frac{1}{2}$ (f,w)  
 Chorus,  $\frac{1}{2}$ (f,w)  
 Home Project, 1 to 3

## JUNIOR YEAR

## REQUIRED—FIRST TERM

English Grammar, 3(f,w)  
 Forage Crops and Potatoes, 3(f,w)  
 Insect Pests of Plants, 3(f)  
 Commercial Fruit-Growing, 3(f) or  
 Commercial Vegetable-Gardening, 3(w)  
 Chemistry of Plant and Animal Life I,  
 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 3

## REQUIRED—SECOND TERM

Composition I, 3(f,w)  
 Cereal Crops, 3(f,w)  
 Seed-Testing, 2(w)  
 Feeds and Feeding, 3(f,w)  
 Chemistry of Plant and Animal Life II,  
 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 4

## ELECTIVES

Algebra I, 7(f,w)  
 Geometry I, 7(f,w)  
 Mechanics and Water Supply, 3(f,w)  
 Stock-Judging, 3(f,w)  
 Physiology and Hygiene of Breeding, 2(f)  
 Industrial History, 3(f)  
 Parliamentary Law, 1(f,w)  
 Farm-Dairying, 3(f,w)  
 Management of the Laying Flock, 1(f,w)  
 Coöperative Accounting, 3(f,w)  
 Commercial Fruit-Growing, 3(f)  
 Commercial Vegetable-Gardening, 3(w)

Algebra II, 7(f,w)  
 Heat and Electricity, 3(w)  
 Geometry II, 7(f,w)  
 Blacksmithing II, 3(w)  
 Incubating and Brooding, 3(w)  
 Elements of Bacteriology, 3(w)  
 Plant Propagation, 3(w)  
 Farm Motors II, 3(f,w)  
 Meats, 3(w)  
 Veterinary Studies, 5(w)  
 Floriculture, 3(w)

## SENIOR YEAR

## REQUIRED—FIRST TERM

Public Speaking, 3(f,w)  
 Civics, 3(f,w)  
 Plant Diseases, 3(f)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 9

## REQUIRED—SECOND TERM

Composition II, 3(f,w)  
 Rural Sociology, 3(w)  
 Farm Management, 5(f,w)  
 Farm Crop-Breeding, 2(w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 5

<sup>1</sup> Students excused from Military Drill are required to register for Gymnasium 1 (f, w).

<sup>2</sup> A special fee of \$15 is charged for this course.

## COURSES OF STUDY

21

### ELECTIVES

Farm Buildings, 3(f) English Literature I, 5(f) Drainage and Roads, 3(f) Farm Implements, 3(f) Breeding, 3(f,w) Livestock Production, 3(f) Animal Parasites, 3(w) Elementary Economics, 3(f) Landscape-Gardening, 3(f,w)	Farm Records and Accounts, 3(f,w) Weeds, 2(f) Dairy Stock-Feeding, 3(f) English Literature II, 5(w) Milk Production, 3(w) Rural Economics, 3(w) Dairy Stock Selection, 3(w) Livestock Management, 2(w) Advanced Public Speaking, 3(f,w)
--	---

### FARM MECHANICS

#### FRESHMAN YEAR

REQUIRED—FIRST TERM	REQUIRED—SECOND TERM
Business English, 3(f,w)	English Classics, 3(f,w)
Hygiene, 1(f,w)	Corn, 2(f,w)
Farm Arithmetic, 3(f,w)	Soils, 3(f,w)
Types and Market Classes, 2(f,w)	Mechanical Laboratory, 3(f,w)
Drawing and Farm Buildings, 3(f,w)	Carpentry, 3(f,w) or
Agricultural Botany, 3(f,w) or	Blacksmithing I, 3(f,w)
Animal Biology, 3(f,w)	Military Drill, 2(f,w) <sup>1</sup>
Military Drill, 2(f,w) <sup>1</sup>	Electives, 4
Electives, 3	

#### ELECTIVES

Advanced Farm Arithmetic, 3(f,w) Agricultural Botany, 3(f,w) Animal Biology, 3(f,w) Poultry, 3(f,w) Elements of Music I, 2(f,w) Elements of Music II, 2(f,w) Penmanship, 1(f,w) Spelling, 1(f,w) Elementary Beekeeping, 3(f,w) Physiology, 3(f,w) Breeds, 3(f,w)	Carpentry, 3(f,w) Advanced Beekeeping, 3(f,w) Violin, $\frac{1}{2}$ (f,w) <sup>2</sup> Piano, $\frac{1}{2}$ (f,w) <sup>2</sup> Instrumental Music, $\frac{1}{2}$ (f,w) <sup>2</sup> Vocal Music, $\frac{1}{2}$ (f,w) <sup>2</sup> Orchestra, $\frac{1}{2}$ (f,w) Chorus, $\frac{1}{2}$ (f,w) Home Project, 1 to 3 Dairy-Barn Practice, 2(f) Blacksmithing I, 3(f,w)
--	---

#### JUNIOR YEAR

REQUIRED—FIRST TERM	REQUIRED—SECOND TERM
English Grammar, 3(f,w)	Composition I, 3(f,w)
Forage Crops and Potatoes, 3(f,w)	Cereal Crops, 3(f,w) or
Farm Horticulture, 3(f,w) or	Farm Horticulture, 3(f,w)
Stock-Judging, 3(f,w)	Farm-Dairying, 3(f,w)
Farm Motors I, 3(f,w)	Heat and Electricity, 3(w)
Mechanics and Water Supply, 3(f,w)	Military Drill, 2(f,w) <sup>1</sup>
Military Drill, 2(f,w) <sup>1</sup>	Electives, 6
Electives, 3	

<sup>1</sup> Students excused from Military Drill are required to register for Gymnasium 1 (f, w).

<sup>2</sup> A special fee of \$15 is charged for this course.

## SCHOOL OF AGRICULTURE

## ELECTIVES

- Feeds and Feeding, 3(f,w)  
 Algebra I, 7(f,w)  
 Insect Pests of Plants, 3(f)  
 Parliamentary Law, 1(f,w)  
 Chemistry of Plant and Animal Life I, 3(f,w)  
 Geometry I, 7(f,w)  
 Farm Horticulture, 3(f,w)  
 Stock-Judging, 3(f,w)  
 Industrial History, 3(f)  
 Physiology and Hygiene of Breeding, 2(f)  
 Management of Laying Flock, 1(f,w)  
 Commercial Fruit-Growing, 3(f)  
 Commercial Vegetable-Gardening, 3(w)  
 Coöperative Accounting, 3(f,w)
- Veterinary Studies, 5(w)  
 Algebra II, 7(f,w)  
 Meats, 3(w)  
 Geometry II, 7(f,w)  
 Blacksmithing II, 3(w)  
 Elements of Bacteriology, 3(w)  
 Chemistry of Plant and Animal Life II, 3(f,w)  
 Cereal Crops, 3(f,w)  
 Floriculture, 3(w)  
 Seed-Testing, 2(w)  
 Incubating and Brooding, 3(w)  
 Plant Propagation, 3(w)

## SENIOR YEAR

## REQUIRED—FIRST TERM

- Public Speaking, 3(f,w)  
 Civics, 3(f,w)  
 Farm Buildings, 3(f) or  
 Drainage and Roads, 3(f)  
 Farm Implements, 3(f)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 6

## REQUIRED—SECOND TERM

- Composition II, 3(f,w)  
 Rural Sociology, 3(w)  
 Farm Management, 5(f,w)  
 Farm Motors II, 3(f,w)  
 Military Drill, 2(f,w)<sup>1</sup>  
 Electives, 4

## ELECTIVES

- Drainage and Roads, 3(f)  
 Farm Buildings, 3(f)  
 Livestock Production, 3(f)  
 Farm Records and Accounts, 3(f,w)  
 Elementary Economics, 3(f)  
 Dairy Stock-Feeding, 3(f)  
 Plant Diseases, 3(f)  
 Breeding, 3(f,w)  
 Animal Parasites, 3(w)  
 English Literature I, 5(f)

- Dairy Stock Selection, 3(w)  
 Landscape-Gardening, 3(f,w)  
 Advanced Public Speaking, 3(f,w)  
 Weeds, 2(f)  
 Milk Production, 3(w)  
 Rural Economics, 3(w)  
 Livestock Management, 2(w)  
 Farm Crop-Breeding, 2(w)  
 English Literature II, 5(w)

## HOME ECONOMICS

## FRESHMAN YEAR

## REQUIRED—FIRST TERM

- Biology, 3(f)  
 Business English, 3(f,w)  
 Foods and Cookery I, 3(f,w)  
 Garment-Making I, 2(f,w)  
 Drawing and Design I, 1(f,w)  
 Social Training, 2(f)  
 Personal Hygiene, 1(f)  
 Physical Training, 2(f,w)  
 Electives, 3

## REQUIRED—SECOND TERM

- English Classics, 3(f,w)  
 Physiology, 3(f,w)  
 Foods and Cookery II, 3(f,w)  
 Garment-Making II, 2(f,w)  
 Drawing and Design II, 1(f,w)  
 Agricultural Botany, 3(w)  
 Physical Training, 2(f,w)  
 Electives, 5

## ELECTIVES

- Farm Arithmetic, 3(f,w)  
 Advanced Farm Arithmetic, 3(f,w)  
 Domestic Dairying, 3(f)  
 Elements of Music I, 2(f,w)  
 Elements of Music II, 2(f,w)  
 Chorus,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Violin,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Piano,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Instrumental Music,  $\frac{1}{2}$ (f,w)<sup>2</sup>  
 Vocal Music,  $\frac{1}{2}$ (f,w)<sup>2</sup>

- Orchestra,  $\frac{1}{2}$ (f,w)  
 Elementary Beekeeping, 3(f,w)  
 Typewriting I, 3(f,w)  
 Stenography, 3(f,w)  
 Spelling, 1(f,w)  
 Penmanship, 1(f,w)  
 Poultry, 3(f,w)  
 Management of Laying Flock, 1(f,w)  
 Advanced Beekeeping, 3(f,w)  
 General Agriculture, 3(w)

<sup>1</sup> Students excused from Military Drill are required to register for Gymnasium 1 (f, w).

<sup>2</sup> A special fee of \$15 is charged for this course.

JUNIOR YEAR

REQUIRED—FIRST TERM

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

REQUIRED—SECOND TERM

Composition I, 3(f,w)  
 House-Planning and Furnishing, 4(f,w)  
 Dressmaking II, 3(f,w)  
 Physical Training, 2(f,w)  
 Electives, 8

ELECTIVES

Landscape-Gardening, 3(f,w)  
 Algebra I, 7(f,w)  
 Geometry I, 7(f,w)  
 Industrial History, 3(f)  
 Parliamentary Law, 1(f,w)  
 Letter-Writing, 3(f,w)  
 Typewriting II, 3(f,w)  
 Household Physics, 5(f,w)

Dictation I, 3(f,w)  
 Incubating and Brooding, 3(w)  
 Plant Propagation, 3(w)  
 Elements of Bacteriology, 3(w)  
 Home-Gardening, 3(w)  
 Algebra II, 7(f,w)  
 Geometry II, 7(f,w)  
 Floriculture, 3(w)

SENIOR YEAR

REQUIRED—FIRST TERM

Public Speaking, 3(f,w)  
 Elementary Dietetics, 3(f)  
 Textiles and Millinery, 3(f)  
 Civics, 3(f,w)  
 Physical Training, 2(f,w)  
 Electives, 6

REQUIRED—SECOND TERM

Composition II, 3(f,w)  
 Home Management and Household  
 Accounts, 4(w)  
 Dressmaking III, 3(w)  
 Home-Nursing II, 2(f)  
 Physical Training, 2(f,w)  
 Electives, 6

ELECTIVES

Elementary Economics, 3(f)  
 English Literature I, 5(f)  
 Advanced Public Speaking, 3(f,w)  
 Fruit-Growing, 3(f)  
 Insect Pests of Plants, 3(f)  
 Plant Diseases, 3(f)  
 Trade Garment-Making, 3(f,w)  
 Duplicating and Mimeographing, 3(f,w)

Filing and Indexing, 3(f,w)  
 Dictation II, 3(f,w)  
 Comptometer Practice, 2(f,w)<sup>1</sup>  
 Advanced Millinery, 3(w)  
 Business Ethics, 1(w)  
 English Literature II, 5(w)  
 Rural Economics, 3(w)  
 Rural Sociology, 3(w)  
 Commercial Law, 3(f)<sup>1</sup>

<sup>1</sup> Not offered in 1921-22

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

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



## DESCRIPTION OF COURSES

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

Abbreviations used to designate the buildings are as follows:

Ad Administration	HE Home Economics
BB Beef Barn	Ho Home Building
Ch Agricultural Chemistry	MS Meat Shop
DB Dairy Barn	PP Plant Pathology
En Agricultural Engineering	St Stock Pavilion
DH Dairy Hall	SS Soil Survey
Hr Horticulture	Ve Veterinary
Gy Gymnasium	

The class hours from I to VIII are scheduled as follows:

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

Assembly 12:10-12:45

Ar indicates that the hour, room, or instructor is to be assigned after registration.

### AGRICULTURAL BIOCHEMISTRY

ROSS A. GORTNER, Chief; GEORGE S. TAYLOR.

#### COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f-2w	Chemistry of Plant and Animal Life .....	6	Jr., sr. Agr. 201Ch	None Mr. Taylor
	II MWF			
A1w	Chemistry of Plant and Animal Life .....	3	Jr., sr. Agr. 201Ch	None Mr. Taylor
	IV TThS			
A2f	Chemistry of Plant and Animal Life .....	3	Jr., sr. Agr. 201Ch	A1 Mr. Taylor
	III TThS			
A3f	Household Chemistry.....	5	Jr., sr. H.E. 201Ch	None Mr. Taylor
	IV MTWFS			

A1-2. CHEMISTRY OF PLANT AND ANIMAL LIFE I. 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. MR. TAYLOR.

- A3. HOUSEHOLD 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. MR. TAYLOR.

### AGRONOMY AND FARM MANAGEMENT

ANDREW BOSS, Chief; PERCY B. BARKER, LOUIS B. BASSETT, ALBERT G. BLACK, AUGUST HAEDECKE, CLINTON G. WORSHAM.

#### COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f,w	Cereal Crops.....	3	Jr., sr. Agr.	None
	Sec. 1 Lect. I TS		4Ad	.....
	Lab. I, II Th		4Ad	Mr. Haedecke
	2 Lect. II TS		4Ad	.....
	Lab. I, II Th		2Ad	.....
A2f,w	Corn .....	2	All Agr.	None
	Sec. 1 I MWF		4Ad	.....
	2 II MWF		4Ad	Mr. Haedecke
	3 III MWF		4Ad	Mr. Barker
	4 IV MWF		4Ad	Mr. Barker
	5 V MWF		4Ad	Mr. Barker
	6 VI MWF		4Ad	Mr. Barker
A3f,w	Forage Crops and Potatoes..	3	Jr., sr. Agr.	None
	Sec. 1 Lect. III TS		4Ad	.....
	Lab. III,			
	IV Th		4Ad	.....
	2 Lect. IV TS		4Ad	.....
	Lab. III,			
	IV Th		2Ad	.....
A4w	General Agriculture.....	3	All H.E.	None
	I MWF		307Ad	.....
A5w	Farm Crop-Breeding.....	2	Sr. Agr.	A1, A2
	I MW		4PP	.....
A11f	Farm Implements.....	3	Sr. Agr.	None
	III, IV MWF		RAAd	Mr. Bassett
A21f,w	Farm Records and Accounts..	3	Sr. Agr.	None
	III, IV TThS		24Ad	Mr. Worsham
A22f,w	Farm Management.....	5	Sr. Agr.	None
	Lect. V M		24Ad	Mr. Bassett
	Lab. V, VI, VII WF		24Ad	Mr. Black

- A1. CEREAL CROPS. Including the history, culture, judging, and uses of the important cereal crops. MR. HAEDECKE.
- A2. CORN. The history and classification with a careful study of the culture, judging, and uses of the corn crop. MR. BARKER and Division of Agricultural Education.
- A3. FORAGE CROPS AND POTATOES. A study of the grasses and legumes and other forage crops, and methods in growing them for forage, and the culture, storage, and use of potatoes. MR. HAEDECKE.

## SCHOOL OF AGRICULTURE

- A4. GENERAL AGRICULTURE. Soil formation, tillage, and culture. Classes and varieties of cereal and forage crops, their history, culture, and use in the provision of food and clothing. Types and breeds of livestock and their place in farming. \_\_\_\_\_
- A5. FARM CROP-BREEDING. Instruction in modern methods of propagating and breeding the various farm crops with plans for growing and certifying pedigreed seeds. \_\_\_\_\_
- 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. MR. BASSETT.
- A21. FARM RECORDS AND ACCOUNTS. Lectures, recitations, and practice in keeping farm records. MR. WORSHAM.
- 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. MR. BASSETT, MR. BLACK.

## ANIMAL HUSBANDRY

WALTER H. PETERS, Chief; PHILIP A. ANDERSON, NORRIS K. CARNES, ALFRED L. HARVEY, MARK A. McCARTY.

## COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f,w	Types and Market Classes... Sec. 1 I, II MW	2	All Agr. ESt	None Mr. Harvey, Mr. McCarty
	2 I, II TTh		ESt	Mr. Harvey, Mr. McCarty
	3 III, IV TTh		ESt	Mr. Harvey, Mr. McCarty
A2f,w	Breeds ..... Sec. 1 III MWF	3	All Agr. WSt	None Mr. Harvey, Mr. McCarty
	2 III TThS		WSt	Mr. Harvey, Mr. McCarty
	3 IV TThS		WSt	Mr. Harvey, Mr. McCarty
A3f,w	Stock-Judging ..... Sec. 1 III, IV MWF	3	Jr., sr. Agr. ESt	A1, A2 Mr. Harvey, Mr. McCarty
	2 V, VI MWF		ESt	Mr. Harvey, Mr. McCarty
A4w	Meats ..... V, VI, VII TTh	3	Jr., sr. Agr. MS	A3 Mr. Anderson, Mr. Harvey
A5f	Breeding ..... V MWF	3	Sr. Agr. 3St	A3 Mr. Anderson, Mr. Carnes

DESCRIPTION OF COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A5w	Breeding ..... III MWF	3	Sr. Agr. MS	A3 Mr. Anderson, Mr. Carnes
A6f	Livestock Production..... IV MWF	3	Sr. Agr. 3St	A3 Mr. Peters
A7w	Livestock Management..... V, VI, VII TTh	2	Sr. Agr. 3St	A6 Mr. Peters

- A1. TYPES AND MARKET CLASSES. The livestock industry; demonstration of types and market classes of cattle, horses, sheep, and swine and their relation to production; score-card practice and the fundamentals of livestock-judging. MR. HARVEY, MR. McCARTY.
- A2. BREEDS. The origin, identification, and adaptability of the breeds of cattle, horses, sheep, and swine. MR. HARVEY, MR. McCARTY.
- A3. STOCK-JUDGING. Practice in judging from both the type and breed standpoint. Two thirds of this time is given to beef cattle, horses, sheep, and swine, one third to dairy cattle. Same as Dy. Husb. A3. MR. HARVEY, MR. McCARTY.
- A4. MEATS. Lectures, demonstrations, and practice work in dressing, cutting, and curing meats. MR. ANDERSON. MR. HARVEY.
- A5. BREEDING. Livestock improvement and variation, heredity, environment, and selection as factors therein; line-breeding, inbreeding, cross-breeding, and grading-up; the pure-bred sire; pedigree registration; practical breeders' problems. MR. ANDERSON, MR. CARNES.
- A6. LIVESTOCK PRODUCTION. The business side of stock-farming, buying and selling, record-keeping, economic principles involved in efficient production of beef cattle, horses, sheep, and swine. Study of the several forms of specialization in livestock production. MR. PETERS.
- A7. LIVESTOCK MANAGEMENT. Practice in doing the things involved in the every-day management of beef cattle, horses, sheep, and swine, such as, preparation of animals for show and sale, barn equipment, preparation of feeds, and care of young animals. MR. PETERS.

BEE CULTURE

FRANCIS JAGER, Chief; GROVER C. MATTHEWS.

COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f	Elementary Beekeeping..... Sec. 1 I TThS	3	All FH	None Mr. Matthews
	2 II TThS		FH	Mr. Matthews
A1w	Elementary Beekeeping..... Sec. 1 I MWF	3	All FH	None Mr. Matthews
	2 II MWF		FH	Mr. Matthews
A2f	Advanced Beekeeping..... II MWF	3	All FH	A1 Mr. Matthews
A2w	Advanced Beekeeping..... Sec. 1 I TThS	3	All FH	A1 Mr. Matthews
	2 II TThS		FH	Mr. Matthews

- A1. ELEMENTARY BEEKEEPING. Fundamentals of bee behavior throughout the cycle of the year. Fundamentals of beekeeping practice through the year. Modern equipment for beekeeping practice. Starting with bees, increase, moving, uniting, feeding. MR. MATTHEWS.
- A2. ADVANCED BEEKEEPING. Production of comb honey, extracted honey, and wax. Commercial apiaries, outapiaries. Bee houses, extracting machinery, grading, packing, and marketing. Home queen-raising. Bee diseases. Packing cases. Bee cellars. MR. MATTHEWS.

## DAIRY HUSBANDRY

CLARENCE H. ECKLES, Chief; ELMER O. ANDERSON, CHESTER D. DAHLE, THOR W. GULLICKSON, ALLAN B. RAYBURN, JOHN W. WILBUR.

## COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f	Feeds and Feeding..... (Section limit 45)	3	Jr., sr. Agr.	None
	Sec. 1 II MWF		40DH	Mr. Rayburn
	2 IV TThS		3St.	Mr. Wilbur
A1w	Feeds and Feeding..... (Section limit 45)	3	Jr., sr. Agr.	None
	Sec. 1 II MWF		40DH	Mr. Rayburn
	2 IV MWF		WSt	Mr. Wilbur
	3 IV MWF		39DH	Mr. Gullickson
A2f	Farm-Dairying ..... (Section limit 45)	3	Jr., sr. Agr.	None
	Sec. 1 III, IV MWF		39DH	Mr. Dahle
	2 V, VI MWF		40DH	Mr. Gullickson
A2w	Farm-Dairying ..... (Section limit 45)	3	Jr., sr. Agr.	None
	Sec. 1 III, IV MWF		40DH	Mr. Dahle
	2 V, VI MWF		40DH	Mr. Anderson
	3 I, II TThS		40DH	Mr. Wilbur
A3f,w	Stock-Judging .....			See Animal Husbandry 3, page 26
A4f	Dairy-Barn Practice.....	2		See course description
	Ar Ar		DB	Mr. Gullickson
A5w	Milk Production.....	3	Sr. Agr.	None
	I MWF		39DH	Mr. Eckles
A6f	Dairy Stock-Feeding.....	3	Sr. Agr.	A1
	IV TThS		39DH	Mr. Rayburn
A7w	Dairy Stock Selection.....	3	Sr. Agr.	A3, A5
	Lect. II Th		39DH	Mr. Rayburn
	Lect. I, II S		39DH	Mr. Rayburn
	Lab. V, VI, VII T		DB	Mr. Rayburn
A8f	Domestic Dairying.....	3	All H.E.	None
	Lect. I Th		40DH	Mr. Dahle
	Lab. V, VI TTh		40DH	Mr. Anderson

A1. FEEDS AND FEEDING. The composition of feeds and of the animal body, digestion, assimilation; a study of the various feed stuffs, and of feeding standards. MR. GULLICKSON, MR. RAYBURN, MR. WILBUR.

A2. FARM-DAIRYING. Milk, its composition, properties, cleanly production, and care. Principles of, and practice in, separating, testing,

- and farm butter-making. Forms and methods of marketing. MR. ANDERSON, MR. DAHLE, MR. GULLICKSON, MR. WILBUR.
- A3. STOCK-JUDGING. Practice in judging from both the type and breed standpoints. Two thirds of the time is given to horses, beef cattle, sheep, and hogs; one third to dairy cattle. Same as An. Husb. A3. MR. P. A. ANDERSON, MR. GULLICKSON, MR. RAYBURN.
- A4. DAIRY-BARN PRACTICE. Actual practice in the care, feeding and handling of dairy cattle. Open only to those who have not had experience in dairy-barn work. Registration must be approved by the instructor. MR. GULLICKSON.
- A5. MILK PRODUCTION. Characteristics of the dairy breeds, selection, care, and management of the dairy herd, selection of the sire, calf-raising; dairy barns. MR. ECKLES.
- A6. DAIRY STOCK-FEEDING. Feeding the cow for milk production and the growing animals. Formulation of rations with special attention to economy and efficiency, a study of roughages and concentrates. Rations for cows on official tests. MR. RAYBURN.
- A7. DAIRY STOCK SELECTION. A study of type, comparative judging, a study of pedigrees in relation to values. Visits to noted herds near the Twin Cities. MR. RAYBURN.
- A8. DOMESTIC DAIRYING. Composition and properties of milk. How to care for it in the home and in the dairy. Principles of, and practice in, separating milk, testing, making butter, cheese, and ice cream. MR. ANDERSON, MR. DAHLE.

ECONOMICS

JOHN D. BLACK, Chief; PAUL L. MILLER.

COURSE

No.	Title	Credits	Offered to	Prerequisite Courses
A1f,w	Coöperative Accounting.....	3	Jr., sr. Agr.	None
	Lect. V TTh		24Ad	Mr. Miller
	Lab. VI, VII T		24Ad	Mr. Miller

- A1. COÖPERATIVE ACCOUNTING. Study of nature and kind of accounts for coöperative business. Practice in properly recording business transactions, preparation and interpretation of balance sheets and income statements for various types of coöperative organizations. MR. MILLER.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

WILLIAM A. RILEY, Chief; FLORENCE A. DEFIEL, CARL E. HENDRICKSON, LYLE G. JAMES, ARTHUR G. RUGGLES

## SCHOOL OF AGRICULTURE

## COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f,w	Animal Biology.....	3	All Agr.	None
	Sec. 1 I TThS		307Ad	Mr. Hendrickson
	2 II MWF		307Ad	Mr. James
	3 III MWF		307Ad	Mr. James
	4 V MWF		307Ad	Mr. James
A3f	Biology.....	3	All H.E.	None
	Sec. 1 I MWF		307Ad	Miss Defiel
	2 IV MWF		306Ad	Miss Defiel
A11w	Animal Parasites.....	3	Sr. Agr.	None
	Lect. II WF		306Ad	Mr. Riley
	Lab. I, II M		306Ad	Mr. Riley
A16f	Insect Pests of Plants.....	3	Jr., sr.	None
	V, VI MWF		307Ad	Mr. Ruggles, Mr. Hendrickson

A1. ANIMAL BIOLOGY. Study of fundamental principles of animal life such as metabolism, respiration, digestion, growth, and reproduction. A consideration of the more important groups of the animal kingdom and their relations to man. MR. RILEY, MR. HENDRICKSON, MR. JAMES.

A3. BIOLOGY. An elementary course dealing with such topics as inheritance, reproduction, natural selection, nervous activity, and metamorphosis. MISS DEFIEL.

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

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

## FARM ENGINEERING

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

## COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f,w	Blacksmithing I.....	3	All Agr.	None
	Sec. 1 V, VI, VII TTh		20En	Mr. Johnston
	2 V, VI, VII WF		20En	Mr. Johnston
A2w	Blacksmithing II.....	3	Jr., sr. Agr.	A1
	I, II TThS		20En	Mr. Johnston
A11f w	Farm Motors I.....	3	All Agr.	None
	Sec. 1 V, VI, VII TTh		37En	Mr. Torrance
	2 V, VI, VII WF		37En	Mr. Torrance

DESCRIPTION OF COURSES

A12f,w	Farm Motors II.....	3	Jr., sr. Agr.	C grade in A11
	III, IV TThS		37En	Mr. Torrance
A16f,w	Mechanical Laboratory.....	3	All Agr.	None
	Sec. 1 II, III, IV WF		56En	Mr. Dent
	2 V, VI, VII TTh		56En	Mr. Dent
	3 V, VI, VII WF		56En	Mr. Dent
A18f	Mechanics and Water Supply	3	Jr., sr. Agr.	None
	Sec. 1 Lect. I MW		102En	Mr. Tyler
	Lab. I, II F		103En	Mr. Tyler
	2 Lect. IV TTh		102En	Mr. Stewart
	Lab. III, IV S		103En	Mr. Tyler
r8w	Mechanics and Water Supply	3	Jr., sr. Agr.	None
	Lect. II ThS		102En	Mr. Stewart
	Lab. I, II T		103En	Mr. Tyler
A19w	Heat and Electricity.....	3	Jr., sr. Agr.	None
	Sec. 1 Lect. I MW		102En	Mr. Tyler
	Lab. I, II F		103En	Mr. Tyler
	Lect. IV TTh		102En	Mr. Stewart
	Lab. III, IV S		103En	Mr. Tyler
A21f,w	Carpentry .....	3	All Agr.	None
	Sec. 1 V, VI, VII TTh		48En	Mr. White
	2 V, VI, VII WF		48En	Mr. White
A31f,w	Drawing and Farm Buildings	3	All Agr.	None
	Sec. 1 V, VI, VII TTh		303En	Mr. Jacobson
	2 V, VI, VII WF		303En	Mr. Jacobson
	3 II, III, IV WF		303En	Mr. Jacobson
A32f	Farm Buildings.....	3	Sr. Agr.	A21, A31
	Lect. I M		305En	Mr. White
	Lab. I, II WF		305En	Mr. White
A41f,w	Household Physics.....	5	Jr., sr. H.E.	None
	Lect. VII MTWF		102En	Mr. Stewart
	Lab. VI, VII Th		101En	Mr. Stewart
A51f	Drainage and Roads.....	3	Sr. Agr.	None
	I, II TThS		215En	Mr. Roe

A1. BLACKSMITHING I. Instruction is given in the management of the forge, in bending, shaping, and welding iron, thus familiarizing the student with the operations for blacksmith repair work on the farm. MR. JOHNSTON.

A2. 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. MR. JOHNSTON.

A11. FARM MOTORS I. An elementary course offering theory and practice work in gasoline and kerosene engines. MR. TORRANCE.

A12. FARM MOTORS II. An advanced course in gasoline and kerosene engines and tractors, giving attention to adjustments, care, and operation. MR. TORRANCE.



- A16. MECHANICAL LABORATORY. Instruction and laboratory practice in rope splicing, knots, belt-lacing, pulleys and shafting, soldering, pipe-fitting, electric wiring, babbiting, cement work, harness repair, and work with cold metals. MR. DENT.
- A18. MECHANICS AND WATER SUPPLY. An elementary course in the mechanics of solids, liquids, and gases. Special emphasis is given to water supplies, water systems, sewage disposal, weather conditions and forecasts. Laboratory work will be a part of the course. MR. STEWART, MR. TYLER.
- A19. HEAT AND ELECTRICITY. An elementary course in heat and electricity as applied to home-heating and lighting with a study of electric batteries, motors, and other appliances. Laboratory work will be given. MR. STEWART, MR. TYLER.
- A21. 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. MR. WHITE.
- A31. DRAWING AND FARM BUILDINGS. Reading and interpreting working drawings. Pencil drawings with T-square, scale, and triangle. No instruments required. MR. JACOBSON.
- A32. FARM BUILDINGS. A study of the location, planning, construction, and maintenance of farm buildings. MR. WHITE.
- A41. 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. MR. STEWART.
- A51. DRAINAGE AND ROADS. Conditions requiring, purposes of, benefits from drainage. Legal organization for extensive drainage. Kinds of drainage: essential features of drainage system; practice ditching and tile-laying to grade. Country-road administration; earth-road construction and maintenance. MR. ROE.

### GYMNASIUM AND PHYSICAL TRAINING

D. C. MITCHELL, Director; WINIFRED BAILEY.

#### *Men*

This department coöperates with the Military Department in that part of the drill that calls for gymnasium and athletic work.

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

Intercompany games, etc., are maintained as well as the regular school teams.

A course in gymnasium giving one credit per term is required of students who are exempt from drill.

## DESCRIPTION OF COURSES

33

COURSE					
No.	Title	Credit	Offered to	Prerequisite Courses	
1f,w	Gymnasium .....	1	All Agr. Gy	None Mr. Mitchell	
	VIII                      TTh				

### Women

The aim of this department is to maintain the health of the students; to give gymnastic exercise and deep breathing; to stimulate functional activity, and to give coördination and poise. The department offers opportunities for swimming in the gymnasium swimming-pool, organized games, cross-country tramps, and skating. Every girl is required to pass a swimming test before graduating, proving that she can save her life in case of an accident on the water.

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

### COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f,w-2w,f	Freshman Physical Training..	2	All H.E. Gy	None
	{ VII                      MW } VII, VIII            F		Gy	
A3f,w-4w,f	Junior Physical Training.....	2	Jr., sr. H.E. Gy	A1-2
	III                      TThS			
A5f,w-6w,f	Senior Physical Training.....	2	Sr. H.E. Gy	A3-4
	IV                      TThS			

### HOME ECONOMICS

MILDRED WEIGLEY, Chief; ELIZABETH L. BACON, CARLOTTA BROWN, CLARA M. BROWN, JEAN M. DORSEY, AMANDA EBERSOLE, HALLY J. FISHER, LOU LOMBARD, OLIVE B. MACCOMBER, MAUDE J. MILLER, MARTHA B. MOORHEAD, HELEN RIDER.

### COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f	Garment-Making I.....	2	All H.E.	None
	Sec. 1 I, II            MW		112HE	Miss Ebersole
	2 III, IV            TTh		112HE	Miss Ebersole
	3 V, VI              MW		112HE	Miss Ebersole
A1w	Garment-Making I.....	2	All H.E.	None
	III, IV              ThS		114HE	Miss Ebersole
A2f	Garment-Making II.....	2	All H.E.	A1
	III, IV              ThS		114HE	Mrs. MacComber
A2w	Garment-Making II.....	2	All H.E.	A1
	Sec. 1 I, II            MW		112HE	Miss Ebersole
	2 III, IV            TTh		112HE	Mrs. MacComber
	3 V, VI              MW		112HE	Mrs. MacComber

## SCHOOL OF AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite Courses
A3f	Dressmaking I..... Sec. 1 I, II MF 2 V, VI MF	2	Jr., sr. H.E. 114HE 114HE	A2 Mrs. MacComber Mrs. MacComber
A3w	Dressmaking I..... I, II ThS	2	Jr., sr. H.E. 112HE	A2 Mrs. MacComber
A4f	Dressmaking II..... I, II TThS	3	Jr., sr.H.E. 112HE	A3 Mrs. MacComber
A4w	Dressmaking II..... Sec. 1 I, II MWF 2 V, VI MWF	3	Jr., sr.H.E. 114HE 114HE	A3 Mrs. MacComber Miss Ebersole
A5f	Textiles and Millinery..... Sec. 1 I, II TThS 2 III, IV MWF	3	Sr.H.E. 114HE 114HE	A4 Miss Ebersole Miss Clara Brown
A6w	Dressmaking III..... Sec. 1 I, II TThS 2 III, IV MWF	3	Sr. H.E. 114HE 114HE	A5 Miss Ebersole Miss Clara Brown
A7w	Advanced Millinery..... V, VI, VII TTh	3	Sr. H.E. 114HE	A5 Miss Carlotta Brown
A8f,w	Trade Garment-Making..... V, VI, VII TTh	3	Sr. H.E. 112HE	A4, Instructor's per- mission Mrs. MacComber
A11f	Foods and Cookery I..... Sec. 1 I, II MWF 2 III, IV TThS 3 V, VI MWF	3	All H.E. 103HE 103HE 103HE	None Miss Rider Miss Lombard Miss Rider
A11w	Foods and Cookery I..... I, II MWF	3	All H.E. 107HE	None Miss Lombard
A12f	Foods and Cookery II..... I, II MWF	3	All H.E. 105HE	A11 Miss Lombard
A12w	Foods and Cookery II..... Sec. 1 I, II MWF 2 III, IV TThS 3 V, VI MWF	3	All H.E. 103HE 103HE 103HE	A11 Miss Rider Miss Lombard Miss Rider
A13f	Foods and Cookery III..... Sec. 1 I, II TThS 2 V, VI, VII TTh	3	Jr., sr. H.E. 105HE	A12 Miss Lombard Miss Rider
A13w	Foods and Cookery III..... I, II TThS	3	Jr., sr. H.E. 103HE	A12 Miss Lombard
A15f	Elementary Dietetics..... Sec. 1 I, II TThS 2 V, VI MWF	3	Sr. H.E. 103HE 105HE	A13 Mrs. Dorsey Miss Lombard
A16w	Home Management and Household Accounts..... Sec. 1 I, II MTThF 2 V, VI MTThF	4	Sr. H.E. 105HE 105HE	A15 Mrs. Dorsey, Miss Miller Mrs. Dorsey, Miss Miller
A21f	Drawing and Design I..... Sec. 1 I, II F 2 III, IV S 1 V, VI F	1	All H.E. 112HE 112HE 112HE	None Miss Bacon Miss Bacon Miss Bacon
A21w	Drawing and Design I..... III, IV T	1	All H.E. 114HE	None Miss Bacon
A22f	Drawing and Design II..... III, IV T	1	All H.E. 114HE	A21 Miss Bacon

DESCRIPTION OF COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A22w	Drawing and Design II.....	1	All H.E.	A21
	Sec. 1 I, II F		112HE	Miss Bacon
	2 III, IV S		112HE	Miss Bacon
	3 V, VI F		112HE	Miss Bacon
A23f	Drawing and Design III.....	1	Jr., sr. H.E.	A22
	Sec. 1 V, VI M		395HE	Miss Bacon
	2 V, VI W		114HE	Miss Bacon
A23w	Drawing and Design III.....	1	Jr., sr. H.E.	A22
	I, II T		112HE	Miss Bacon
A26f	House-Planning and Furnish- ing .....	4	Jr., sr. H.E.	A22
	{ I, II M		106HE	Miss Bacon
	{ V, VI, VII TTh		106HE	Mrs. Dorsey
A26w	House-Planning and Furnish- ing .....	4	Jr., sr. H.E.	A22
	Sec. 1 { I, II W		106HE	Miss Bacon
	{ V, VI, VII TTh		106HE	Mrs. Dorsey
	2 { V, VI W		106HE	Miss Bacon
	{ V, VI, VII MF		106HE	Mrs. Dorsey
A31f	Personal Hygiene.....	1	All H.E.	None
	II T		106HE	Miss Moorhead
A33f	Home Nursing I.....	2	Jr., sr. H.E.	None
	Lect. I W		106HE	Miss Moorhead
	Lab. Sec. 1 I, II F		WH	Miss Fisher
	VI W		WH	Miss Fisher
	2 V,			
A34w	Home Nursing II.....	2	Sr. H.E.	None
	Lect. I W		203HE	Miss Moorhead
	Lab. Sec. 1 V,			
	VI T		WH	Miss Fisher
	VI W			
	2 V,		WH	Miss Fisher

- A1. GARMENT-MAKING I. Qualities and prices of standard muslins; construction and care of the sewing machine; reading and alteration of commercial patterns; application of hand sewing and machine stitching to the making of an apron and undergarments. MISS EBERSOLE.
- A2. GARMENT-MAKING II. Continuation of Course A1. The making of other simple cotton garments; repair of clothing. MISS EBERSOLE, MRS. MACCOMBER.
- A3. DRESSMAKING I. A study of standard cotton and linen dress fabrics; of design in tailored dresses; of processes involved in the construction of simple dresses; designing and making a washable dress. MRS MACCOMBER.
- A4. DRESSMAKING II. The study of standard wool fabrics; design in simple tailored dresses; fitting of the dress-form; the use of the dress-form and the process of construction involved in making a simple wool dress of tailored design. MISS EBERSOLE, MRS. MACCOMBER.

- A5. **TEXTILES AND MILLINERY.** (a) Standard fabrics and textile fibers; tests for adulterations; (b) design and color harmony in hats; alteration of frames; making and trimming of simple fall hats. Renovation of used materials. MISS CLARA BROWN, MISS EBERSOLE.
- A6. **DRESSMAKING III.** Clothing and health; the clothing budget; the study of fabrics and design adapted to lingerie dresses; simple modeling on the dress-form; design and construction of a lingerie dress. MISS CLARA BROWN, MISS EBERSOLE.
- A7. **ADVANCED MILLINERY.** The construction of wire frames; moulding of buckram frames; making and trimming of simple spring and summer hats. MISS CARLOTTA BROWN.
- A8. **TRADE GARMENT-MAKING.** A course dealing with the planning, cutting, and making of simple cotton garments upon a commercial basis. (Permission of the division required for registration.) MRS. MACCOMBER.
- A11. **FOODS AND COOKERY I.** Planning, preparing, and serving meals with emphasis on the study of carbohydrate foods. MISS LOMBARD, MISS RIDER.
- A12. **FOODS AND COOKERY II.** Planning, preparing, and serving meals with emphasis on quick breads and foods. A brief study of principles controlling the preparation of protein foods. MISS LOMBARD, MISS RIDER.
- A13. **FOODS AND COOKERY III.** Planning, preparing, and serving meals with emphasis on the study of protein, fat, and mineral foods. MISS LOMBARD, MISS RIDER.
- A15. **ELEMENTARY DIETETICS.** A course dealing with simple problems of nutrition; food for adult man and woman; children of different ages; planning of family dietary; cost of dietaries; food for the sick and convalescent. MRS. DORSEY, MISS LOMBARD.
- A16. **HOME MANAGEMENT AND HOUSEHOLD ACCOUNTS.** Distribution of family income, household accounts; purchasing of supplies; planning and serving meals; relation of cost to income; sanitary cleanliness and its application in the care of the house; importance of labor-saving devices. MRS. DORSEY, MISS MILLER.
- A21. **DRAWING AND DESIGN I.** Principles of design and color harmony with special emphasis upon design as expressed in clothing; one lettering problem. MISS BACON.
- A22. **DRAWING AND DESIGN II.** Continuation of Course A21 with special emphasis on color harmonizing. The working out of designs for garments to be made in Course A3. MISS BACON.

- A23. DRAWING AND DESIGN III. The working out of designs for dresses to be developed in Course A4; one craft problem. MISS BACON.
- A26. HOUSE-PLANNING AND FURNISHING. Location of farm buildings; types of farm dwellings, sketches of floor plans for the farm home; plumbing and heating equipment; interior finish, wall and floor coverings; furniture, curtains, pictures; labor-saving equipment. MISS BACON, MRS. DORSEY.
- A31. 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 infections are given. MISS MOORHEAD.
- A33. HOME NURSING I. (a) Communicable diseases, means of prevention, control, disinfection. (b) Home-nursing equipment and methods practicable in the household. MISS MOORHEAD, MISS FISHER.
- A34. HOME NURSING II. (a) Hygienic requirements during infancy, childhood, womanhood, maternity. (b) Household emergencies; preparation for maternity; care of infants. MISS MOORHEAD, MISS FISHER.

## HORTICULTURE

WILLIAM H. ALDERMAN, Chief; LEROY CADY, FRANC P. DANIELS.

## COURSES

No.	Title	Credits	Offered to	Prerequisite Courses	
A1f,w	Farm Horticulture.....	3	All Agr.	None	
	Sec. 1 I MWF		102Hr	Mr. Daniels	
	2 IV MWF		102Hr	Mr. Daniels	
A2f	Commercial Fruit-Growing....	3	Jr. sr. Agr.	None	
	II MWF		8Hr	Mr. Daniels	
A3w	Commercial Vegetable-Garden- ing .....	3	Jr. sr. Agr.	None	
	II MWF		102Hr	Mr. Daniels	
A4f	Fruit-Growing .....	3	Sr. H.E.	None	
	VII MWF		102Hr	Mr. Daniels	
A5w	Home Gardening.....	3	Jr., sr. H.E.	None	
	Lect. VI MW		102Hr	Mr. Daniels	
	Lab. VI, VII F		8Hr	Mr. Daniels	
A6w	Floriculture .....	3	Jr., sr.	None	
	IV MWF		8Hr	Mr. Cady	
A7w	Plant Propagation.....	3	Jr., sr.	None	
	Lect. I WF		8Hr	Mr. Cady	
	Lab. Sec. 1 V, VI T			8Hr	Mr. Cady
	VI W				
	2 V, III MWF		8Hr	Mr. Cady	
A8f,w	Landscape-Gardening .....	3	Jr., sr.	None	
	III MWF		102Hr	Mr. Cady	

- A1. FARM HORTICULTURE. Growing fruits, vegetables, and ornamentals for use on the farm. Location and planning of the orchard and garden and the culture of the important crops. Propagation of common plants. Culture and use of ornamentals, text, lectures, and reference. MR. DANIELS.
- A2. COMMERCIAL FRUIT-GROWING. Locating, establishing, and managing the commercial orchard or small-fruit plantation. Harvesting and marketing methods. Text, lectures, and laboratory. MR. DANIELS.
- A3. COMMERCIAL VEGETABLE-GARDENING. Growing of vegetable crops for market. Locating, planting, and care of the commercial garden; consideration of the important crops; marketing methods; types of glass structures, their uses, and the production of vegetables under glass. MR. DANIELS.
- A4. FRUIT-GROWING. A general course dealing with the commercial growing of our important orchard and small fruits. A consideration of the sites, soils, and methods of planting, culture, and marketing essential to successful fruit production. MR. DANIELS.
- A5. 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. MR. DANIELS.
- A6. 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. MR. CADY.
- A7. 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. MR. CADY.
- A8. 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. MR. CADY.

### MILITARY DRILL

(Junior Reserve Officers' Training Corps)

COLONEL GIRARD STURTEVANT, Commandant; MAJOR BEN W. FELLD,  
SERGEANT EDMUND C. McCANN

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

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

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

1. The services of a regular army officer to devote all his time to the military work.
2. Each student enrolled will receive annually :

- |                            |                    |
|----------------------------|--------------------|
| 1 coat wool O. D.          | 1 hat service      |
| 1 breeches wool O. D.      | 2 collar ornaments |
| 1 shoes russet or marching | 1 hat cord         |
| 1 shirt wool O. D.         | 1 belt             |
| 1 leggings pair canvas     | chevrons           |

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

In accord with the spirit of this act all male students not physically unfit are required to attend military drill.

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

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

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

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

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

COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
	Military Drill.....	2*	All Agr.	None
	VIII MWF		Gy	

\* A maximum of twelve credits in Military Drill may be counted toward graduation.



## PLANT PATHOLOGY AND BOTANY

EDWARD M. FREEMAN, Chief; JONAS J. CHRISTIANSEN, ALVIN H. LARSON,  
ARTHUR H. SOUBA

## COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f,w	Agricultural Botany.....	3	All Agr.	None
	Sec. I Lect. V M		4PP	Mr. Souba
	Rec. II F		4PP	Mr. Souba
	Lab. III.			
	IV F		3PP	Mr. Souba
	2 Lect. V M		4PP	Mr. Souba
	Rec. V W		4PP	Mr. Souba
	Lab. VI,			
	VII M		3PP	Mr. Souba
	3 Lect. V T		4PP	Mr. Souba
	Rec. V Th		4PP	Mr. Souba
	Lab. VI,			
	VII T		3PP	Mr. Souba
	4 Lect. IV M		4PP	Mr. Souba
	Rec. IV F		4PP	Mr. Souba
	Lab. III,			
	IV W		3PP	Mr. Souba
A2w	Seed-Testing .....	2	Jr., sr. Agr.	A1
	V, VI, VII F		3PP	Mr. Larson
A4w	Agricultural Botany.....	3	All H.E.	None
	Lect. I T		4PP	Mr. Souba
	Rec. I Th		4PP	Mr. Souba
	Lab. I, II S		3PP	Mr. Souba
A11f	Plant Diseases.....	3	Sr.	A1 or A4
	IV MWF		1PP	Mr. Christiansen
A12f	Weeds .....	2	Jr., sr. Agr.	A1
	Lect. V T		3PP	Mr. Larson
	Lab. V, VI Th		3PP	Mr. Larson

A1. AGRICULTURAL BOTANY. A brief study is made of the parts of economic flowering plants, emphasizing their significance in relation to agricultural practice. A brief study of seeds, fungi causing diseases of plants, and decay organisms is included. MR. SOUBA.

A2. SEED-TESTING. The seeds of the common farm weeds, with special attention to those of noxious weeds, are studied. A set of seed cases is made and practice is given in testing seeds for purity and germination. MR. LARSON.

A4. AGRICULTURAL BOTANY. A study of economic flowering plants is made. The course also contains a brief study of molds, mushrooms, rots or decays, and yeast. MR. SOUBA.

A11. PLANT DISEASES. A study of important diseases of Minnesota crop plants with special emphasis on methods of control. MR. CHRISTIANSEN.

A12. WEEDS. A practical study of farm weeds with special emphasis on their identification, control, and eradication. MR. LARSON.

## POULTRY HUSBANDRY

ARTHUR C. SMITH, Chief.

## COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f,w	Poultry .....	3	All	None
	Sec. 1 II TThS		104Ve	Mr. Smith
	2 IV TThS		104Ve	Mr. Smith
	3 VI MWF		104Ve	Mr. Smith
A2f,w	Management of Laying Flock	1	Jr., sr.	A1 or parallel
	Ar		Ar	Mr. Smith
A3w	Incubating and Brooding.....	3	Jr., sr.	A1
	Lect. III MF		104Ve	Mr. Smith
	Lab. Ar Ar		Ar	Mr. Smith

A1. POULTRY. Principles of general management, house construction, important commercial breeds and types, feeding for egg production; common ailments and simple treatments. MR. SMITH.

A2. MANAGEMENT OF LAYING FLOCK. Practice in feeding and management, mixing feeds, a study of laying rations, selections for laying qualities, selections for breeding qualities, keeping accounts. MR. SMITH.

A3. INCUBATION AND BROODING. A study of the best methods of incubation and brooding, natural and artificial, includes selection of breeders, eggs for incubation, feeding and care of chicks, how to avoid losses. MR. SMITH.

## RHETORIC

ROBERT C. LANSING, Chief; ELIZABETH HAUSE, KATHERINE KESTER, MONICA LANGTRY, VERNIE SWENSON.

## COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f	Business English.....	3	All	None
	Sec. 1 I MWF		306En	.....
	2 I MWF		308En	Mrs. Hause
	3 II TThS		308En	Mrs. Hause
	4 V MWF		308En	.....
	5 V MWF		312En	Mrs. Swenson
A1w	Business English.....	3	All	None
	Sec. 1 I TThS		308En	Mrs. Hause
	2 II MWF		308En	Mrs. Hause
	3 III MWF		308En	Mrs. Hause
	4 III TThS		308En	Mrs. Hause
	5 IV TThS		312En	Mrs. Swenson
A2f	English Classics.....	3	All	None
	Sec. 1 I TThS		308En	Mrs. Hause
	2 II MWF		308En	Mrs. Hause
	3 III MWF		306En	Miss Langtry
	4 III TThS		308En	.....
	5 IV TThS		312En	Mrs. Swenson

No.	Title	Credits	Offered to	Prerequisite Courses
A2w	English Classics.....	3	All	None
	Sec. 1 I MWF		312En	Mrs. Swenson
	2 II TThS		308En	Mrs. Hause
	3 V MWF		307En	Miss Kester
A3f	English Grammar.....	3	Jr., sr.	None
	Sec. 1 I TThS		307En	.....
	2 I TThS		312En	Mrs. Swenson
	3 III MWF		307En	.....
	4 III MWF		308En	Mrs. Hause
	5 IV MWF		306En	Miss Langtry
A3w	English Grammar.....	3	Jr., sr.	None
	Sec. 1 III MWF		306En	Miss Langtry
	2 III TThS		306En	.....
	3 II MWF		312En	Mrs. Swenson
A4f	Composition I.....	3	Jr., sr.	A3
	Sec. 1 III MWF		312En	Mrs. Swenson
	2 III TThS		312En	Mrs. Swenson
A4w	Composition I.....	3	Jr., sr.	A3
	Sec. 1 I TThS		307En	.....
	2 I TThS		312En	Mrs. Swenson
	3 III MWF		307En	.....
	4 III MWF		312En	Mrs. Swenson
	5 IV MWF		307En	.....
A5f	Public Speaking.....	3	Sr.	A4
	Sec. 1 I TThS		306En	Miss Langtry
	2 II MWF		307En	Miss Langtry
	3 III TThS		306En	Miss Langtry
	4 IV TThS		307En	Miss Kester
A5w	Public Speaking.....	3	Sr.	A4
	Sec. 1 I MWF		307En	Miss Langtry
	2 II TThS		307En	Miss Kester
A6w	Composition II.....	3	Sr.	A4
	II TThS		307En	Miss Kester
A6w	Composition II.....	3	Sr.	A4
	Sec. 1 I TThS		306En	Miss Langtry
	2 II MWF		307En	Miss Langtry
	3 III TThS		312En	Mrs. Swenson
	4 IV MWF		306En	Miss Langtry
	5 IV MWF		312En	Mrs. Swenson
A14f,w	Advanced Public Speaking....	3	Sr.	A5
	III TThS		307En	Miss Kester
A21f-22w	English Literature.....	10	Sr.	A4
	VI MTWThF		307En	Miss Kester

A1. BUSINESS ENGLISH. Business correspondence and forms. MRS. HAUSE, MRS. SWENSON.

A2. ENGLISH CLASSICS. Reading and analysis of the works of American and English authors. MRS. HAUSE, MISS KESTER, MISS LANGTRY, MRS. SWENSON.

A3. ENGLISH GRAMMAR. A study of principles and practice in them, with composition. MRS. HAUSE, MISS LANGTRY, MRS. SWENSON.

A4. COMPOSITION I. Paragraphs and themes in narration, description, and exposition. Analysis of prose models. MISS LANGTRY, MRS. SWENSON.

- A5. PUBLIC SPEAKING. Voice exercise, platform deportment. Practice in delivery of memorized and extemporaneous speeches. MISS KESTER, MISS LANGTRY.
- <sup>1</sup>A6. COMPOSITION II. Exposition and argument. Gathering and outlining material. Instruction in the writing of the senior thesis. Debating. MISS KESTER, MISS LANGTRY, MRS. SWENSON.
- A14. ADVANCED PUBLIC SPEAKING. A continuation of Course A5. Selecting and organizing material for speeches and the presentation of speeches effectively before a given audience. MISS KESTER.
- A21-22. ENGLISH LITERATURE I, II. The history of English literature with a study of selections. For students planning to enter the College of Agriculture, Forestry, and Home Economics. MISS KESTER.

SCHOOL (GENERAL)

DEXTER D. MAYNE, Principal; ANNA P. BREZLER, KATHLEEN E. EGGAR, MARGUERITE GODSEY, JOHANNA HOGNASON, PEDER L. JOHNSRUD, GUSTAV A. LUNDQUIST, BERNICE M. McDONALD, ESTHER E. OLSON, ABE PEPINSKY, DORA SCHAETTGEN, ROSE SCHAETTGEN, JOHN SUNDWALL, WILLIAM R. WEHREND, MABEL WILLSON, GRACE B. WYNNE.

COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f,w	Farm Arithmetic.....	3	All Agr.	None
	Sec. 1 I MWF		106En	Mr. Johnsrud
	2 I TThS		106En	Mr. Johnsrud
	3 II MWF		106En	Mr. Johnsrud
	4 II TThS		106En	Mr. Johnsrud
	5 III MWF		106En	Mr. Johnsrud
A1f,w	Farm Arithmetic.....	3	All H.E.	None
	Sec. 6 III TThS		106En	Miss Eggar
A2f,w	Advanced Farm Arithmetic..	3	All	1 or H.S. cred. in arith.
	IV MWF		106En	Mr. Johnsrud
A4f-5w	Algebra .....	14	All	None
	I MTWThFS		217En	Mr. Johnsrud
A4w-5f	Algebra .....	14	All	None
	III MTWThFS		217En	Miss Hognason
A6f-7w	Geometry .....	14	All	None
	II MTWThFS		217En	Miss Eggar
A6w-7f	Geometry .....	14	All	None
	IV MTWThFS		215En	Miss Hognason
A8f,w	Hygiene .....	1	All Agr.	None
	Sec. 1 II S		9Ve	Mr. Sundwall
	2 III S		9Ve	Mr. Sundwall
A21f,w	Elements of Music I.....	2	All	None
	Sec. 1 I TTh		Ho	Miss Willson
	2 III TTh		Ho	Miss Willson
A22f,w	Elements of Music II.....	2	All	A21
	II TTh		Ho	Miss Willson

<sup>1</sup> Students exempted from Course A6 because of credits gained in high school will be required to attend a rhetoric class while writing their senior theses.

## SCHOOL OF AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite Courses
A23f,w	Chorus .....	1-3*	All	See course descrip.
	Mixed Chorus			
	4:30 T		Ho	Miss Wynne
	Girls' Chorus			
	4:30 W		Ho	Miss Wynne
	Men's Glee Club			
	6:15 F		Ho	Miss Wynne
A24f,w	Violin .....	1-3*	All	See course descrip.
	Ar Ar		Ho	Miss Rose Schaeftgen
A25f,w	Piano .....	1-3*	All	See course descrip.
	Ar Ar		Ho	Miss McDonald, Miss Dora Schaeftgen, Miss Willson
A26f,w	Instrumental Music.....	1-3*	All	See course descrip.
	Ar Ar		Ho	Mr. Wehrend
A27f,w	Orchestra .....	1-3*	All	See course descrip.
	6:30 T		Ho	Mr. Pepinsky
A28f,w	Vocal Music.....	1-3*	All	See course descrip.
	Ar Ar		Ho	Miss Wynne
A41f,w	Parliamentary Law.....	1	Jr., sr.	None
	IV Th		397Ad	Mr. Mayne
A42f,w	Civics .....	3	Sr.	None
	III TThS		105En	Mr. Lundquist
A43f,w	Elementary Economics.....	3	Sr.	None
	II MWF		105En	Mr. Lundquist
A44f,w	Rural Economics.....	3	Sr.	None
	IV TThS		105En	Mr. Lundquist
A45f,w	Industrial History.....	3	Jr., sr.	None
	III MWF		105En	Mr. Lundquist
A46f,w	Rural Sociology.....	3	Sr.	None
	II TThS		105En	Mr. Lundquist
A61f,w	Spelling .....	1	All	None
	Sec. 1 II S		216En	Miss Godsey
	2 IV S		216En	Miss Godsey
	3 VI F		216En	Miss Godsey
A62f,w	Penmanship .....	1	All	None
	Sec. 1 II TTh		216En	Miss Godsey
	2 IV TTh		216En	Miss Godsey
	3 VI MW		216En	Miss Godsey
A63f,w	Typewriting I.....	3	All H.E.	None
	Sec. 1 III, IV MWF		216En	Miss Godsey, Miss Olson
	2 III, IV TThS		216En	Miss Godsey, Miss Olson
	3 V, VI MWF		216En	Miss Godsey, Miss Olson
A64f,w	Typewriting II.....	3	Jr., sr. H.E.	A63
	Sec. 1 I, II MWF		216En	Miss Godsey, Miss Olson
	2 I, II TThS		216En	Miss Godsey, Miss Olson
	3 V, VI, VII TTh		216En	Miss Godsey, Miss Olson
A65f,w	Stenography .....	3	All H.E.	None
	IV MWF		216En	Miss Godsey
A66f,w	Dictation I.....	3	Jr., sr. H.E.	A65
	II MWF		216En	Miss Godsey

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

DESCRIPTION OF COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A67f,w	Dictation II..... III MWF	3	Jr., sr. H.E. 216En	A66 Miss Godsey
A69f,w	Letter-Writing ..... V MWF	3	Jr., sr. H.E. 216En	None Miss Godsey, Miss Olson
A70f,w	Filing and Indexing..... V,VI MWF	3	Sr. H.E. 216En	None Miss Godsey
A71f,w	Duplicating and Mimeograph- ing ..... V, VI, VII TTh	3	Sr. H.E. 216En	A64 Miss Godsey
A72f	Commercial Law..... Not offered in 1921-22	3	Sr. H.E.	None
A73f,w	Comptometer Practice..... Not offered in 1921-22	2	Sr. H.E.	None
A74w	Business Ethics..... II W	1	Sr. H.E. 216En	None Miss Godsey
A81f	Social Training..... Sec. 1 II ThS 2 III WF	2	All H.E. 203HE 203HE	None Miss Brezler Miss Brezler

- A1. ARITHMETIC. Training in simple mathematical processes, applications of principles to problems requiring measurements of material, extension, capacity. Practical applications to farm and home life. Assists in the mathematics of the technical school courses. MR. JOHNSRUD, MISS EGGAR.
- A2. ADVANCED FARM ARITHMETIC. Similar in outline to Course A1. Special emphasis on farming as a business. MR. JOHNSRUD.
- A4-5. ALGEBRA I, II. The first term includes the fundamental operations and factoring. The second term covers fractions, simultaneous equations and quadratics. Emphasis is placed in both courses on the application of equations to the solution of practical problems. MR. JOHNSRUD, MISS HOGNASON.
- A6-7. GEOMETRY I, II. The usual theorems and problems of plane geometry are completed, with special attention given to their applications in mechanics and surveying. MISS EGGAR, MISS HOGNASON.
- A8. HYGIENE. Method for promotion of health and prevention of disease will be considered with a view of acquainting the student with the fundamentals of right living and the individual and community activities against the spread of disease. MR. SUNDWALL.
- A21. ELEMENTS OF MUSIC I. (a) Fundamental principles of musical notation, pitch, rhythm, musical terms, intervals and formation of major and minor scales. (b) Formation and progression of triads. MISS WILLSON.
- A22. ELEMENTS OF MUSIC II. (a) Formation and progression of chords of the 7th and 9th. (b) Musical history, origin and development of instruments, growth of musical composition. Lives of great composers: Bach, Handel, Haydn, Mozart, Beethoven, romantic composers, and modern men. MISS WILLSON.

- A23. CHORUS. Sight-reading and ear-training. From this chorus, students with unusual ability and experience will be chosen for the school chorus, which is divided into men's glee club, girls' chorus, mixed chorus, and quartet. MISS WYNNE.
- A24. VIOLIN. Elementary: Rosenkranz, *Kayser Etudes*, *Schradieck Scales*, *Solos in Comparison*. Intermediate: Scales in all positions, Seveik, Mazas, Dont, compositions of medium difficulty. Advanced Kreutzer, Fiorello, Rode, Gavinie, Sonatas of Handel, Gade, David, concertos of Viotti, DeBeriot, Mendelssohn. Ten thirty-minute lessons, \$15 per term. MISS R. SCHAETTGEN.
- A25. PIANO. Elementary and advanced technical training, scales, arpeggios, octaves, chords, selected technical studies. Bach: inventions, well-tempered clavicord. Sonatinas: Clementi, Kuhlman. Sonatas: Haydn, Mozart, Beethoven. Solos for all grades; classics and best modern material. Ten thirty-minute lessons, \$15 per term. MISS McDONALD, MISS D. SCHAETTGEN, MISS WILLSON.
- A26. INSTRUMENTAL. Instruction on band and orchestral instruments, such as, cornet, clarinet, flute, saxophone, trombone, baritone, horn, bass; etc., scales and technical exercises with practical playing. Ten thirty-minute lessons, \$15 per term. MR. WEHREND.
- A27. ORCHESTRA. Study of standard orchestral literature and accompaniment of vocal and instrumental soloists. A second or preparatory group will furnish laboratory experience to those not sufficiently equipped technically, improving the sense of rhythm, intonation, and phrasing. MR. PEPINSKY.
- A28. VOCAL MUSIC. Voice-placing, breath development, enunciation, diction, illustrated by elementary exercises by Sieber, Marchesi; songs of medium difficulty. Ten thirty-minute lessons, \$15 per term. MISS WYNNE.
- A41. 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. MR. MAYNE.
- A42. 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. MR. LUNDQUIST.
- A43. 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. MR. LUNDQUIST.

- A44. RURAL ECONOMICS. The general principles of economics as applied to the farmer's relationships, as a producer and as a consumer. Special topics considered. Marketing of farm products, coöperative societies, rural credits, taxation, farm labor, and tenancy. MR. LUNDQUIST.
- A45. INDUSTRIAL HISTORY. Sanford's *Story of Agriculture*, supplemented by Moore's *Industrial History*. Recitation and written summaries from the texts, special reports, and outlines. Agricultural history is emphasized in this study of general industrial development in the United States. MR. LUNDQUIST.
- A46. RURAL SOCIOLOGY. A practical course including a study of rural conditions, how to make a survey, the cause of present conditions and how they may be improved. Study of rural organizations, religions, and educational institutions. MR. LUNDQUIST.
- A61. SPELLING. Students poor in spelling should elect this course and continue until able to spell words in ordinary conversation and correspondence. A spelling text is used and drills on lists of commonly misspelled words are given. MISS GODSEY.
- A62. PENMANSHIP. A standard muscular movement system is taught and the Curtis tests are applied. Students who are poor in penmanship should elect this course. MISS GODSEY.

#### BUSINESS COURSES FOR GIRLS

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

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

- A63. TYPEWRITING I. The touch method of typewriting is taught. Following the acquirement of the command of the keyboard, repetition drills to assist in memorizing the keyboard, concentration drills, and acceleration drills are given. MISS GODSEY, MISS OLSON.
- A64. TYPEWRITING II. The continuous development of speed and accuracy through carefully planned speed drills. Tabulating, lessons on different machines and their care. MISS GODSEY, MISS OLSON.
- A65. STENOGRAPHY. Principles of phonography are taught by the Gregg system. Thoro drill is given in word forms and in combining them into phrases and sentences. MISS GODSEY.
- A66. DICTATION I. Students review carefully the principles of stenography, and take short letters by dictation, which are transcribed on the typewriter. Accuracy of transcription is the aim, rather than speed. MISS GODSEY.



- A67. DICTATION II. Students continue work as indicated in Dictation I with special exercises for speed. MISS GODSEY.
- A69. LETTER-WRITING. Business correspondence from typist's viewpoint. Business letters and documents which help in gaining correct first impression are studied and copied. Construction work requiring judgment in arrangement, and developing initiative and power to solve original problems. MISS GODSEY, MISS OLSON.
- A70. FILING AND INDEXING. MISS GODSEY.
- A71. DUPLICATING AND MIMEOGRAPHING. MISS GODSEY.
- A72. COMMERCIAL LAW. (Not offered in 1921-22.)
- A73. COMPTOMETER PRACTICE. (Not offered in 1921-22.)
- A74. BUSINESS ETHICS. MISS GODSEY.
- A81. SOCIAL TRAINING. The fundamental principles governing the individual in social contacts; with attention to the rights and responsibilities of the individual in institutional life; special emphasis upon the home as the social center. MISS BREZLER.

## SOILS

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

## COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f,w	Soils .....	3	All Agr.	None
	Sec. 1 Lect. I TTh		251Ch	Mr. Nesom
	Lab. I,II S		251Ch	Mr. Nesom
	2 Lect. IV TS		251Ch	Mr. Nesom
	Lab. III, IV Th		251Ch	Mr. Nesom

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

## VETERINARY MEDICINE

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

## COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A1f	Physiology .....	3	All	None
	IV MWF		2Ve	Mr. Reynolds
A1w	Physiology .....	3	All	None
	II TThS		2Ve	Mr. Reynolds

DESCRIPTION OF COURSES

No.	Title	Credits	Offered to	Prerequisite Courses
A4w	Elements of Bacteriology.... II MWF	3	Jr., sr. 2Ve	None Mr. Billings
A5f	Physiology and Hygiene of Breeding ..... II WF	2	Jr., sr. Agr. 2Ve	None Mr. Boyd
A7w	Veterinary Studies..... I MTWThF	5	Jr., sr. Agr. 9Ve	None Mr. Reynolds

- A1. PHYSIOLOGY. This course consists of the study of the body, its functions and care. MR. REYNOLDS.
- A4. ELEMENTS OF BACTERIOLOGY. Lectures and demonstrations of the fundamental principles underlying the science of bacteriology, with special reference to organisms which cause disease. Instruction will be given in the preparation and use of vaccines, bacterines, anti-toxins, immune sera. MR. BILLINGS.
- A5. PHYSIOLOGY AND HYGIENE OF BREEDING. A study of the gross anatomy of the reproductive organs; physiology of reproduction; the breeding season; gestation and care of the female during parturition and lactation. MR. BOYD.
- A7. VETERINARY STUDIES. The animal body in health; causes and prevention of animal diseases in general; specially important diseases in detail including treatment; simple surgical operations, e.g., castration, dehorning, tapping for bloat, abscess drainage, etc. MR. REYNOLDS.

# INDEX

Page	Page		
Admission .....	7	Health Service.....	12
Age requirement.....	8	High-school work, credit for.....	8
<i>Agrarian</i> .....	15	Holidays .....	10
Agricultural Biochemistry.....	24	Home Economics.....	33
Agricultural Economics.....	29	Home Economics, course of study..	22
Agronomy and Farm Management	25	Home Projects.....	9
Animal Husbandry.....	26	Horticulture .....	37
Assembly .....	10	Hygiene .....	45
Bee Culture.....	27	Library .....	15
Botany .....	40	Livestock Production, course of	
Business courses.....	47	study .....	18
 		Loan funds.....	13
Calendar .....	3	Ludden Trust fund.....	13
College, admission to.....	23	 	
Committees .....	6	Mathematics .....	45
Course numbers, explanation of....	24	Military Drill.....	38
Courses of study.....	8, 17	<i>Minnesota Farm Review</i> .....	15
Credit hour.....	17	Music .....	45
Crop Production, courses of study	20	 	
 		Organizations .....	15
Dairy Husbandry.....	28	 	
Debating societies.....	15	Physical Training.....	32
Description of courses.....	24	Plant Pathology and Botany.....	40
Dorr fund.....	14	Poultry Husbandry.....	41
Dormitories .....	9	Publications .....	15
Dormitory reservation.....	12	 	
 		Rhetoric .....	41
Entomology and Economic Zoology	29	Rules and regulations.....	9
Expenses .....	10	 	
Faculty .....	4	School (general) .....	43
Farm Engineering.....	30	Soils .....	48
Farm experience.....	7	Special students.....	17
Farm Mechanics, course of study...	21	State payment of tuition.....	11
Fees .....	11	 	
 		Unclassed students.....	8
General Farming, course of study..	17	 	
General information.....	7	Veterinary Medicine.....	48
Gideon Memorial prize.....	15	 	
Graduation, requirements for.....	10	Y.M.C.A. ....	15
Gymnasium .....	32	Y.W.C.A. ....	15
		Zoological museum.....	15

## NOTICE TO PROSPECTIVE STUDENTS

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

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

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

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

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

*The Medical School*  
*Announcement for the Year*  
**1921-1922**



*Vol. XXIV No. 10 May 4 1921*

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

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



# UNIVERSITY CALENDAR

1921-1922

1921

September	17	Saturday	Payment of fees closes, except for new students
September	20-27	Week	Examinations for removal of conditions and entrance examinations Registration period, Colleges of Science, Literature, and the Arts, and Agriculture, Forestry, and Home Economics Physical examinations for all new students
September	26-27		Registration days for all colleges not indicated above
September	27	Tuesday	Payment of fees for new students closes
September	28	Wednesday	Fall quarter begins, 8:30 a.m.
October	15	Saturday	Class Scrap Day; all classes to be dismissed for the fourth hour
October	20	Thursday	Senate meeting, 4:30 p.m.
November	5	Saturday	Home Coming Day; classes to be dismissed for the third and fourth hours
November	11	Friday	Armistice Day; a holiday
November	24	Thursday	Thanksgiving Day; a holiday
December	15	Thursday	Senate meeting, 4:30 p.m.
December	21	Wednesday	Fall quarter ends, Christmas vacation begins, 5:20 p.m.

1922

January	4	Wednesday	Christmas vacation ends, winter quarter begins, 8:30 a.m.
January	4	Wednesday	School of Embalming begins
February	16	Thursday	Senate meeting, 4:30 p.m.
February	22	Wednesday	Washington's Birthday; a holiday
March	23	Thursday	Winter quarter ends, spring vacation begins, 5:20 p.m.
March	29	Wednesday	Spring vacation ends, spring quarter begins, 8:30 a.m.
May	18	Thursday	Senate meeting, 4:30 p.m.
May	30	Tuesday	Memorial Day; a holiday
June	11	Sunday	Baccalaureate service
June	13	Tuesday	Spring quarter closes, 5:20 p.m.
June	14	Wednesday	Fiftieth annual commencement
June	17-19		Registration days for summer session
June	20	Tuesday	Summer session begins
July	28	Friday	Summer session closes

# THE MEDICAL SCHOOL

## THE ADMINISTRATIVE BOARD

- LOTUS DELTA COFFMAN, Ph.D., President  
ELIAS P. LYON, Ph.D., M.D., Dean of the Medical School, and Director of the Department of Physiology  
RICHARD O. BEARD, M.D., Secretary of the Administrative Board and Medical Faculty  
LOUIS B. BALDWIN, M.D., Superintendent of the University Hospitals  
CLARENCE M. JACKSON, M.S., M.D., Director of the Department of Anatomy  
ARTHUR D. HIRSCHFELDER, B.S., M.D., Director of the Department of Pharmacology  
HAROLD E. ROBERTSON, B.A., M.D., D.Sc., Director of the Department of Pathology and Public Health  
WINFORD P. LARSON, M.D., Director of the Department of Bacteriology and Immunology  
ARTHUR C. STRACHAUER, M.D., Chief of the Department of Surgery  
S. MARX WHITE, B.S., M.D., Chief of Department of Medicine  
JENNINGS C. LITZENBERG, B.S., M.D., F.A.C.S., Chief of the Department of Obstetrics and Gynecology  
JULIUS P. SEDGWICK, B.S., M.D., Chief of the Department of Pediatrics  
WILLIAM R. MURRAY, Ph.B., M.D., Chief of the Department of Ophthalmology and Oto-Laryngology  
EMIL S. GEIST, M.D., Member-elect Representing the Faculty  
FREDERICK H. SCOTT, Ph.D., M.B., D.Sc., Member-elect Representing the Faculty  
JOHN SUNDWALL, Ph.D., M.D., University Health Officer and Professor of Hygiene

## FACULTY

- LOTUS DELTA COFFMAN, Ph.D., President  
WILLIAM WATTS FOLWELL, LL.D., President Emeritus  
CYRUS NORTHRUP, LL.D., President Emeritus  
AMOS W. ABBOTT, M.D., Professor Emeritus of Gynecology  
JOHN WESLEY BELL, M.D., Professor Emeritus of Clinical Medicine and Physical Diagnosis  
C. EUGENE RIGGS, M.A., M.D., Professor Emeritus of Mental and Nervous Diseases  
THOMAS S. ROBERTS, M.D., Professor Emeritus of Pediatrics  
FRED L. ADAIR, B.S. M.A., M.D., Associate Professor of Obstetrics and Gynecology  
ROBERT G. ALLISON, M.D., Assistant Professor of Roentgenology  
LOUIS B. BALDWIN, M.D., Superintendent of University Hospitals  
MOSES BARRON, B.S., M.D., Assistant Professor of Pathology



- LEE W. BARRY, Ph.D., M.D., Assistant Professor of Obstetrics and Gynecology
- ARCHIBALD H. BEARD, B.A., M.D., Assistant Professor of Medicine
- RICHARD O. BEARD, M.D., Secretary of the Faculty and Associate Professor of Physiology
- ELEXIOUS T. BELL, B.S., M.D., Professor of Pathology
- EDGAR D. BROWN, Phm.D., M.D., Associate Professor of Pharmacology
- FRANK E. BURCH, M.D., F.A.C.S., Associate Professor of Ophthalmology and Oto-Laryngology
- JOHN BUTLER, M.D., Assistant Professor of Dermatology
- CARL C. CHATTERTON, M.D., Assistant Professor of Orthopedic Surgery
- JAMES T. CHRISTISON, M.D., Associate Professor of Pediatrics
- HOWARD S. CLARK, B.S., M.D., Assistant Professor of Ophthalmology and Oto-Laryngology
- ALEXANDER R. COLVIN, M.D., F.A.C.S., Associate Professor of Surgery
- WILLIAM H. CONDIT, B.S., M.D., Assistant Professor of Obstetrics and Gynecology
- HENRY WIREMAN COOK, B.A., M.D., Lecturer on Life Insurance
- J. FRANK CORBETT, M.D., F.A.C.S., Associate Professor of Surgery
- LOUIS E. DAUGHERTY, M.D., F.A.C.S., Assistant Professor of Surgery
- HAL DOWNEY, Ph.D., Professor of Animal Biology
- CHARLES A. ERDMANN, Phm.G., M.D., Associate Professor of Applied Anatomy
- CHARLES D. FREEMAN, M.D., Assistant Professor of Dermatology
- EDWIN L. GARDNER, B.S., M.D., Assistant Professor of Medicine
- EMIL S. GEIST, M.D., F.A.C.S., Associate Professor of Orthopedic Surgery
- JAMES S. GILFILLAN, M.D., F.A.C.S., Associate Professor of Medicine
- \*ARTHUR J. GILLETTE, M.D., F.A.C.S., Professor of Orthopedic Surgery, in charge of the Division of Orthopedic Surgery
- CHARLES A. GRIFFITH, D.D.S., Associate Professor of Oral Surgery
- ALEXANDER R. HALL, M.D., C.M., M.R.C.S., L.R.C.P., Assistant Professor of Medicine
- ARTHUR S. HAMILTON, B.S., M.D., Professor of Nervous and Mental Diseases in charge of Division of Nervous and Mental Diseases
- ERNEST M. HAMMES, M.D., Assistant Professor of Nervous and Mental Diseases
- THOMAS B. HARTZELL, D.D.M., M.D., Research Professor of Mouth Infections
- LAWRENCE M. HENDERSON, Ph.D., Assistant Professor of Chemistry
- ARTHUR T. HENRICI, M.D., Associate Professor of Bacteriology
- ARTHUR D. HIRSCHFELDER, B.S., M.D., Professor of Pharmacology and Director of the Department of Pharmacology
- EDGAR J. HUENEKENS, B.A., M.D., Assistant Professor of Pediatrics
- HARRY G. IRVINE, M.D., Assistant Professor of Dermatology and Syphilis
- CLARENCE M. JACKSON, M.S., M.D., Professor of Anatomy and Director of the Department of Anatomy

\*Deceased.

- CONRAD JACOBSON, B.S., M.D., Associate Professor of Surgery  
 JAMES A. JOHNSON, M.D., F.A.C.S., Assistant Professor of Surgery  
 JOHN B. JOHNSTON, Ph.D., Professor of Comparative Neurology  
 FRANCIS B. KINGSBURY, Ph.D., Associate Professor of Physiologic  
 Chemistry  
 WINFORD P. LARSON, M.D., Professor of Bacteriology and Immunology,  
 and Director of the Department of Bacteriology and Immunology  
 ARTHUR A. LAW, M.D., F.A.C.S., Associate Professor of Surgery  
 THOMAS G. LEE, B.S., M.D., Professor of Comparative Anatomy  
 WILLIAM LERCHE, M.D., F.A.C.S., Associate Professor of Surgery  
 JENNINGS C. LITZENBERG, M.D., Professor of Obstetrics and Gynecology  
 and Chief of the Department of Obstetrics and Gynecology  
 ELMER J. LUND, Ph.D., Associate Professor of Animal Biology  
 ELIAS P. LYON, Ph.D., M.D., Dean of the Medical School, Professor of  
 Physiology, and Director of the Department of Physiology  
 JESSE F. McCLENDON, Ph.D., Professor of Physiology  
 FRANK H. MACDOUGALL, Ph.D., Associate Professor of Chemistry  
 ARCHIBALD MACLAREN, B.S., M.D., F.A.C.S., Associate Professor of  
 Surgery  
 JOHN S. MACNIE, B.A., M.D., F.A.C.S., Assistant Professor of Ophthal-  
 mology and Oto-Laryngology  
 ARTHUR T. MANN, B.S., M.D., F.A.C.S., Associate Professor of Surgery  
 CHARLES H. MAYO, M.A., LL.B., M.D., F.A.C.S., Professor of Surgery  
 ANGUS W. MORRISON, B.A., M.D., Assistant Professor of Nervous and  
 Mental Diseases  
 WILLIAM R. MURRAY, Ph.B., M.D., F.A.C.S., Professor of Ophthalmology  
 and Oto-Laryngology and Chief of the Department of Ophthalmology  
 and Oto-Laryngology  
 HENRY F. NACHTRIEB, B.S., Professor of Animal Biology  
 HORACE NEWHART, B.A., M.D., F.A.C.S., Assistant Professor of Oto-  
 Laryngology  
 GEORGE M. OLSON, M.D., Assistant Professor of Dermatology and Syphilis  
 OSCAR OWRE, M.D., C.M., F.A.C.S., Assistant Professor of Urology  
 CHAUNCEY J. V. PETTIBONE, Ph.D., Associate Professor of Physiologic  
 Chemistry  
 FREDERICK H. POPPE, B.A., M.D., F.A.C.S., Assistant Professor of Surgery  
 LOUISE M. POWELL, R.N., Superintendent of School of Nursing  
 FRED J. PRATT, Jr., M.D., Assistant Professor of Ophthalmology and Oto-  
 Laryngology  
 WALTER R. RAMSEY, M.D., Associate Professor of Pediatrics  
 ANDREW T. RASMUSSEN, Ph.D., Associate Professor of Neurology  
 CHARLES A. REED, B.S., M.D., F.A.C.S., Associate Professor of Orthopedic  
 Surgery  
 ERNEST T. F. RICHARDS, M.D., C.M., Assistant Professor of Medicine  
 WILLIAM A. RILEY, Ph.D., Professor of Entomology  
 HARRY P. RITCHIE, Ph.B., M.D., F.A.C.S., Associate Professor of Surgery  
 ROBERT I. RIZER, M.D., Assistant Professor of Medicine

- HAROLD E. ROBERTSON, B.A., M.D., D.Sc., Professor of Pathology and  
Director of the Department of Pathology and Public Health
- FREDERICK C. RODDA, M.D., Associate Professor of Pediatrics
- JOHN T. ROGERS, M.D., F.A.C.S., Associate Professor of Surgery
- JOHN L. ROTHROCK, M.A., M.D., Associate Professor of Obstetrics and  
Gynecology
- HENRY H. RUTHERFORD, B.A., M.D., Lieutenant Colonel Medical Corps,  
U.S.A., Professor of Military Science and Tactics
- RICHARD E. SCAMMON, Ph.D., Professor of Anatomy
- JOHN P. SCHNEIDER, M.D., Associate Professor of Medicine
- FREDERICK H. SCOTT, Ph.D., M.B., D.Sc., Professor of Physiology
- JULIUS P. SEDGWICK, B.S., M.D., Professor of Pediatrics and Chief of the  
Department of Pediatrics
- MAX SEHAM, M.D., Assistant Professor of Pediatrics
- CHARLES P. SIGERFOOS, Ph.D., Professor of Animal Biology
- JALMAR H. SIMONS, B.S., M.D., Assistant Professor of Obstetrics and  
Gynecology
- ARTHUR C. STRACHAUER, M.D., F.A.C.S., Professor of Surgery and Chief  
of the Department of Surgery
- JOHN SUNDWALL, Ph.D., M.D., Professor of Hygiene and University  
Health Officer
- ARTHUR A. SWEENEY, B.A., M.D., Lecturer on Medical Jurisprudence
- SAMUEL E. SWEITZER, M.D., Associate Professor of Dermatology and  
Syphilis, in charge of the Division of Dermatology
- ROOD TAYLOR, M.D., Ph.D. in Pediatrics, Assistant Professor of Pediatrics
- GILBERT J. THOMAS, M.D., Assistant Professor of Urology
- HENRY L. ULRICH, B.S., M.D., Associate Professor of Medicine
- MARGARET WARWICK, B.S., M.D., Assistant Professor of Pathology
- S. MARX WHITE, B.S., M.D., Professor of Medicine
- ARCHA E. WILCOX, M.D., F.A.C.S., Assistant Professor of Surgery
- FREDERICK W. WITTICH, M.A., M.D., Assistant Professor of Medicine
- FRANKLIN R. WRIGHT, D.D.S., M.D., F.A.C.S., Associate Professor of  
Urology, in charge of the Division of Urology
- FREDERICK J. WULLING, Phm.D., LL.M., Professor of Pharmacy
- HARRY B. ZIMMERMAN, M.D., F.A.C.S., Assistant Professor of Surgery
- JOHN S. ABBOTT, B.A., M.D., Instructor in Surgery
- HILDING C. ANDERSON, B.Sc., M.D., Instructor in Pathology
- J. WARREN BELL, M.D., Instructor in Obstetrics and Gynecology
- ANNE BENTON, M.A., Instructor in Bacteriology
- WALTER E. CAMP, M.A., M.D., Instructor in Ophthalmology and Oto-  
Laryngology
- WALLACE COLE, M.D., Instructor in Orthopedic Surgery
- LLOYD B. DICKEY, B.S., M.A., Instructor in Anatomy
- HAROLD S. DIEHL, B.A., M.D., Instructor in Pathology
- CHARLES R. DRAKE, M.D., Instructor in Medicine
- WALTER A. FANSLER, M.A., M.D., Instructor in Surgery
- CHARLES C. GAULT, M.A., Instructor in Physiology

- PAUL W. GIESSLER, B.S., M.D., Instructor in Orthopedic Surgery  
 ESTHER M. GREISHEIMER, B.S. in E., Ph.D., Instructor in Physiology  
 JAMES F. HAMMOND, M.D., C.M., Instructor in Obstetrics and Gynecology  
 OLGA S. HANSEN, B.S., M.D., Instructor in Medicine  
 HUGO J. HARTIG, B.S., M.D., Instructor in Surgery  
 MANLEY H. HAYNES, Phm.B., B.S., M.D., Instructor in Obstetrics and Gynecology  
 EDGAR T. HERRMANN, M.D., Instructor in Medicine  
 E. MENDELSSOHN JONES, M.D., Instructor in Obstetrics and Gynecology  
 HENRY N. KLEIN, M.D., Instructor in Dermatology and Syphilis  
 RALPH T. KNIGHT, B.A., M.D., Instructor in Surgery  
 WALTER J. KREMER, M.D., Instructor in Urology  
 HOMER B. LATIMER, M.A., Instructor in Anatomy  
 RAE T. LAVAKE, B.A., M.D., Instructor in Obstetrics and Gynecology  
 JOHN A. LEPAK, B.S., M.D., Instructor in Medicine  
 WILLIAM W. LEWIS, M.D., Instructor in Ophthalmology and Oto-Laryngology  
 JAMES S. MCCARTNEY, JR., B.A., M.D., Instructor in Pathology  
 CHAUNCEY A. MCKINLAY, B.A., M.D., Instructor in Medicine  
 HELEN A. MACKEEN, B.S., M.A., Instructor in Anatomy  
 CLARENCE O. MALAND, B.S., M.D., Instructor in Obstetrics and Gynecology  
 ERNEST S. MARIETTE, B.S., M.D., Instructor in Medicine  
 JOSEPH C. MICHAEL, B.S., M.D., Instructor in Nervous and Mental Diseases  
 HENRY E. MICHELSON, M.D., Instructor in Dermatology and Syphilis  
 R. EDWIN MORRIS, Ph.D., M.D., Instructor in Medicine  
 JAY A. MYERS, B.S., Ph.D., M.D., Instructor in Medicine  
 CHARLES E. NIXON, M.S., M.D., Instructor in Nervous and Mental Diseases  
 GUSTAV J. NOBACK, B.S., Instructor in Anatomy  
 HARRY OERTING, M.D., Instructor in Medicine  
 FREDERICK A. OLSON, M.S., M.D., Instructor in Surgery  
 HJALMAR L. OSTERUD, M.A., Instructor in Anatomy  
 WILLIAM E. PATTERSON, M.D., Instructor in Ophthalmology and Oto-Laryngology  
 NABOTH O. PEARCE, M.D., Instructor in Pediatrics  
 THOMAS A. PEPPARD, M.D., Instructor in Medicine  
 KENNETH L. PHELPS, M.D., Instructor in Ophthalmology and Oto-Laryngology  
 ELIZABETH PIERCE, R.N., Instructor and Assistant Superintendent of School of Nursing  
 JOHN A. PRATT, M.D., F.A.C.S., Instructor in Ophthalmology and Oto-Laryngology  
 EMIL C. ROBITSHEK, M.D., Instructor in Surgery  
 FREDERICK H. K. SCHAAF, M.D., Instructor in Medicine  
 ALBERT G. SCHULZE, M.D., Instructor in Obstetrics  
 FREDERICK J. SOUBA, B.S., M.D., Instructor in Obstetrics and Gynecology

DAVID O. SPRIESTERSBACH, M.Sc., Instructor in Bacteriology  
 G. ELMER STROUT, M.D., Instructor in Ophthalmology and Oto-Laryngology  
 THEODORE H. SWEETSER, B.S., M.D., Instructor in Pathology  
 MARION A. TEBBETS, B.A., Director of Department of Social Service  
 GERTRUDE I. THOMAS, Instructor in Dietetics  
 MARION L. VANNIER, R.N., Instructor in Nursing  
 CARL W. WALDRON, M.D., L.D.S., Instructor in Medicine  
 ROSCOE C. WEBB, B.A., M.D., Instructor in Surgery  
 ANTON G. WETHALL, B.S., M.D., Instructor in Urology  
 THURSTON W. WEUM, B.S., M.D., Instructor in Obstetrics and Gynecology  
 CHARLES B. WRIGHT, B.A., M.D., Instructor in Medicine  
 HERBERT M. N. WYNNE, B.S., M.D., Instructor in Obstetrics and Gynecology  
 MILDRED R. ZIEGLER, B.A., M.S., Instructor in Pediatrics

## TEACHING ASSISTANTS

EDWARD D. ANDERSON, B.A., M.D., Assistant in Pediatrics  
 DONALD C. BEAVER, Veterinary M.D., Assistant in Pathology  
 ERIC T. W. BOQUIST, B.S., M.D., Assistant in Medicine  
 JOHN C. BROWN, B.S., M.D., Assistant in Ophthalmology and Oto-  
 Laryngology  
 JAMES B. CAREY, B.S., M.D., Assistant in Medicine  
 CHARLES E. CONNOR, B.A., M.D., Assistant in Ophthalmology and Oto-  
 Laryngology  
 GEORGE R. DUNN, Ph.B., M.D., Assistant in Surgery  
 EDWARD C. GAGER, M.D., Assistant in Dermatology  
 JOHN D. GEISSINGER, M.D., Assistant in Pediatrics  
 HENDRIE W. GRANT, M.D., Assistant in Ophthalmology and Oto-Laryngology  
 ROBERT C. GREEN, B.A., Assistant in Bacteriology  
 WILLIAM A. GREY, D.D.S., Research Assistant in Mouth Infections  
 GEORGE K. HAGAMAN, M.D., Assistant in Pediatrics  
 ERLING W. HANSON, B.S., M.D., Assistant in Ophthalmology and Oto-  
 Laryngology  
 WILLIAM H. HENGSTLER, M.D., Assistant in Nervous and Mental Diseases  
 CLARENCE HERMANN, D.D.S., Assistant in Dental Diseases  
 GEORGE A. HOLM, B.S., M.D., Assistant in Medicine  
 CHARLES HYMES, B.S., M.D., Assistant in Medicine  
 KANO IKEDA, M.D., Assistant in Medicine  
 GRIFFITH M. JONES, M.D., Assistant in Pediatrics  
 M. KELLER KNAUFF, M.D., Assistant in Orthopedic Surgery  
 JOHN C. KOCH, M.D., Assistant in Medicine  
 ARTHUR L. KUSSKE, M.D., Assistant in Ophthalmology and Oto-Laryn-  
 gology  
 EARL A. LOOMIS, B.A., M.D., Assistant in Ophthalmology and Oto-  
 Laryngology  
 DONALD MCCARTHY, B.S., M.D., Assistant in Medicine  
 FRANK S. MCKINNEY, B.A., M.D., Assistant in Surgery  
 ARTHUR E. MARK, B.S., M.D., Assistant in Medicine  
 GLENN R. MATCHAN, M.D., Assistant in Pediatrics  
 CECILE R. MORIARTY, B.S., M.D., Assistant in Pediatrics  
 MORRIS N. NATHANSON, B.S., M.D., Assistant in Medicine

ALLEN T. NEWMAN, M.Sc., Assistant in Pharmacology  
 DANIEL F. NOONAN, B.A., M.D., Assistant in Pediatrics  
 GUSTAV T. NORDIN, B.S., M.D., Assistant in Obstetrics and Gynecology  
 HENRY OBLAND, B.S., M.D., Assistant in Dermatology and Syphilis  
 MARTIN D. OTT, M.D., Assistant in Pediatrics  
 EDWIN F. ROBB, B.A., M.D., Assistant in Pediatrics  
 WILLIAM A. SAWATSKY, B.S., M.D., Assistant in Medicine  
 WILLIAM RAY SHANNON, B.S., M.D., Assistant in Pediatrics  
 JOHN L. SHELLMAN, M.D., Assistant in Ophthalmology and Oto-Laryngology  
 ELLERY D. SIMPSON, B.A., M.D., Assistant in Surgery  
 ARTHUR E. SMITH, M.D., Assistant in Ophthalmology and Oto-Laryngology  
 JOSEPH J. STRATTE, B.A., M.D., Assistant in Surgery  
 DALE D. TURNACLIFF, B.S., M.D., Assistant in Medicine  
 ARCHIBALD W. WARD, M.D., Assistant in Medicine  
 EUGENE F. WARNER, M.D., Assistant in Pediatrics  
 SAMUEL A. WEISMAN, B.S., M.D., Assistant in Medicine  
 FRANK W. WHITMORE, M.D., Assistant in Medicine  
 CLARENCE E. WILLCUTT, M.D., Assistant in Obstetrics and Gynecology  
 LAURITZ S. YLVISAKER, B.A., M.D., Assistant in Medicine  
 DANIEL E. ZISKIN, D.D.S., Assistant in Dental Diseases  
 THOMAS ZISKIN, M.D., Assistant in Medicine

## TEACHING FELLOWS

ELLERY L. ARMSTRONG, B.S., M.D., in the Department of Ophthalmology and Oto-Laryngology  
 LEROY A. CALKINS, M.S., M.D., in the Department of Obstetrics and Gynecology  
 ANGUS L. CAMERON, B.A., M.D., in the Department of Surgery  
 DONALD DE CARLE, B.S., in the Department of Pathology  
 CLIFFORD J. EKELUND, B.S., M.D., in Department of Medicine  
 SOLOMON FINEMAN, B.S., M.D., in the Department of Medicine  
 MADELIENE GUILLEMIN, B.A., in the Department of Bacteriology  
 RUTH HERRICK, B.S., in the Department of Anatomy  
 CHARLES J. HUTCHINSON, B.A., M.D., Health Service Fellow in Medicine  
 HERMAN JENSEN, B.S., B.A., in the Department of Pharmacology  
 HYMEN S. LIPPMAN, B.S., M.D., Health Service Fellow in Pediatrics  
 JOHN C. MCKINLEY, B.S., M.D., in the Department of Medicine  
 SHIRLEY P. MILLER, B.S., M.A., in the Department of Anatomy  
 JOHN P. QUIGLEY, B.S., in the Department of Pharmacology  
 LAWRENCE F. RICHDORF, B.S., M.D., in the Department of Pediatrics  
 VIRGIL SCHWARTZ, B.S., M.D., in the Department of Ophthalmology and Oto-Laryngology  
 SAMUEL SOLHAUG, B.S., M.D., in the Department of Obstetrics  
 HATTIE SPAHR, B.A., in the Department of Physiology  
 CHESTER A. STEWART, Ph.D., M.D., in the Department of Pediatrics  
 WILLIAM W. SWANSON, B.A., in the Department of Physiology  
 CHESTER O. TANNER, B.S., M.D., Health Service Fellow in Surgery  
 ELWYN H. WELCH, B.A., in the Department of Anatomy  
 ARTHUR A. ZIEROLD, B.S., D.D.S., M.D., in the Department of Surgery

## GENERAL INFORMATION

### ADMISSION

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

#### SUMMARY OF REQUIREMENTS FOR ADMISSION

Ninety quarter credits of college work, carrying 90 honor points, and including rhetoric, 9 credits; chemistry, 18 credits; physics, 12 credits, and zoology, 12 credits; a reading knowledge of French or German. (Three credits in the quarter system are equal to two semester credits.)

#### DETAILED STATEMENT OF REQUIREMENTS FOR ADMISSION

The two-years of college work are defined as including not less than 90 quarter credits (60 semester credits) carrying at least an equal number of honor points. In other words, a student's pre-medical college work must be of such a grade, that the honor points equal or exceed the number of credits. To understand this requirement it should be noted that on the basis of A, B, C, and D as passing grades, D gives no honor points; C, one honor point for each credit; B, two honor points for each credit; A, three honor points for each credit. It is impossible for a student with only the minimum passing grades to secure admission. Students with a high ratio of honor points to total credits are given preference in the selection of candidates for admission.

The pre-medical college credits must include the following:

1. *Rhetoric*: 9 quarter (6 semester) credits. At Minnesota this requirement is met by Rhetoric 4-5-6 (9 credits) or by English-Rhetoric A-B-C (15 credits).
2. *Chemistry*: 18 quarter (12 semester) credits, including general chemistry, qualitative analysis, and organic chemistry with laboratory work. At Minnesota, Courses 4-5 (or 1, 2, 3), 11, and 31-32 are necessary. Students are advised to take chemistry in high school.
3. *Physics*: 12 quarter (8 semester) credits, including proper laboratory work. At Minnesota, Courses 1, 2 and any two of the following combinations, 21 and 22, 31 and 32, 41 and 42 meet the requirement. Students are advised to complete them all. See bulletin of the College of Science, Literature, and the Arts for description of these courses and statement of prerequisites.
4. *Zoology*: 12 quarter (8 semester) credits, including proper laboratory work. At Minnesota, Animal Biology 5-6-7, meets this requirement.
5. *Foreign language*: Sufficient high-school or college training to insure a reading knowledge of French or German medical literature. This requirement is fulfilled as regards French:
  - (a) By passing any two of Courses 21, 22, 23 in scientific French in the Department of Romance Languages of this University or by acceptable courses covering similar work done elsewhere;

or (b) By passing an examination conducted by the Department of Romance Languages. The minimum preparation demanded for admission to this examination is 15 credits of French.

The language requirement is fulfilled as regards German:

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

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

6. *Advised subjects:* Pre-medical students are advised to secure preparation in some or all of the following: Latin (high-school or college), higher mathematics, psychology, sociology, drawing, and comparative anatomy.

A psychologic test will be required of all new students; if possible before acceptance; otherwise upon appearance of each student for registration.

#### UNCLASSED STUDENTS

Students prepared for particular courses in departments of the Medical School may be admitted as unclassified students. Such students receive subject credit for courses satisfactorily completed but are not entitled to legal time credit toward the Bachelor of Medicine or Doctor of Medicine degree. The time requirement is defined by statute in the various states and can not be disregarded or shortened.

#### SPECIAL STUDENTS

The term "special student" is applied to a medical graduate who desires to register for a time in the Medical School but who does not wish to work toward an advanced degree. See "Opportunities for Physicians," page 21 of this bulletin.

#### REGISTRATION

On account of the limited capacity of the school, the incoming (third year or freshman) class will be limited to eighty. Application blanks may be obtained from the dean's office, and should be filled out and returned as soon as a candidate's entrance requirements are completed. If pre-medical college work was done elsewhere than at the University of Minnesota, certified credentials showing subjects, credits, and grades must be presented.

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

Candidates will be selected on the basis of their previous work. About sixty will be accepted early in July. The remaining twenty will be accepted about August 15, giving students the opportunity to use the Summer School to complete requirements.

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



## ADMISSION WITH ADVANCED STANDING

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

As a rule notebook and other evidences of laboratory work must be presented. The amount of advanced standing to be granted a student from another school is decided by the respective departments in conference with the Students' Work Committee. Subject credit, but not time credit, may be given for studies pursued other than in medical schools.

The fifth and sixth (junior and senior) years are limited to eighty students in each class, in divisions of forty students. Division A begins the work of the fifth year in the summer quarter; Division B in the fall quarter. Students desiring to enter the junior year from other schools should bear these facts in mind in making application for admission.

## COMBINED COURSES IN ARTS OR SCIENCE AND MEDICINE

Students who are candidates for the degree of Bachelor of Arts, who have successfully completed three years, or 135 credits and honor points, under the rules of the College of Science, Literature, and the Arts, may elect their fourth year in the Medical School and secure the remaining 45 credits and 45 honor points, required for the Bachelor of Arts degree in this school.

Similarly, students who have completed, with the required number of honor points, the work of the first two years, or 90 quarter credits (60 semester credits), in the College of Science, Literature, and the Arts of this University, or in another approved college, may enter the Medical School, and upon the successful conclusion of the first two years of medical study, earning the required credits and honor points, will receive the degree of Bachelor of Science.

It will be understood that in either of these combined courses the required subjects must be included, viz.: rhetoric, chemistry, zoology, physics, and a reading knowledge of French or German. All special requirements of the College of Science, Literature, and the Arts must likewise be fulfilled; see bulletins of that college.

Macalester College announces that students who successfully complete three years of work in that college followed by one year of work in the Medical School of this University may receive the Bachelor of Arts degree from Macalester College.

## THE MEDICAL SCHOOL

THE CURRICULUM  
DEPARTMENTAL HOURS

	Clock hours		Clock hours
Physical chemistry.....	99	Surgery including roentgenology..	39.2*
Anatomy, gross and microscopic..	704	Obstetrics .....	205*
Physiology, including physiologic chemistry .....	440	Pediatrics .....	168*
Bacteriology .....	176	Ophthalmology and oto- laryngology .....	116*
Pathology, including hygiene.....	385	Electives† .....	424
Pharmacology .....	165		
Medicine .....	660*	Total .....	4,434

## ARRANGEMENT OF COURSES

Department and Course	Third (Freshman) Year			Fourth (Sophomore) Year		
	1st qtr.	2nd qtr.	3rd qtr.	4th qtr.	5th qtr.	6th qtr.
Anat. 5, 6, 7 (Dissection)....	12	12	6	..	..	..
Anat. 103 (Histology).....	..	..	15	..	..	..
Anat. 107 (Embryology).....	..	..	9	..	..	..
Chem. 40 (Physical Chem.)..	9	..	..	..	..	..
Physiol. 100-101 (Physiol. Chem.)	9	9	..	..	..	..
Bact. 1 (Gen. Bact.).....	..	9	..	..	..	..
Anat. 111 (Neurology).....	..	..	..	10	..	..
Physiol. 103-104 (Physiology).	..	..	..	11	11	..
Bact. 101 (Spec. Bact.).....	..	..	..	7	..	..
Path. 101-102 (Pathology)....	..	..	..	..	15	15
Pharm. 102-104 (Gen. & Exp. Pharm.) .....	..	..	..	..	2	9
Med. 50 (Phys. Diag.).....	..	..	..	..	..	6
Surg. 50 (Bandaging).....	..	..	..	1	..	..
Electives .....	..	..	..	..	6	6
<b>Total clock hours per week</b>	<b>30</b>	<b>30</b>	<b>30</b>	<b>29</b>	<b>34</b>	<b>36</b>

\* Not including proportional time for student internship, elected by most students.

† Including student internship or other electives, 30 hours a week in last two quarters.

Department and Course	Division A						Division B					
	Fifth Year			Sixth Year			Fifth Year			Sixth Year		
	Su.	F.	W.	S.	Su.	F.	F.	W.	Su.	F.	W.	S.
Pharm. 105-106(Pharm. & Ther.)	2	2	..	..	..	..	2	2	..	..	..	..
Pharm. 107 (Ther. Conf.)	..	..	..	..	I	..	..	..	..	..	I	..
Pharm. 108 (Presc.-Writing)	..	I	..	..	..	..	..	I	..	..	..	..
Path. 103 (Hygiene)	..	3	..	..	..	..	3	..	..	..	..	..
Path. 109 (Clin. Path. Conf.)	..	..	I	I	..	..	..	..	I	I	..	..
Med. 51-52 (Gen'l Med.)	3	3	..	..	..	..	3	3	..	..	..	..
Med. 53 (Phys. Diagnosis)	4	2	..	..	..	..	2	4	..	..	..	..
Med. 54 (Clin. Ch. & Mic.)	6	..	..	..	..	..	6	..	..	..	..	..
Med. 55 (Phys. Diag. Lects.)	I	..	..	..	..	..	I	..	..	..	..	..
Med. 56 (Prac. Therapy)	..	..	I	..	..	..	..	..	I	..	..	..
Med. 57 (Med. Clinic)	I	I	..	..	..	..	I	I	..	..	..	..
Med. 58 (Med. Clinic)	..	..	I	I	..	..	..	..	I	I	..	..
Med. 60, 62 (Mth. Infec. & Jur.)	..	..	..	..	..	2	..	..	..	2	..	..
Med. 63 (Med. Clinic)	..	..	..	..	I	I	..	..	..	..	I	I
Med. 69 (Nerv. Dis.)	..	3	..	..	..	..	..	3	..	..	..	..
Med. 70 Psychiatry	..	..	..	..	I	..	..	..	..	..	I	..
Med. 79, 80 (Dermatology)	I	I	..	..	..	..	I	I	..	..	..	..
Surg. 51 (Prin. Surg.)	3	..	..	..	..	..	3	..	..	..	..	..
Surg. 53 (Gen'l Surg.)	..	3	..	..	..	..	..	3	..	..	..	..
Surg. 55-56 (Regional)	..	..	2	2	..	..	..	2	2	..	..	..
Surg. 58 (Fractures)	..	..	..	2	..	..	..	..	..	..	..	2
Surg. 59 (Diag. Clinic)	I	I	..	..	..	..	I	I	..	..	..	..
Surg. 72 (Orthopedia)	..	..	..	..	I	..	..	..	..	..	..	I
Surg. 73 (Genito-Urinary)	..	..	..	1½	..	..	..	..	..	1½	..	..
Surg. 79 (Roentgenology)	..	..	..	..	I	..	..	..	..	..	I	..
Obst. 51-52 (Obstetrics)	3	3	..	..	..	..	3	3	..	..	..	..
Obst. 53 (Oper. Obst.)	..	..	..	I	..	..	..	..	..	I	..	..
Obst. 54 (Gyn. Diag.)	I	..	..	..	..	..	I	..	..	..	..	..
Obst. 55 (Gynecology)	..	..	2	..	..	..	..	2	..	..	..	..
Obst. 56, 57 (Obst. & Gyn.)	..	..	..	..	2	2	..	..	..	..	2	2
Ped. 100 (Diag. Clinic)	I	..	..	..	..	..	I	..	..	..	..	..
Ped. 101, 102 (Pediatrics)	..	3	2	..	..	..	..	3	2	..	..	..
Oph. & Otol. 77 (Ophthal.)	..	..	2	..	..	..	..	2	..	..	..	..
Oph. & Otol. 79 (Otology)	..	..	..	I	..	..	..	..	..	I	..	..
Oph. & Otol. 81 (Rhin. & Lar.)	..	..	..	1½	..	..	..	..	..	1½	..	..
Section Exercises	3	3	..	..	..	..	3	3	..	..	..	..
Clerkship. Sect. Clin., etc.	..	..	25	25	..	..	..	25	25	..	..	..
Elective†	6	6	..	..	30	30	6	6	..	..	30	30
Total clock hours per week	36	35	36	36	36	36	37	35	35	36	36	36

Figures represent actual hours each week.

† The elective work in the final six months may be a student internship in one of the hospitals under University control or affiliation. A value of 30 hours a week is arbitrarily assigned to the student internships and is divided among the departments as follows: Medicine, 12 hours; Surgery, 10 hours; Obstetrics, 4 hours; Pediatrics, 3 hours; Ophthalmology and Oto-Laryngology, 1 hour. If a student does not desire or does not secure a student internship, he may elect other work equivalent to 30 hours a week. This may all be in one department or distributed.

## MARKING SYSTEM

Four passing grades, indicated by the symbols A, B, C, and D, represent differing degrees of merit. While a grade of D passes a student in an individual course, not less than an average of C is regarded as satisfactory work. To effect this the honor-point system is used. D gives no honor points; C gives one honor point for each credit hour; B, two honor points per credit hour; A, three honor points per credit hour. See rules below founded on this system.

E represents a condition, which may be removed by examination and by such supplementary work as the department imposing it may require. F stands for a failure and calls for a repetition of the work in class. I stands for incomplete and grants the student one month's time for the completion of the required work.

No memorandum of standings will be issued to students during their course, except that special notice will be sent in case of an incomplete, condition, or failure, in any subject and in any case where a student fails to maintain the necessary honor-point average.

## SCHOLARSHIP RULES

1. Any student who, at the end of any given quarter, receives grade E or F in more than fifty per cent of his registered work in that quarter, will be indefinitely dropped for poor scholarship; such percentage to be estimated upon a credit-hour basis.

2. Students who secure less than 25 quarter honor points in the required courses of the third (freshman) year will be denied further registration in the Medical School.

3. Students who by the end of the fourth (sophomore) year have secured less than seventy quarter honor points, sixty of which were for the required courses, will be denied further registration in the Medical School.

4. Students must secure their Bachelor's degrees, i.e., 90 credits and 90 honor points in science subjects in the Medical School, together with the fulfillment of all requirements in the Arts College, before they can register for the second clinical period (clerkship). Students who had a Bachelor's degree before entering the Medical School, or who received such degree at the end of the freshman medical year, must likewise secure 90 credits and 90 honor points on science subjects in the Medical School before they can register for the second clinical period.

No work in a clinical department except normal physical diagnosis, Medicine 50, can be counted toward a Bachelor's degree.

5. Students must maintain an average grade of C in the work of each of the three clinical periods of the combined junior and senior years, such average to be computed on a clock-hour basis.

6. Students dropped under any of the above rules will not be eligible to condition examinations nor to reinstatement, nor to take Summer School courses, excepting upon recommendation of the Students' Work Committee and affirmative vote of the Administrative Board.

## REQUIREMENTS FOR GRADUATION: DEGREES

Good moral character; compliance with the admission requirements; the attainment of the degree of Bachelor of Arts or Bachelor of Science, to which one year in medicine for the Arts degree, and two years in medicine for the Science degree, may contribute; the completion of the full four-year period of required and elective work in the Medical School are the essentials for the Bachelor of Medicine degree. An approved hospital internship or advanced laboratory work or public-health study for one year is the additional requirement for the Doctor of Medicine degree. This degree "cum laude" is granted to a student of high grade who presents an acceptable thesis.

The required internship insures to the practitioner of medicine a year of varied clinical experience under supervision, and gives to the public assurance of efficiency in the graduate. The alternative of advanced laboratory work is also valuable as preparation for medical practice, and for training those who desire to enter the profession of medical teaching. The alternative of public-health study meets a growing demand for trained medical sanitarians.

## CLINICAL OPPORTUNITIES

## THE MINNESOTA GENERAL HOSPITAL

The Elliot Memorial Building, the product of a bequest of the estate of the late Dr. and Mrs. A. F. Elliot, supplemented by legislative appropriations, provides a clinic of 192 beds. Three fourths of the service is free to poor people. There are 50 per diem beds, but no private rooms.

## THE UNIVERSITY DISPENSARY

The dispensary is housed in Millard Hall. A nominal charge is made from those who can pay. Others are treated free. The service is subdivided into medical, surgical, gynecological, obstetrical, children's, eye, ear, nose, and throat, skin, syphilis, genito-urinary, nervous and mental, orthopedic, and dental clinics. It enrolled 16,202 new patients and received 68,684 patients' visits during the year 1920.

Sections of the senior and junior classes are assigned to these clinics daily, and are trained in case-history taking, in physical examinations and diagnosis, in prescription-writing, and in general therapeutic methods.

A Social Service Department is maintained in relation to the hospital system and dispensary.

## AFFILIATED HOSPITALS

The Minneapolis General Hospital and the City and County Hospital of St. Paul are closely affiliated with the Medical School of the University. One half of their clinical service is under the direction of the faculty.

The combined resources of these two hospitals cover some fourteen hundred beds. Every phase of clinical service is represented, and clinical material is utilized, so far as possible, by the school.

The State Hospital for the Crippled and Deformed, at Phalen Park, St. Paul, is used for instruction in orthopedic surgery. Its surgeon and his aides are members of the faculty. Graduate interns and student interns of the University Hospital are assigned in rotation to its service.

Clinics are held in other institutions, as Pillsbury House, the Gien Lake Sanitorium, and the St. Paul Free Dispensary.

#### REVISED PLAN OF CLINICAL TRAINING

With the initiation of the four-quarter system, the Medical School offers a revised method of clinical instruction which is designed to promote more individual training and more opportunities of observation and experience in the hospital.

To realize this plan, the entire period of clinical instruction, covering ten quarters in time, is arranged in four divisions.

1. An introductory clinical division of two quarters, within which students take didactic and laboratory courses in medicine, surgery, obstetrics, and pediatrics, advanced work in applied pharmacology, and clinics devoted to studies in the general phenomena of disease and the principles of physical diagnosis.

2. An intermediate clinical division of two quarters in which the emphasis is placed upon clinical clerkships, wherein the students, under the supervision of resident instructors and teaching fellows, make and record physical examinations of patients and laboratory investigations of clinical material; and also attend general and special clinics and hospital rounds conducted by the departmental or divisional chiefs. At the same time, they take lectures in the special branches of medicine, surgery, etc. The clinics in this period are concentrated in the University Hospital and Dispensary.

3. An advanced division, also covering two quarters, the work of which is chiefly elective. Among the electives are student internships in the University Hospital, the Minneapolis General Hospital, and the City and County Hospital of St. Paul. Student interns are resident in these hospitals, and their work in the wards is supervised by faculty members on the hospital staffs. They are kept in touch with the school by their attendance upon semi-weekly series of lectures upon advanced topics. Student internships are assigned on the basis of scholarship, provided each candidate is acceptable to the hospital of his choice. Student internships can not be promised to every student of the advanced clinical division. Those not so provided take other elective work to fill the same number of hours, 30 per week. Final examinations in clinical branches are held at the close of the student internship, and the Bachelor of Medicine degree is granted to successful candidates.

4. A regular internship division, covering four quarters, during which students are registered as regular interns in approved hospitals, where their educational work is supervised and certified to the school. A year of advanced laboratory work or a year of public-health work may be accepted in lieu of the advanced internship.

By the successive use of the four quarters of study in each year, the student may complete his clinical requirements in two and one-half instead of three years. By the rotation of class divisions, one division is graduated at the close of each half-year, i.e., in December and June.

## MILITARY SCIENCE: RESERVE MEDICAL OFFICERS' TRAINING CORPS

A Reserve Medical Officers' Training Corps has been organized in the Medical School. The Surgeon General of the Army has detailed a medical officer as professor of Military Science and Tactics in this school.

### BASIC COURSE

Freshman and sophomore male medical students who are physically fit, (whether they have previously had military training or not), may enroll in the Basic Course. If they enroll, they must finish the course, unless legally relieved. There is an optional summer camp of six weeks between the freshman and sophomore years. Drill and the wearing of uniform are required only at the summer camp.

### ADVANCED COURSE

Junior and senior medical students who have had the above Basic Course or who have had the equivalent basic R.O.T.C. course in an academic college or elsewhere may be selected for the Advanced Course. Enrolment in this course is optional with the students so selected. Students in the Advanced Course receive about \$16 per month commutation of subsistence. Attendance of a six-week summer camp is required of all students in the Advanced Course. The student may select to take this camp upon the conclusion of the sophomore, junior, or senior year. Students receive \$30 per month while in camp; also travelling expenses.

Upon graduation and completion of the Advanced Course, if recommended by the professor of Military Science and Tactics, medical students become eligible for commission in the Medical Officers' Reserve Corps.

### LIBRARY

The library of the Medical School consists of the general medical library, housed in Millard Hall, and of collections of books in the departmental libraries of Surgery, Anatomy, Pathology, and Bacteriology. These departmental collections are available to students and investigators. The general library is open from 9 a.m. to 10 p.m. Some two hundred current journals are on file; 17,000 bound volumes and 35,000 unbound volumes and monographs, etc., are cataloged.

The General Library and the libraries of other schools and colleges in the University and of the Hennepin County and Ramsey County medical societies are accessible to students of medicine.

### PRIZES, FELLOWSHIPS, AND ASSISTANTSHIPS

*The Rollin E. Cutts Prize in Surgery.*—Dr. Martha Smith Cutts, '91 medical, established, as a memorial to her husband, the late Dr. Rollin E. Cutts, a fund of \$500, the income of which is awarded, in the form of a gold medal, to the member of the senior class of the Medical School who presents the best thesis evidencing original work upon an approved surgical subject.

*The Shevlin Fellowship.*—A fellowship, representing the income of \$10,000, established in the Graduate School by the late Thomas H. Shevlin, is open to candidates for one full year's work in medical research.

Several student assistantships and fellowships in the fundamental and clinical departments are available for properly prepared students.

### FEES

The quarterly fee in the Medical School is \$60 for residents of Minnesota and \$70 for non-residents, payable at the beginning of each quarter. No fee is charged for the final hospital or advanced laboratory year.

A health fee of \$2 per quarter is paid by each student.

A fee of \$1 per quarter is charged each student for the privilege of the Minnesota Union or Shevlin Hall.

A deposit of \$10 each year is required as a caution fee. This fee covers the cost of unnecessary damage to school buildings, breakage and loss of laboratory apparatus and material, fees for condition examinations, and rentals of postoffice box and lockers. Any balance remaining from this deposit will be returned to the student at the close of each year.

Students who take less than the regular course of study may arrange their fees at the rate of \$2.50 (non-residents \$3) for each weekly clock hour per quarter.

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

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

*Registration penalties.*—The penalty fee for late registration, late change of registration, or late payment of fees will be two dollars (\$2.00) and one dollar (\$1.00) additional for each day of delay after classes begin, provided that no student shall pay more than twelve dollars (\$12.00) of penalty in any given quarter.

### SELF-SUPPORT

The University maintains a Bureau of Employment. The medical course is difficult and should occupy the full time of students of average ability. However, a considerable number earn a part of their expenses throughout the school year. A few earn all their expenses, but as a rule students wholly dependent on themselves should take less than full work.

### MEDICAL WORK

Owing to possible legal and ethical implications, students may not engage in any kind of medical service or practice except by permission of the Students' Work Committee. Medical work includes service as assistant to a physician or clinic, residence or internship in a hospital, assistance in a medical laboratory, service as substitute or locum tenens, etc. Penalty for disobedience of this rule will be suspension from the school.



## MICROSCOPES

Each student must be provided, by purchase or rental, and throughout the entire four-year course, with a microscope of approved quality and equipment. Arrangements may be made through the dean for the purchase of microscopes.

In the fifth and sixth years each student is required to provide himself with a hemocytometer and a stethoscope of approved form.

## THE SUMMER SESSION

The summer quarter will be conducted in two terms: the first of six weeks' and the second of five weeks' duration. The session will begin about June 20.

Undergraduates in medicine are admitted in the summer session for the following purposes: (1) to secure advanced standing in courses of the regular session; (2) to remove conditions or failures; (3) for research or special study in medical subjects.

Pre-medical students may use the summer session to complete their entrance requirements.

For courses of instruction offered and schedule of tuition fees, see circular of information of the Summer School, for which address the registrar of the University.

## THE GRADUATE SCHOOL IN MEDICINE

The Graduate School in Medicine offers to suitably prepared graduates in medicine courses covering two and three years, leading to the degree of Master of Science or Doctor of Philosophy in the specialty in which the major work is done. The Graduate School includes the opportunities for study and research offered by the Mayo Foundation for Medical Education and Research, at Rochester, Minnesota.

Further information may be found in the announcement of the Graduate School or in the circular of information on graduate work in medicine. Application blanks for fellowships and scholarships may be had upon request.

## OPPORTUNITIES OF STUDY FOR PHYSICIANS

Physicians who desire to attend medical lectures and clinics for a limited period of time may obtain a visitor's ticket from the dean. They may enter for regular lecture and clinical courses in the Medical School upon payment of a fee of \$30 for each quarter. They may arrange for special courses of study in anatomy, physiology, experimental surgery, pathology, bacteriology, pharmacology, etc., at the same fee for each quarter, with additional charge for material used.

Short courses in various clinical specialties are offered by the Medical School in coöperation with the Extension Division of the University. Special circulars are sent on application.

*THE MEDICAL SCHOOL*

## THE SCHOOL OF NURSING

The School of Nursing is conducted in connection with the University Hospital. The regular course is three years. A combined course in the College of Science, Literature, and the Arts and the School of Nursing, leading to the degree of Bachelor of Science and Graduate in Nursing, is also offered. This course covers a period of five years.

For further information, see the bulletin of the School of Nursing.

## PUBLIC HEALTH NURSING

Courses in Public Health Nursing of four and eight months are conducted in the School of Nursing.

For further information, see special circular, to be had on request.

## THE COURSE IN EMBALMING

A Course in Embalming is conducted for a period of twelve weeks, commencing about January 1 each year. Certificates are issued to candidates successfully completing the course, and are accepted for state license by the State Board of Health.

Circular of information will be sent upon request.

## DEPARTMENTAL STATEMENTS\*

### ANATOMY

Professors CLARENCE M. JACKSON, JOHN B. JOHNSTON, THOMAS G. LEE, RICHARD E. SCAMMON; Associate Professors CHARLES A. ERDMANN, ANDREW T. RASMUSSEN; Instructors LLQYD B. DICKEY, HOMER B. LATIMER, HELEN MACKEEN, GUSTAV J. NOBACK, HJALMAR L. OSTERUD; Assistant L. M. A. MAEDER; Teaching Fellows RUTH HERRICK, SHIRLEY P. MILLER, ELWYN H. WELCH.

Departmental Office, Institute of Anatomy

#### REQUIRED COURSES

- 1W. ANATOMY FOR EMBALMERS. 55 hours. DR. ERDMANN and Assistants.
- 2f,w,s,su. ELEMENTARY HUMAN ANATOMY. School of Nursing. 33 hours; 3 credits.† MISS MACKEEN, MISS HERRICK.
- 3s. HUMAN ANATOMY. For students in Physical Education. 66 hours; 4 credits. MISS MACKEEN.
- 5f,su-6w,su-7s,su. GROSS HUMAN ANATOMY. Dissection, including osteology. Every student required to dissect lateral half of the body. Third-year medical students. 330 hours; 18 credits. DR. JACKSON, DR. ERDMANN, MR. DICKEY, MR. NOBACK, MR. OSTERUD.
- 9f-10w. SYSTEMATIC ANATOMY. Lectures and recitations on the gross morphology of the various systems of the body. Laboratory work upon human and mammalian material. Freshman dental students. 220 hours; 10 credits. DR. JACKSON and Assistants.
- 11s. ANATOMY OF THE HEAD AND NECK. Dissection of the human head and neck, with lectures and recitations. Sophomore dental students. 99 hours; 5 credits. DR. ERDMANN and Assistants.
- 14w,su. HISTOLOGY AND EMBRYOLOGY. Minute structure and development of the tissues and organs. Second-year dental students. Prerequisite: Courses 9f-10w,11s. 143 hours; 8 credits. DR. JACKSON, DR. LEE, and Assistants.
- 103s,su. HUMAN HISTOLOGY. Microscopic study of the various tissues and organs. Third-year medical students. Prerequisite: Course 5-6. 165 hours; 9 credits. DR. SCAMMON and Assistants.

\* The letters f, w, s, and su indicate that the corresponding courses are offered in the fall, winter, spring, and summer quarters, respectively. Numbers joined by hyphen indicate that the course is continued through more than one quarter. Letters separated by commas indicate the repetition of the course in corresponding quarters.

† Credits, as stated in this bulletin, are on the quarter system; they are comparable with semester credits upon a ratio of three to two.

- 107s,su. HUMAN EMBRYOLOGY. Development of the human body. Third-year medical students. Prerequisite: Course 5-6. 99 hours; 6 credits. DR. LEE, DR. SCAMMON, and Assistants.
- 111f,su. HUMAN NEUROLOGY. A study of the central nervous system and sense organs. Fourth-year medical students. Prerequisite: Courses 103, 107. 110 hours; 6 credits. DR. RASMUSSEN and Assistants.

## ELECTIVE COURSES

- 121f,s. ANATOMICAL TECHNIC. Microtechnic, reconstruction and museum methods, etc. 66 hours; 3 credits. DR. LEE.
- 126f,w,su. ADVANCED HISTOLOGY. A study of special preparations, including practice in the identification of unknown specimens. Prerequisite: Course 103. 33 hours; 1½ credits. DR. LEE, DR. RASMUSSEN.
- 129f-130w-131s.\* TOPOGRAPHIC ANATOMY. Based upon a study of serial cross-sections of the human body. Prerequisite: Course 5-6-7. 33 hours (or more); 2 credits (or more). DR. JACKSON.
- 133f,su. ANATOMY OF THE FETUS AND CHILD. A survey of prenatal and postnatal development. Prerequisites: Courses 5-6-7, 107. 33 hours; 3 credits. DR. SCAMMON.
- 134w,s.\* ANATOMY OF THE NEW-BORN. A detailed laboratory study of the anatomy of the new-born. Prerequisite: Course 133, or equivalent. 66 hours; 3 credits. DR. SCAMMON.
- 135f,su. PHYSICAL DEVELOPMENT OF CHILDHOOD. Lectures, with study of illustrative material. Primarily for students in the College of Education. 22 hours; 2 credits. DR. SCAMMON.
- 137f-138w-139s-140su.\* IMPLANTATION AND PLACENTATION. Fourth-, fifth-, or sixth-year medical, or graduate students. Prerequisite: Course 107, or equivalent. 66 hours; 3 credits. DR. LEE.
- 143s. APPLIED ANATOMY. Relationships, with reference to clinical applications. Medical or graduate students. Prerequisite: Course 5-6-7. 33 hours; 1½ credits. DR. ERDMANN.
- 145f-146w.\* SPECIAL DISSECTIONS. Dissections of special regions, including preparation of museum specimens. Prerequisite: Course 5-6-7. 33 hours; 1½ credits. DR. ERDMANN.
- 149w. EXPERIMENTAL NEUROLOGY. A study of the morphology of the central nervous system as determined by experimental methods. Prerequisite: Course III. 66 hours; 3 credits. DR. RASMUSSEN.

---

\* These courses may be taken continuously through three or four quarters or in any one quarter.

- 153f-154w-155s-156su.\* **ADVANCED ANATOMY.** Advanced work, largely individual in character, in gross anatomy, histology, embryology, or neurology. Hours and credits to be arranged. DR. JACKSON, DR. JOHNSTON, DR. LEE, DR. SCAMMON, DR. RASMUSSEN.
- 160f-162w-163su.\* **SEMINAR IN GROWTH OF CHILDREN.** A study with graphic analysis of data on physical development of children of school age. Prerequisite: Course 135, or equivalent. Hours and credits to be arranged. DR. SCAMMON.
- 201f-202w-203s-204su.\* **RESEARCH IN ANATOMY.** Research work in gross or microscopic anatomy, neurology, histology, or embryology. Hours and credits to be arranged. DR. JACKSON, DR. JOHNSTON, DR. LEE, DR. SCAMMON, DR. RASMUSSEN.
- 205f-206w-207s.\* **ANATOMICAL SEMINAR.** Presentation and discussion of research work in progress in the department, together with reviews of current anatomical literature. 11 hours; 1 credit. DR. JACKSON.

### PHYSIOLOGY

Professors ELIAS P. LYON, JESSE F. MCCLENDON, FREDERICK H. SCOTT; Associate Professors RICHARD OLDING BEARD, FRANCIS B. KINGSBURY, CHAUNCEY J. V. PETTIBONE; Instructors CHARLES C. GAULT, ESTHER GREISHEIMER, GERTRUDE I. THOMAS; † Teaching Fellows HATTIE E. SPAHR, WILLIAM W. SWANSON.

Departmental Office, Millard Hall

### REQUIRED COURSES

- 4f,w,s,su. **HUMAN PHYSIOLOGY.** A course offered to students of the College of Science, Literature, and the Arts, to nurses, students in home economics, etc. Lectures and laboratory work. Prerequisites: high-school or college biology and chemistry. 5 credits. DR. LYON, DR. BEARD, DR. GAULT, and Assistants.
- 5f,w,s,su. Same as Course 4 without laboratory work. Pharmacy students. 4 credits. DR. LYON, DR. BEARD, DR. GAULT, and Assistants.
- 56f. **PHYSIOLOGIC CHEMISTRY.** Intermediate course. For students of physical education, and others. Prerequisite: biology and general chemistry. 66 hours; 4 credits. DR. PETTIBONE and Assistants.
- 56x s,su. **PHYSIOLOGIC CHEMISTRY.** Intermediate course. For dental students and others. Prerequisite: biology and organic chemistry. 99 hours; 5 credits. DR. KINGSBURY and Assistants.
- 57w-58s. **HUMAN PHYSIOLOGY.** An intermediate course. Dental students, physical education students, and others. Prerequisites: inorganic chemistry and anatomy or zoology. 66 hours; 4 credits each quarter. DR. LYON, DR. SCOTT, and Assistants.

\* Approval of instructor required.

† Dietitian University Hospital, cooperating in Course 137.

- 100su,f-101su,w. **PHYSIOLOGIC CHEMISTRY.** The components of the animal body; foods, digestion, the excreta, and metabolism. Third-year medical students and others. Prerequisite: organic chemistry and physics. 198 hours; 12 credits. DR. McCLENDON, DR. KINGSBURY, DR. PETTIBONE, and Assistants.
- 103su,f. **PHYSIOLOGY OF MUSCLE, NERVE, BLOOD, CIRCULATION, DIGESTION.** Fourth-year medical students and others. Prerequisites: organic chemistry and animal biology. 121 hours; 8 credits. DR. LYON, DR. SCOTT, DR. GAULT, and Assistants.
- 104w,su. **PHYSIOLOGY OF THE NERVOUS SYSTEM AND SPECIAL SENSES, RESPIRATION, METABOLISM, NUTRITION, AND EXCRETION.** Fourth-year medical students and others. Prerequisites: Course 103 or organic chemistry and neurology. 121 hours; 8 credits. DR. LYON, DR. SCOTT, DR. BEARD, and Assistants.

## ELECTIVE COURSES

108. **SEMINAR IN PHYSIOLOGIC OPTICS.** For graduate and medical students. 22 hours; 2 credits. DR. LYON.
110. **PHYSIOLOGIC OPTICS.** A laboratory course. For graduate and medical students. 33 hours; 1 credit. DR. LYON.
- 113su,f,w,s. **PROBLEMS IN PHYSIOLOGY.** Arranged by instructors with qualified students. Each student will be assigned a topic for special laboratory study, leading in some cases to original investigation. Conferences and reading. Prerequisite: Course 103-104 or equivalent. 66 hours; 3 credits or arrange. DR. LYON, DR. SCOTT, DR. GAULT, DR. GREISHEIMER.
- 115s. **APPLIED PHYSIOLOGY.** The application of physiology as a basis for interpretation of symptoms and signs of abnormal function. Three lectures weekly. 3 credits. DR. GAULT.
- 131w. **ADVANCED PHYSIOLOGY OF MUSCLE, BLOOD, CIRCULATION, AND DIGESTION.** Alterations due to physiologic conditions. Prerequisite: Physiology 103. 66 hours; 3 credits. DR. SCOTT.
- 132s. **ADVANCED PHYSIOLOGY OF RESPIRATION, EXCRETION, METABOLISM, NERVOUS SYSTEM, AND SENSE ORGANS.** Conferences and laboratory work. Prerequisite: Physiology 104. 66 hours; 3 credits. DR. SCOTT.
- 137f. **FOODS AND PRACTICAL DIETETICS.** A study of human foods and food values; of the principles of food selection; of caloric indices and balanced dietaries. Exercises in the practical preparation of foods. Prerequisite: physiologic chemistry. Limited to twelve students. 66 hours; 3 credits. DR. BEARD, MISS THOMAS.
- 153f,w,s,su. **ADVANCED PHYSIOLOGIC CHEMISTRY.** Course arranged by instructors with qualified students for special work. May be taken one or more quarters. Prerequisite: Course 100-101. Hours and credits arranged. DR. McCLENDON, DR. KINGSBURY, DR. PETTIBONE.

- 155f. SOME NEWER ASPECTS OF NUTRITION. Rôle of vitamins and inorganic constituents in nutrition; preservation of food to preserve vitamins; purification of vitamins; effect of vitamin deficiency on mineral metabolism; chemistry of rickets and pellagra. Prerequisite: Course 100-101. DR. McCLENDON.
- 162w. CHEMICAL ANALYSIS OF BLOOD. Laboratory work to determine the chemically important constituents. Lectures and reading. Prerequisite: Physiology 101. 66 hours; 3 credits. DR. KINGSBURY.
- 163s. METABOLISM. Lectures and laboratory work on special phases of metabolism. Lectures may be taken alone; number of students unlimited. 22 hours; 2 credits. Laboratory course limited to ten students. 33 hours; 1 credit. Prerequisite: Physiology 101. DR. PETTIBONE.
- 201f,w,s. SEMINAR IN PHYSIOLOGY AND PHARMACOLOGY. For instructors and advanced students. 11 hours; 1 credit. DR. LYON, DR. HIRSCHFELDER, and Staff.
- 203f,w,s,su. RESEARCH IN PHYSIOLOGY. Hours and credits arranged. DR. LYON, DR. SCOTT.
- 205f,w,s,su. RESEARCH IN PHYSIOLOGIC CHEMISTRY. Hours and credits arranged. DR. McCLENDON, DR. KINGSBURY, DR. PETTIBONE.

### PHARMACOLOGY

Professor ARTHUR D. HIRSCHFELDER; Associate Professor EDGAR D. BROWN; Assistant ALLEN T. NEWMAN; Teaching Fellows JOHN P. QUIGLEY, HERMAN JENSEN.

Departmental Office, Millard Hall

#### REQUIRED COURSES

- 1f,w. ELEMENTARY PHARMACOLOGY. A study of drugs; definition of terms; systems of weights and measures; methods of administration, principles of dosage, etc. For nurses and others. 44 hours; 4 credits. MR. QUIGLEY.
- 4w. DENTAL PHARMACOLOGY. The study of drugs, including the discussion of their physiologic, pharmacologic, and therapeutic actions. For second-year dental students. 44 hours; 4 credits. DR. BROWN.
- 6w. EXPERIMENTAL PHARMACOLOGY. Experiments upon the effects of the important heart and nerve stimulants, sedatives, purgatives, and antiseptics. Offered to dental and pharmacy students and nurses. 22 hours; 1 credit. DR. HIRSCHFELDER, DR. BROWN, DR. NEWMAN.
- 101w. INTRODUCTION TO PHARMACOLOGY. Discussion of the various types of pharmaceutical preparations; dosage; principles and prescription-writing; relation of physico-chemical and structural considerations to the action of drugs on the body. Fourth-year medical students. 22 hours; 2 credits. DR. HIRSCHFELDER, DR. BROWN.

- 102s. GENERAL PHARMACOLOGY. A detailed study of drugs important in clinical practice, covering the relation of chemical structure to physiologic and therapeutic action, and modes of application in medicine. Part I. Fourth-year medical students. 33 hours; 3 credits. DR. HIRSCHFELDER, DR. BROWN.
- 104s,su. EXPERIMENTAL PHARMACOLOGY. Exercises illustrating the preparation and action of medicines, their relation to chemical structure, and their mode of administration. Fourth-year medical students. 66 hours; 3 credits. DR. HIRSCHFELDER, DR. BROWN, MR. QUIGLEY.
- 105su,w. GENERAL PHARMACOLOGY. Same as Course 102, in continuation. Part II. Fifth-year medical students. 22 hours; 2 credits. DR. HIRSCHFELDER, DR. BROWN.
- 106f. GENERAL PHARMACOLOGY. Same as Course 102, in continuation. Part III. Fifth-year medical students. 22 hours; 2 credits. DR. HIRSCHFELDER, DR. BROWN.
- 107w,su. THERAPEUTIC CONFERENCE. Discussion of the treatment of diseases based upon a study of notes of typical cases. Advanced clinical division, 11 hours. DR. HIRSCHFELDER, DR. BROWN.
- 108f,w. PRESCRIPTION-WRITING. The principles of prescription-writing; studies in the flavoring, coloring, and incompatibles of drugs. Fifth-year. 11 hours. DR. BROWN.

## ELECTIVE COURSES

- 109f,w,s,su. PHARMACOLOGICAL PROBLEMS. An intensive experimental study of some special topics in pharmacology, with a critical review of the literature bearing upon the subject. Hours and credits arranged. DR. HIRSCHFELDER, DR. BROWN.
- 110f,su. DETECTION OF POISONS. Hours and credits arranged. DR. HIRSCHFELDER, DR. BROWN.
- 201f,w,s. SEMINAR IN PHYSIOLOGY AND PHARMACOLOGY. Reviews of research and recent literature bearing upon physiologic and pharmacologic subjects. 11 hours; 1 credit. Staff.
- 203su,f,w,s. RESEARCH IN PHARMACOLOGY. Open to graduate and advanced students. Hours and credits arranged. DR. HIRSCHFELDER, DR. BROWN.

## PATHOLOGY AND PUBLIC HEALTH

Professors HAROLD E. ROBERTSON, ELEXIOUS T. BELL, JOHN SUNDWALL; Assistant Professors MOSES BARRON, MARGARET WARWICK; Instructors HILDING C. ANDERSON, HAROLD S. DIEHL, JAMES SHEARER McCARTNEY, JR., THEODORE H. SWEETSER; Assistant DONALD C. BEAVER; Teaching Fellow DONALD W. DE CARLE.



## Departmental Office, Institute of Anatomy

## REQUIRED COURSES

- 4f. PATHOLOGY FOR STUDENTS IN DENTISTRY. The principles of general pathology with special consideration of diseases peculiar to the mouth and teeth. 99 hours; 6 credits. DR. BELL, DR. ANDERSON, DR. MCCARTNEY, MR. DE CARLE.
- 101w. PATHOLOGY. Part I. The general principles governing pathologic changes, including disturbances of the circulation and metabolism; inflammation, regeneration, and repair; tumor formation. Fourth-year medical students. Prerequisites: histology, embryology, and special bacteriology. 165 hours; 9 credits. DR. ROBERTSON, DR. BELL, DR. ANDERSON, DR. MCCARTNEY, DR. BEAVER, MR. DE CARLE.
- 102s. PATHOLOGY. Part II. The study of the pathologic processes of infectious diseases, such as diphtheria, typhoid fever, etc.; the special pathology of lesions in various organs, systems of organs, and tissues of the body. Fourth-year medical students. Prerequisite: Pathology, Part I. 165 hours; 9 credits. DR. ROBERTSON, DR. BELL, DR. ANDERSON, DR. MCCARTNEY, DR. BEAVER, MR. DE CARLE.
- 103f,w. PREVENTIVE MEDICINE AND HYGIENE. The principles of personal and communal hygiene and of general procedures for the protection of the public health. Fifth-year medical students. 33 hours; 3 credits. DR. SUNDWALL.
- 104su,f,w,s. AUTOPSIES. Technic; making records; examination of fresh organs. Microscopic study. Three or four students called to each post-mortem; excused from classes. Candidates for M.D. degree must assist in at least four autopsies. Fifth- and sixth-year medical students. Staff.

## ELECTIVE COURSES\*

106. PATHOLOGIC TECHNIC. Methods of preparation of microscopic and gross specimens; practice with freezing microtome, celloidin and paraffin embedding methods, general and special stains, preparation of museum specimens, etc. Prerequisite: Pathology 101. 33 hours; 1 credit.
- 107f,w,s. APPLIED PATHOLOGY. Laboratory studies in the examination of routine operative and autopsy specimens, with investigation of special, associated problems.
108. DIAGNOSIS OF TUMORS. The study of tumors and other pathologic conditions simulating tumor formation. Prerequisite: Pathology 102.
- 109su,f,w,s. CLINICAL PATHOLOGICAL CONFERENCE. Presentation and comparison of clinical data on selected cases by clinicians, and of the pathological specimens from these same cases, by the pathologist, with discussions of etiology and diagnosis. 11 hours in each quarter. Required in clerkship period. Staff.

\* Assignment of elective courses to individual staff members will appear in quarterly programs.

ELECTIVES in coöperation with the respective clinical departments. Studies of the pathologic conditions found in the diseases peculiar to each of the specialties listed below. Lesions demonstrated by gross and microscopic specimens.

110. GYNECOLOGICAL PATHOLOGY.

111. NEUROPATHOLOGY.

112. SURGICAL PATHOLOGY.

113. PATHOLOGY OF DISEASES OF THE EYE, EAR, NOSE, AND THROAT.

114. PATHOLOGY OF DISEASES OF CHILDREN.

201. RESEARCH. Graduate students, of the necessary preliminary training, may elect research, either as major or minor in pathology. Hours and credits to be arranged.

#### BACTERIOLOGY AND IMMUNOLOGY

Professor WINFORD P. LARSON; Associate Professor ARTHUR T. HENRICI; Instructors ANNE BENTON, DAVID O. SPRIESTERSBACH; Assistant ROBERT C. GREEN; Teaching Fellow MADELIENE GUILLEMIN; Shevlin Fellow BERYL SPARKS GREEN.

Departmental Office, Millard Hall

#### REQUIRED COURSES

1su,f,w,s. GENERAL BACTERIOLOGY. Culture media; methods of staining and identification; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries. Prerequisites: general chemistry and one year of a biological science. 99 hours; 5 credits. Division for medical students: DR. LARSON and Assistants. Division for dental students: DR. HENRICI and Assistants. Divisions for other students: MISS BENTON and Assistants.

3w. BACTERIOLOGY FOR EMBALMERS.

10if,su. SPECIAL BACTERIOLOGY. The pathogenic bacteria, especially in relation to definite diseases; principles of infection and immunity. Fourth-year medical students and others. Prerequisite: general bacteriology. 66 hours; 4 credits. DR. LARSON and Assistants.

102s. SPECIAL BACTERIOLOGY FOR DENTAL STUDENTS. The mouth flora; systemic diseases secondary to focal infections of the mouth. Prerequisite: general bacteriology. 66 hours; 4 credits. DR. HENRICI and Assistants.

#### ELECTIVE COURSES

103w. SPECIAL BACTERIOLOGY FOR STUDENTS OF AGRICULTURE. Bacteriology of the soil; the nitrogen-fixing bacteria; bacteria that cause plant diseases; bacterial diseases of domestic animals; the bacteriology of milk and dairying. Prerequisite: general bacteriology. 66 hours. 4 credits. DR. HENRICI and Assistants

- 105f. HOUSEHOLD BACTERIOLOGY. The decay, fermentation, and putrefaction of food-stuffs; molds; canning; bacterial food-poisoning. Prerequisite: general bacteriology. 44 hours; 3 credits. MISS BENTON.
- 114s. THE HIGHER BACTERIA. Study of morphology, cultivation, and classification of actinomycetes, yeasts, and molds. Prerequisites: general and special bacteriology. 44 hours; 3 credits. DR. HENRICI.
- 116w. COURSE IN IMMUNITY. Laws of hemolysis. Quantitative relationship between antigen and antibody. Wassermann reaction. Opsonins. Vaccines. Precipitin reaction. Blood-grouping. Abderhalden reaction. Anaphylaxis. 44 hours; 3 credits. DR. LARSON.
- 117s. PATHOGENIC PROTOZOA. Study of parasitic protozoa of man, including spirochaets; their morphology and life histories; cultural methods. Prerequisites: general and special bacteriology; Animal Biology 144-145-146. 44 hours; 3 credits. DR. LARSON.
- 118f. MORPHOLOGY AND TAXONOMY OF BACTERIA. Cytology of bacteria; consideration of morphological, biochemical, and immunological characters as data for classification. Prerequisites: general and special bacteriology. 44 hours; 3 credits. DR. HENRICI.
- 119f. BACTERIOLOGICAL CHEMISTRY. Chemical analyses of bacteria; bacterial metabolism; factors stimulating enzyme production; nitrogen fixation. Prerequisites: general and special bacteriology; physiological chemistry or phytochemistry. 66 hours; 4 credits. MR. GREEN and Assistant.
- 120w. CONTINUATION OF 119f. Bacterial toxins; "split proteins"; bacterial activity in the alimentary tract; pigment production; autolysis of bacteria; immuno-chemistry; permeability of bacterial cells; behavior of bacteria toward electricity. 66 hours; 4 credits. MR. GREEN and Assistant.
- 150f-151w or 150w-151s. ADVANCED BACTERIOLOGY. Opportunity of working out special problems. Prerequisites: general and special bacteriology. Limited to ten students. Arrange credits. DR. LARSON, DR. HENRICI.
201. RESEARCH IN BACTERIOLOGY. Graduate students of the necessary preliminary training may elect research, either as majors or minors, in bacteriology. Hours and credits arranged. DR. LARSON, DR. HENRICI.
203. SEMINAR IN BACTERIOLOGY. 1 credit. Staff.

## MEDICINE

Professors S. MARX WHITE, ARTHUR S. HAMILTON, ARTHUR A. SWEENEY; Research Professor THOMAS B. HARTZELL; Associate Professors JAMES S. GILFILLAN, JOHN P. SCHNEIDER, SAMUEL E. SWEITZER, HENRY L. ULRICH; Assistant Professors ARCHIBALD H. BEARD, JOHN BUTLER, CHARLES D. FREEMAN, EDWIN L. GARDNER, ALEXANDER R.

HALL, ERNEST M. HAMMES, HARRY G. IRVINE, ANGUS W. MORRISON, GEORGE M. OLSON, ERNEST T. F. RICHARDS, ROBERT I. RIZER, FREDERICK W. WITTICH; Lecturer HENRY WIREMAN COOK; Instructors CHARLES R. DRAKE, OLGA S. HANSEN, EDGAR T. HERRMANN, HENRY N. KLEIN, JOHN A. LEPAK, CHAUNCEY A. MCKINLAY, ERNEST S. MARIETTE, JOSEPH C. MICHAEL, HENRY E. MICHELSON, R. EDWIN MORRIS, JAY A. MYERS, CHARLES E. NIXON, HARRY OERTING, THOMAS A. PEPPARD, FREDERICK H. K. SCHAAF, CARL W. WALDRON, CHARLES B. WRIGHT; Research Assistant WILLIAM A. GREY; Assistants ERIC T. W. BOQUIST, JAMES B. CAREY, EDWARD C. GAGER, WILLIAM H. HENGSTLER, GEORGE A. HOLM, CHARLES HYMES, KANO IKEDA, JOHN C. KOCH, DONALD MCCARTHY, ARTHUR E. MÄRK, MORRIS N. NATHANSON, HENRY ODLAND, WILLIAM A. SAWATSKY, DALE D. TURNACLIFF, ARCHIBALD W. WARD, SAMUEL A. WEISMAN, FRANK W. WHITMORE, LAURITZ S. YLVISAKER, THOMAS ZISKIN; Teaching Fellows CLIFFORD T. EKELUND, SOLOMON FINEMAN, JOHN C. MCKINLEY.

Departmental Office, Millard Hall

#### REQUIRED COURSES

- 50s. PHYSICAL DIAGNOSIS. Lectures on general symptomatology and on methods of physical examination, diagnosis, and record; with demonstrations and section-teaching in the dispensary. Fourth year. 66 hours. DR. SCHNEIDER, DR. SCHAAF, and Assistants.
- 51su,w,52f. THE PRINCIPLES AND PRACTICE OF MEDICINE. Systematic lectures, exclusive of neurology and neurologic diagnosis, q.v.; illustrated, so far as possible, by clinical material. Fifth year. 66 hours. DR. WHITE, DR. SCHNEIDER, DR. GARDNER, DR. RICHARDS, DR. RIZER, DR. WITTICH, DR. COOK, DR. PEPPARD.
- 53su,f,w. PHYSICAL DIAGNOSIS AND CASE-TAKING. Conducted, with sections of the class, in the following dispensary clinics: (1) cardiac and vascular diseases; (2) respiratory diseases and tuberculosis; (3) metabolic diseases; (4) gastro-intestinal diseases; (5) nervous diseases; (6) tuberculosis; (7) dermatology and syphilis; (8) stomatology; (9) gastro-intestinal special laboratory. See also Courses 77 and 81. Fifth year. 66 hours. DR. SCHNEIDER, DR. SWEITZER, DR. BEARD, DR. BUTLER, DR. IRVINE, DR. MORRISON, DR. OLSON, DR. WITTICH, DR. DRAKE, DR. HANSEN, DR. SCHAAF, DR. WALDRON, DR. WRIGHT.
- 54su,f. CLINICAL CHEMISTRY AND MICROSCOPY. Methods of laboratory examination for diagnostic purposes. Fifth year. 66 hours. DR. BEARD, DR. DIEHL.
- 55su,f. PHYSICAL DIAGNOSIS. A course of lectures in elaboration of the practical work in the out-patient service. Fifth year. 11 hours. DR. SCHNEIDER, DR. RIZER, DR. WITTICH, DR. SCHAAF.

- 56su,w. PRACTICAL THERAPY AND THERAPEUTIC TECHNIC. A study of special methods of therapeusis. Fifth year. 11 hours. DR. MCKINLAY, DR. FINEMAN.
- 57f,w,su. CLINIC IN MEDICINE. Conducted in the University Hospital. First clinical period for two quarters. 22 hours. DR. BEARD, DR. RIZER.
- 58f,w,s,su. CLINIC IN MEDICINE. At University Hospital. Second clinical period. 22 hours. DR. RICHARDS.
- 59su,f,w. SECTION CLINICS IN MEDICINE. Conducted in the City and County Hospital, St. Paul, and in the Minneapolis General Hospital; a part of the course in required clinics. Fifth year. 17 hours. DR. GILFILLAN, DR. ULRICH, DR. GARDNER, DR. HALL, DR. PEPPARD.
- 60f. MOUTH INFECTIONS. The typical infections of the oral cavity and their causal relations to disease. 8 hours. DR. HARTZELL.
- 62f. MEDICAL JURISPRUDENCE. Principles of law, rules of evidence and duties of physicians in medico-legal cases. 16 hours. DR. SWEENEY.
- 63su,f,w,s. CLINIC IN MEDICINE. A study of cases and case histories in the University Hospital service. Advanced clinical period. 22 hours. DR. WHITE and Staff.
- 65su,f,w,s. CLINICAL CLERKSHIP. The personal observation of patients in hospital, taking and recording of case histories and making of provisional diagnoses, and study of treatment. Intermediate clinical period. 200 hours. DR. WHITE and Staff.

## ELECTIVE COURSES\*

- 100su,f,w,s. STUDENT INTERNSHIP. Resident study in an assigned hospital, covering the last two quarters of the senior year, under direction of the faculty members of the hospital staff; credit for medicine, 264 hours. Staff.
101. ASSISTANTSHIP IN THE DISPENSARY. In any of the out-patient services in medicine. Open to two students (who have completed clinical clerkships) in medicine in each service and in each quarter. Prerequisite: Course 65. Staff.
103. CLINICS IN MEDICINE. Bedside studies at the City and County Hospital, St. Paul. Limited to ten students. DR. GILFILLAN, DR. HALL.
105. CLINICS IN MEDICINE. Bedside studies at the Minneapolis General Hospital. Limited to six students. DR. ULRICH.
106. ADVANCED PHYSICAL DIAGNOSIS. Minneapolis General Hospital. Limited to six students. DR. GARDNER.

---

\* Electives in medicine are usually repeated each quarter. See quarterly programs.

107. GRAPHIC RECORDING AND FUNCTIONAL DIAGNOSIS OF CARDIO-VASCULAR DISEASES. A study of the use of the polygraph and electro-cardiograph. Limited to six students. DR. WHITE, DR. HANSEN.
108. STUDIES OF DISEASES OF THE CIRCULATION. Circulatory insufficiency, irregularity, organic diseases. Study of polygrams, electro-cardiograms, vascular diseases, blood pressure, cardio-vascular medication. Limited to six senior and graduate students. DR. MORRIS.
109. ADVANCED PHYSICAL DIAGNOSIS OF THE CHEST. Practical work on tuberculous patients at available hospitals. Limited to six students. DR. WITTICH and Associates.
110. STUDIES IN METABOLISM, CLINICAL AND EXPERIMENTAL. Limited to six students. DR. MCKINLAY.
111. PROBLEMS IN ADVANCED MEDICAL DIAGNOSIS. Limited to four students. DR. ULRICH.
112. PROBLEMS IN CARDIAC FUNCTION. Limited to six students. University Dispensary. DR. HANSEN.
114. EXTERNSHIP IN MEDICINE. Extension of clerkship. Arrange.

DIVISION OF NERVOUS AND MENTAL DISEASES  
REQUIRED COURSES

- 69f.w. NEUROLOGY AND NEUROLOGIC DIAGNOSIS. Methods of examination of the nervous system; lectures on the diseases of the nervous system. 33 hours. DR. HAMILTON, DR. HAMMES, DR. MORRISON.
- 70su.w. PSYCHIATRY. Methods of modern psychiatry; lectures on the various mental disorders. Sixth year. 11 hours. DR. HAMILTON.
- 71su,f,w,s. CLINICAL NEUROLOGY AND PSYCHIATRY. Section clinics in nervous and mental diseases at the University Hospital and the Minneapolis General Hospital, part of Division A, fifth-year required section clinics. 11 hours. DR. HAMILTON, DR. MORRISON, DR. NIXON.
- 71x f,w. SAME. Division B, fifth-year, City and County Hospital. DR. HAMMES.
- 75su,f,w,s. NERVOUS AND MENTAL DISEASES. The personal observation and study of cases in the University Dispensary; a part of required clinics. Fifth year. A part of Course 53. DR. MCKINLEY, DR. MICHAEL.
- 77su,f,w,s. PHYSICAL DIAGNOSIS AND CASE-TAKING. Sections of the class in neurology in the University Hospital. 8 hours, clerkship period. DR. HAMILTON and Staff.

ELECTIVE COURSES

113. PATHOLOGY OF THE NERVOUS SYSTEM. Pathologic lesions and signs and symptoms; the chief neurone systems and the principles underlying their degeneration. Limited to four students. Prerequisite: Course 60. DR. HAMILTON, DR. NIXON, DR. MCKINLEY.

115. ORGANIC NERVOUS DISEASES. The chief diagnostic procedures employed in the study of nervous diseases. Limited to four students. Prerequisite: Course 69. DR. HAMILTON and Staff.
116. SYPHILITIC NERVOUS AFFECTIONS. Referring particularly to dementia paralytica and tabes dorsalis. Limited to six students. DR. HAMMES.
118. REGIONAL DIAGNOSIS. A didactic and clinical conference on the regional diagnosis of lesions of the nervous system. Limited to four students. Prerequisite: Course 69. DR. MORRISON, DR. MCKINLEY.
119. CLINICAL ASSISTANTSHIP, in nervous and mental diseases in the Out-Patient Department. Sixth year. Open to two students. DR. MICHAEL, DR. MCKINLEY.

## DIVISION OF DERMATOLOGY

- 79su,w,8of. COURSE IN DERMATOLOGY. Clinical lectures upon the common skin diseases and syphilis, including diagnosis and treatment. Fifth year. 22 hours. DR. SWEITZER, DR. BUTLER.
- 81su,f,w. PHYSICAL DIAGNOSIS AND CASE-TAKING. Section of the class in dermatology and syphilis, in the Dispensary; a part of Course 53. DR. SWEITZER, DR. BUTLER, DR. IRVINE, DR. OLSON, DR. MICHELSON.

## ELECTIVE COURSES

121. ASSISTANTSHIP IN DERMATOLOGY, in the Out-Patient Department. Open to two students in each quarter. DR. SWEITZER, DR. BUTLER, DR. IRVINE, DR. OLSON.
- 122f,w,s,su. NIGHT CLINICS IN DERMATOLOGY AND SYPHILIS IN THE OUT-PATIENT DEPARTMENT. Open to four students in each quarter. DR. MICHELSON.
123. WARD CLINICS IN DERMATOLOGY. Conducted in City and County Hospital, St. Paul. Limited to ten students. DR. FREEMAN.

## DEPARTMENT OF SURGERY

Professors ARTHUR C. STRACHAUER, ARTHUR J. GILLETTE,\* CHARLES H. MAYO; Associate Professors ALEXANDER R. COLVIN, J. FRANK CORBETT, EMIL S. GEIST, CONRAD JACOBSON, ARTHUR A. LAW, WILLIAM LERCHE, ARCHIBALD MACLAREN, ARTHUR T. MANN, CHARLES A. REED, HARRY P. RITCHIE, JOHN T. ROGERS, FRANKLIN R. WRIGHT; Assistant Professors ROBERT G. ALLISON, CARL C. CHATTERTON, LOUIS E. DAUGHERTY, JAMES A. JOHNSON, OSCAR OWRE, FREDERICK H. POPPE, GILBERT J. THOMAS, ARCHA E. WILCOX, HARRY B. ZIMMERMAN; Instructors JOHN S. ABBOTT, WALLACE COLE, WALTER A. FANSLER, PAUL W. GESSLER, HUGO J. HARTIG, RALPH T. KNIGHT, WALTER J. KREMER, FREDERICK A. OLSON, EMIL C. ROBITSHEK, ROSCOE C. WEBB, ANTON G. WETHALL;

\* Died, March 24, 1921.

Assistants GEORGE R. DUNN, M. KELLER KNAUFF, FRANK S. MCKINNEY, ELLERY D. SIMPSON, JOSEPH J. STRATTE; Teaching Fellows ANGUS L. CAMERON, ARTHUR A. ZIEROLD; Health Service Fellow CHESTER O. TANNER.

Departmental Office, Millard Hall

#### REQUIRED COURSES

- 50f. BANDAGING. Instruction and practice. Fourth year. 11 hours. DR. WILCOX and Assistants.
- 51su,f. PRINCIPLES OF SURGERY. A study of the various surgical inflammations and processes; pathology and treatment. Principles underlying general surgical procedures. Lectures and demonstrations. Fifth year. 33 hours. DR. JACOBSON.
- 52f. PRINCIPLES OF SURGERY. Course for dental students; 33 hours. DR. JACOBSON.
- 53f,w. GENERAL SURGERY. The diseases and injuries of tendons, fasciae, bursae, blood vessels, nerves, brain, and meninges. Lectures and demonstrations. Fifth year. 33 hours. DR. LAW.
- 55w-56s,su. REGIONAL SURGERY. The practical surgery of the anatomical regions of the body, head, neck, thorax, abdomen, and extremities. Lectures and demonstrations. Fifth year. 44 hours. DR. STRACHAUER, DR. LERCHE, DR. RITCHIE, DR. JOHNSON.
- 58s. FRACTURES AND DISLOCATIONS. Lectures and demonstrations. Sixth year. 22 hours. DR. LAW, DR. DAUGHERTY, DR. WILCOX.
- 59su,f,w. DIAGNOSTIC CLINIC. A series of clinics upon the diagnosis of surgical conditions as presented in the Out-Patient Department. Fifth year. 11 hours. DR. JOHNSON.
- 63f,w,s,su. CLINICAL CLERKSHIPS. The personal study of assigned hospital patients, at the University Hospital, under supervision of the instructor; case histories, laboratory examinations, provisional diagnoses, with suggestions as to therapy; attendance at operations of such studied cases and observation of post-operative management. Practical instruction in anesthesia. 8 weeks; 120 hours. Staff.
- 65f,w,s,su. MINOR SURGICAL CLINICS. Sections daily at the Dispensary; a part of required clinics. 17 hours. DR. JOHNSON and Staff.
- 66s. MEDICAL ETHICS AND ECONOMICS. 2 hours. DR. MACLAREN, DR. ABBOTT.

#### ORTHOPEDIA

- 70f,w,s,su. ORTHOPEDIC SURGERY. A course of clinical lectures, demonstrations and operations conducted in each quarter, with divisions of the class, at the Hospital for Crippled and Deformed Children at Phalen Park. Clerkship period. 24 hours. DR. CHATTERTON, DR. COLE.



71f,w,s,su. ORTHOPEDIC CLINIC. A study of orthopedic disease and treatment at the Dispensary; a part of required section clinics. 8 hours. DR. REED, DR. GIESSLER.

72f,s. ORTHOPEDIC SURGERY. A course of lectures covering orthopedic conditions in the adult, with lantern slides and demonstrations. 11 hours. DR. GEIST.

## UROLOGY

73f,s. GENITO-URINARY DISEASES. The etiology, diagnosis, and treatment of this group of diseases. A course of lectures. Sixth year. 18 hours. DR. WRIGHT.

77f,w,s,su. GENITO-URINARY CLINIC. The observation, examination, and treatment of patients in the Dispensary; a part of required section clinics. 18 hours. DR. THOMAS, DR. KREMER, DR. WETHALL.

## ROENTGENOLOGY

79su,w. COURSE IN ROENTGENOLOGY. Lectures, demonstrations, and plate-reading. 11 hours. DR. ALLISON.

## ELECTIVE COURSES\*

67. CADAVER SURGERY. The technic and performance of the various standard operations upon the cadaver. DR. JACOBSON, DR. POPPE.

69. STUDENT INTERNSHIP. Resident study in an assigned hospital, covering the last two quarters of the senior year, under direction of the faculty members of the hospital staff. 176 hours assigned to surgery. Staff.

101. MINOR SURGERY. Clinical course conducted in the Out-Patient Department. DR. JOHNSON, DR. HARTIG, DR. ROBITSHEK, DR. MCKINNEY, DR. SIMPSON, DR. STRATTE.

102. PROCTOLOGY. A clinical course conducted in the Out-Patient Department. DR. FANSLER.

103. OPERATIVE SURGERY ON ANIMALS. A study of surgical technic by cardinal operations upon animals. DR. JACOBSON.

104a,b,c, etc. DIAGNOSTIC AND OPERATIVE CLINICS. Conducted at the University Hospital. DR. STRACHAUER, DR. MACLAREN, DR. LAW, DR. RITCHIE, DR. JOHNSON, DR. JACOBSON, DR. OLSON, DR. WEBB.

105a,b,c, etc. DIAGNOSTIC AND OPERATIVE CLINICS. Held at the Minneapolis General Hospital. DR. MANN, DR. CORBETT, DR. POPPE.

106a,b,c, etc. DIAGNOSTIC AND OPERATIVE CLINICS. Held at the City and County Hospital. DR. COLVIN, DR. DAUGHERTY, DR. ABBOTT, DR. ZIMMERMAN.

\* In general, electives in surgery are repeated quarterly.

107. EXTRACTION OF TEETH. Course conducted in the College of Dentistry. DR. GRIFFITH.
108. GENITO-URINARY CLINIC. Held at the University Dispensary. DR. THOMAS, DR. KREMER, DR. WETHALL.
109. UROLOGIC CLINIC. A course including endoscopy and cystoscopy, at the Minneapolis General Hospital. DR. OWRE.
110. GENITO-URINARY CLINIC. Conducted at the Minneapolis General Hospital. DR. WRIGHT, DR. OWRE, DR. KREMER.
111. ORTHOPEDIC CLINIC. Conducted at the University Dispensary. DR. REED, DR. GIESSLER.
112. ADVANCED CLERKSHIP IN SURGERY. Sixth year; arrange. Staff.
- 215w.s. THE SURGERY OF THE KIDNEY. A review of the embryology, anatomy, and pathology. Diagnosis; cystoscopic study, including kidney-function estimation, and pyelography. Operative technic. Studies of special problems. DR. STRACHAUER.
- 216w-217s. THE SURGERY OF THE BRAIN AND SPINAL CORD. Operative technic. Studies of special problems. Prerequisites: Anatomy 103; Medicine 113. DR. STRACHAUER.

### OBSTETRICS AND GYNECOLOGY

Professor JENNINGS C. LITZENBERG; Associate Professors FRED L. ADAIR, JOHN L. ROTHROCK; Assistant Professors LEE W. BARRY, WILLIAM H. CONDIT, JALMAR H. SIMONS; Instructors J. WARREN BELL, JAMES F. HAMMOND, MANLEY H. HAYNES, E. MENDELSSOHN JONES, RAE T. LAVAKE, CLARENCE O. MALAND, ALBERT G. SCHULZE, FREDERICK J. SOUBA, THURSTON W. WEUM, HERBERT M. N. WYNNE; Assistants GUSTAV T. NORDIN, CLARENCE E. WILLCUTT; Teaching Fellows LEROY A. CALKINS, SAMUEL B. SOLHAUG.

Departmental Office, Institute of Anatomy

#### REQUIRED COURSES

- 51su.f. OBSTETRICS. The physiology of pregnancy, labor and the puerperium. Fifth year. 33 hours. DR. ADAIR, DR. BARRY, DR. CONDIT.
- 52f.w. OBSTETRICS. The pathology of pregnancy, labor and the puerperium. Prerequisite: Course 51. Fifth year. 33 hours. DR. ADAIR, DR. BARRY, DR. CONDIT.
- 53s.f. OPERATIVE OBSTETRICS. A study of operative obstetrics. Prerequisites: Courses 51 and 52. 11 hours. DR. LITZENBERG, DR. ADAIR, DR. LAVAKE.
- 54su.f. GYNECOLOGY. A study of diagnostic methods in diseases of women. Fifth year. 11 hours. DR. LITZENBERG, DR. BARRY.

- 55w. GYNECOLOGY. A study of diseases of women. Prerequisite: Course 54. 22 hours. DR. LITZENBERG, DR. ADAIR, DR. BARRY, DR. CONDIT.
- 56su,w,57f,s. OBSTETRICS AND GYNECOLOGY. The pathology of pregnancy, labor and the puerperium, and of diseases of women. Lectures, demonstrations, class clinics, and case analysis. Prerequisites: Courses 51, 52, 53, 54, 55. 44 hours. DR. LITZENBERG, DR. BARRY.
- 58su,f,w,s. CLINICAL CLERKSHIP IN OBSTETRICS AND GYNECOLOGY. Study of assigned patients in University Hospital; case histories; physical examinations, laboratory examinations; parturition clinics; operations; manikin demonstrations. 34 hours. Staff.
- 59s,f,w,su. CLINICS IN OBSTETRICS AND GYNECOLOGY. University Dispensary. Part of required section clinics, clerkship period. 17 hours. DR. LAVAKE and Associates.
- 60su,f,w. PARTURITION CLINICS. Sections of the class on call for parturition clinics at the General Hospital, Minneapolis. Fifth year. DR. ADAIR and Associates.
- 61su,f. CLINICS IN OBSTETRICS AND GYNECOLOGY. Conducted in the Minneapolis General Hospital; a part of the required section clinics. Fifth year. Division A. 17 hours. Staff.
- 62f,w. Same as Course 61. Fifth year. Division B, City and County Hospital, St. Paul. Staff.

## ELECTIVE COURSES\*

- 101f,w,s,su. STUDENT INTERNSHIP. Part of a general student internship, giving 88 hours' credit in Obstetrics and Gynecology. Staff.
104. GYNECOLOGIC CLINIC. Diagnosis and treatment of diseases of women. St. Paul Dispensary. Two students. DR. ROTHROCK, DR. BARRY.
105. GYNECOLOGIC CLINIC. Diagnostic and operative clinic in diseases of women. City and County Hospital, St. Paul. DR. HAMMOND, DR. JONES.
106. OBSTETRICS CLINIC. The diagnosis and treatment of obstetric conditions. City and County Hospital, St. Paul. DR. BARRY, DR. SCHULZE.
108. CLINICS IN OBSTETRICS AND GYNECOLOGY. Minneapolis General Hospital. DR. ADAIR, DR. SIMONS, DR. LAVAKE, DR. MALAND, DR. SOUBA.
109. APPLIED ANATOMY OF THE PELVIS. The anatomy of the female generative organs using anatomical specimens, models, and the patient for demonstration. University Dispensary. DR. LAVAKE.

---

\* Elective courses in this department are usually repeated each quarter. See quarterly programs.

110. **PRENATAL CLINICS.** Antepartum care of pregnant women at the various prenatal stations: limited to one student at each station. DR. ADAIR, DR. SIMONS, DR. MALAND, DR. NORDIN.
111. **ADVANCED PATHOLOGY OF THE FEMALE PELVIS.** Gross and microscopic study of the pathological conditions of the female generative organs. Prerequisites: general and special pathology. DR. ADAIR.
112. **PATHOLOGIC OBSTETRICS.** Minneapolis General Hospital. Demonstration of abnormal obstetric cases and operative procedure. One clinic each week. Limited to six senior students. DR. ADAIR.
113. **OPERATIVE GYNECOLOGY.** Demonstrations of gynecological and post-operative treatment. Limited to six senior students. DR. ADAIR.
114. **CLINIC IN OBSTETRICS AND GYNECOLOGY.** Dispensary, Minneapolis General Hospital. Limited to two students. DR. SIMONS, DR. LAVAKE, DR. MALAND, DR. SOUBA, DR. WILLCUTT.
115. **ADVANCED CLERKSHIP IN OBSTETRICS AND GYNECOLOGY.** Sixth year. Arrange. Staff.
116. **GYNECOLOGIC CLINICS.** Bedside studies of St. Paul City and County Hospital. DR. HAMMOND, DR. JONES.
201. **ADVANCED OBSTETRICS AND GYNECOLOGY.** Includes service in the University Hospital, affording opportunity for experience in diagnosis; care, treatment, and research. Required of first-year fellows. DR. LITZENBERG and Staff.
202. More advanced subjects in clinical and research aspects. Second-year fellows. DR. LITZENBERG and Staff.
203. Still more advanced. Third-year fellows. DR. LITZENBERG and Staff.
204. **SEMINAR.** A weekly conference for fellows and graduate students. Presentation and discussion of original work and reports upon current literature. French and German, necessary. Staff.
205. **RESEARCH.** Clinical and laboratory research upon problems in obstetrics and gynecology. Required of third-year fellows, who must complete a satisfactory thesis during the year. Staff.

#### PEDIATRICS

Professor JULIUS PARKER SEDGWICK; Associate Professors JAMES T. CHRISTISON, WALTER R. RAMSEY, FREDERICK C. RODDA; Assistant Professors EDGAR J. HUENEKENS, MAX SEHAM, ROOD TAYLOR; Instructors NABOTH O. PEARCE, MILDRED ZIEGLER; Assistants EDWARD D. ANDERSON, JOHN D. GEISSINGER, GEORGE K. HAGAMAN, GRIFFITH M. JONES, GLENN R. MATCHAN, CECILE R. MORIARTY, DANIEL F. NOONAN, MARTIN D. OTT, EDWIN F. ROBB, W. RAY SHANNON, EUGENE F. WARNER; Teaching Fellows HYMEN S. LIPPMAN, LAWRENCE F. RICH-  
DORF, CHESTER A. STEWART.

---

Departmental Office, Millard Hall

---

## REQUIRED COURSES

- 100su,f. PHYSICAL DIAGNOSIS IN CHILDREN. A study of special diagnostic methods and results, applied to pediatrics. Conducted in sections of class. Fifth year. 11 hours. DR. TAYLOR.
- 101su,f. DISEASES OF CHILDREN. Diseases peculiar to, or distinctive of, children, with particular emphasis upon their differences from adult type. Fifth year. 33 hours. DR. SEDGWICK, et al.
- 102f,w. DISEASES OF CHILDREN. A continuation of Course 101. Fifth year. 22 hours. DR. SEDGWICK, et al.
- 103su,f. CLINIC IN PEDIATRICS. Conducted at the University Hospital and Minneapolis General Hospital; a part of course in required clinics. Sections of class. Fifth year. 17 hours. DR. SEDGWICK, DR. HUENEKENS, DR. RODDA, and Assistants.
- 103x f,w. Same, fifth year. Division B, St. Paul City and County Hospital. DR. CHRISTISON, DR. RAMSEY, and Assistants.
- 104su,f. CLINICS IN CONTAGIOUS DISEASES. Conducted in the Minneapolis General Hospital; a part of course in required clinics. Sections of class. Fifth year. 17 hours. DR. HUENEKENS and Assistants.
- 104ax f,w. Same for Division B. Fifth year. City and County Hospital, St. Paul. DR. CHRISTISON, DR. RAMSEY, and Assistants.
- 106f,w,s,su. OUT-PATIENT PEDIATRIC CLINIC. The practical study of the diseases of children in the Out-Patient Service. Sections of intermediate clinical division. 34 hours. DR. SEHAM and Assistants.
- 107f,w,s,su. CLINICAL CLERKSHIP IN PEDIATRICS. The observation and study of patients in University Hospital and Out-Patient Department under supervision of staff; recording case histories; making physical examinations and provisional diagnoses; following details of treatment. Sections of intermediate division. 34 hours. Staff.

## ELECTIVE COURSES\*

108. STUDENT INTERNSHIP. A course of resident study in an assigned hospital, covering two quarters. Sixth year. Under direct supervision of faculty members of hospital staff. Credit for pediatrics, 88 hours. Staff.
- III. DISEASES OF THE NEW-BORN. The pathology and treatment of these disorders, with the presentation of illustrative cases. Limited to six students. DR. SEDGWICK, DR. RODDA, et al.

---

\* Electives in pediatrics usually repeated each quarter. See Medical School quarterly programs.

112. CONTAGIOUS DISEASES. The advanced study of contagious diseases, including the practice of intubation and tracheotomy, with training upon the cadaver. DR. HUENEKENS.
113. PEDIATRIC CLINIC. Out-Patient Department. Limited to six students. DR. SEHAM.
114. COURSE IN INFANT-FEEDING. Conducted at the St. Paul Baby Welfare Clinic of the H. Amherst Wilder Charity. DR. RAMSEY.
115. THEORY AND PRACTICE OF INFANT-FEEDING. Including a study of diseases of the gastro-intestinal tract. Limited to six students. DR. HUENEKENS.
117. CLINICS IN PEDIATRICS. Conducted in the Out-Patient Service. DR. SEHAM.
119. CLINICS IN PEDIATRICS. Conducted at the University Hospital. DR. RODDA.
120. CLINICS IN PEDIATRICS. Conducted at Lymanhurst, Children's Department, Minneapolis General Hospital. DR. HUENEKENS.
121. CLINIC IN CONTAGIOUS DISEASES. Conducted at the City and County Hospital, St. Paul. Limited to ten students. DR. RAMSEY, DR. WARNER.
122. COURSE IN THE PATHOLOGY OF THE DISEASES OF CHILDREN. Given in conjunction with the Department of Pathology. Conducted at the University Hospital and at the Department of Pathology. (See Pathology 114.) DR. SHANNON.

#### OPHTHALMOLOGY AND OTO-LARYNGOLOGY

Professor WILLIAM R. MURRAY; Associate Professor FRANK E. BURCH; Assistant Professors HOWARD S. CLARK, JOHN S. MACNIE, HORACE NEWHART, FRED J. PRATT; Instructor WALTER E. CAMP, WILLIAM W. LEWIS, WILLIAM E. PATTERSON, KENNETH A. PHELPS, JOHN A. PRATT, G. ELMER STROUT; Assistants JOHN C. BROWN, HENDRIE W. GRANT, CHARLES E. CONNOR, ERLING W. HANSON, ARTHUR L. KUSSKE, EARL A. LOOMIS, JOHN L. SHELLMAN; Teaching Fellows ELLERY L. ARMSTRONG, VIRGIL J. SCHWARTZ.

Departmental Office, Millard Hall

#### REQUIRED COURSES

- 77su,w. OPTHALMOLOGY. A course of lectures upon the diseases and disorders of the eye, and their corrective, medical, and surgical treatment. Sixth year. 22 hours. DR. MURRAY, DR. BURCH.
- 79f,s. OTOLOGY. Diseases and disorders of the ear; medical and surgical treatment. Sixth year. 11 hours. DR. NEWHART.

- 811,s. RHINOLOGY AND LARYNGOLOGY. The diagnosis and treatment of diseases of the nose and throat. Sixth year. 17 hours. DR. MURRAY.
- 83su,f,w,s. CLINICS IN EYE, EAR, NOSE, AND THROAT. Diagnostic and operative procedures in the clinics in the University Hospital. Sections, clerkship period. 15 hours. DR. MURRAY, DR. CLARK.
- 85su,f,ws. CLINIC IN DISEASES OF THE EYE. Study and treatment of cases in the Dispensary; part of required section clinics, clerkship period. 17 hours. DR. CLARK, DR. MACNIE, and Assistants.
- 87su,f,w,s. CLINIC IN DISEASES OF THE EAR. Study and treatment of cases in the Dispensary; part of required section clinics, clerkship period. 17 hours. DR. NEWHART and Assistants.
- 89su,f,w,s. CLINIC IN DISEASES OF THE NOSE AND THROAT. Study and treatment of cases in the Dispensary; part of required section clinics; clerkship period. 17 hours. DR. PATTERSON, DR. PRATT, and Assistants.

## ELECTIVE COURSES

101. STUDENT INTERNSHIP. A resident course in an assigned hospital, covering two quarters, sixth year, under supervision of the hospital staff. 22 hours' credit in ophthalmology and oto-laryngology.
115. CLINIC IN DISEASES OF THE EYE. The examination of patients, diagnosis of disease conditions and supervised treatment. University Dispensary. DR. CLARK, DR. MACNIE, and Assistants.
117. CLINICS IN DISEASES OF THE EAR. Studies in examination of cases, diagnosis, and supervised treatment. University Dispensary. DR. NEWHART and Assistants.
119. CLINIC IN DISEASES OF THE NOSE AND THROAT. The examination of patients, diagnosis of disease conditions and supervised treatment. University Dispensary. DR. PATTERSON, DR. PRATT, and Assistants.
121. OPERATIVE CLINICS IN EYE, EAR, NOSE, AND THROAT. University Hospital. Limited to ten students. DR. MURRAY, DR. CLARK.
123. REFRACTION. A course of lectures. Required of all desiring the practical Course 125. DR. BURCH.
125. PRACTICAL COURSE IN REFRACTION. Limited to ten students. Prerequisite: Course 123. DR. BURCH, DR. LOOMIS.
126. OPHTHALMOSCOPY. The principles and practice of this method of examination of the eye. DR. CLARK, DR. MACNIE.
127. CLINIC IN DISEASES OF THE EYE. City and County Hospital. DR. LEWIS.

## MILITARY SCIENCE AND TACTICS: MEDICAL CORPS

Professor HENRY H. RUTHERFORD, Lieutenant Colonel Medical Corps,  
U. S. A.

---

Departmental Office, Millard Hall

---

1. *Administration*.—Lectures and recitations on military principles, policies, and resources; Army Regulations, Field Service Regulations, Manual Medical Department, Tables of Organization and Equipment. 30 hours.

2. *Material*.—Lectures, demonstrations, and recitations on the nature and uses of equipment and supplies—personal and for units. In the senior year the instruction will be given with especial reference to procurement, handling, storage, issue and accounting. 30 hours.

3. *Technic*.—Lectures, demonstrations, and recitations on *clerical* work; identification; surveys and inspections; personal hygiene, prophylaxes, and vaccinations; first aid and transportation. 40 hours.

4. *Sanitation*.—Lectures and recitations on general hygiene,—using a standard textbook. In the senior year the work will be more purely of an administrative nature. 70 hours.

5. *Evacuation*.—Lectures and recitations on the principles and purposes of the evacuation of sick and wounded in war. The chain of evacuation units,—their equipment and administration; tables of estimates of casualties; reconnaissance, information, and transportation services, etc. 30 hours.

6. *Hospitalization*.—Lectures and recitations on the principles and purposes of army hospital operation. The chain of hospitals,—their equipment and administration; medical, surgical, laboratory, and special services. 30 hours.

7. *Mapping*.—Making and reading maps,—lectures, demonstrations, and recitations. 5 hours. (Sherrel.)

8. *Law*.—Lectures and recitations. 5 hours. (Manual of Courts Martial and Davis.)

## THE SCHOOL OF CHEMISTRY

Associate Professor FRANK H. MACDOUGALL; Assistant Professor LAWRENCE  
M. HENDERSON.

---

(Required course in the Medical School)

---

40f.w. PHYSICAL CHEMISTRY. Special attention to divisions of the subject applicable to medicine, such as osmosis, colloidal solutions, chemical equilibria, etc. Third-year medical students; four credits. MR HENDERSON.

NOTE: For information regarding other available elective courses in chemistry, see bulletin, School of Chemistry.



## DEPARTMENT OF ANIMAL BIOLOGY

Professors HENRY F. NACHTRIEB, HAL DOWNEY, WILLIAM A. RILEY,  
CHARLES P. SIGERFOOS; Associate Professor ELMER J. LUND.

(Contributing elective courses to the Medical School)

- 44s. ANIMAL PARASITES AND PARASITISM. An introductory course treating of the origin and biological significance of parasitism and of the structure, life history, and economic relations of parasites exclusive of the insects. DR. RILEY.
- 45w. RELATION OF INSECTS TO DISEASE. The causation and transmission of disease by insects and other arthropods. Life history, habits, and methods of control of hominnoxious species. DR. RILEY.
- 107s. PROTOZOLOGY. Lectures, reference, and laboratory work on the structure and life histories of Protozoa. Special reference is paid to the relations of the Protozoa to diseases of animals. DR. SIGERFOOS.
- 144f-145w-146s. ANIMAL PARASITES AND PARASITISM. Lectures and laboratory work. Origin and biological significance of parasitism, and the structure, life history, and economic relations of representative parasites. Second term devoted primarily to relations of insects to diseases of man and animal. DR. RILEY.
- 149f-150w-151s. BLOOD OF VERTEBRATES. A comparative study of blood and blood-forming organs of vertebrates. A portion of time to be devoted to research. DR. DOWNEY.
- 153f-154w-155s. HEMATOLOGY. Primarily for medical students, but open to others with proper qualifications. Lectures and laboratory work on the blood and blood-forming organs of man and mammals. DR. DOWNEY.
- 181f-182w. EMBRYOLOGY. A survey of the principles of animal development and a detailed study of the development of the circulatory or urino-genital system of a vertebrate. Lectures, reference, and laboratory work. MR. NACHTRIEB.
183. GENETICS AND EUGENICS. Facts and theories of heredity and the application of the law governing natural inheritances for the improvement of the race. Lectures, references, quizzes, and demonstrations. MR. NACHTRIEB.

THE COLLEGE OF  
SCIENCE, LITERATURE,  
AND THE ARTS

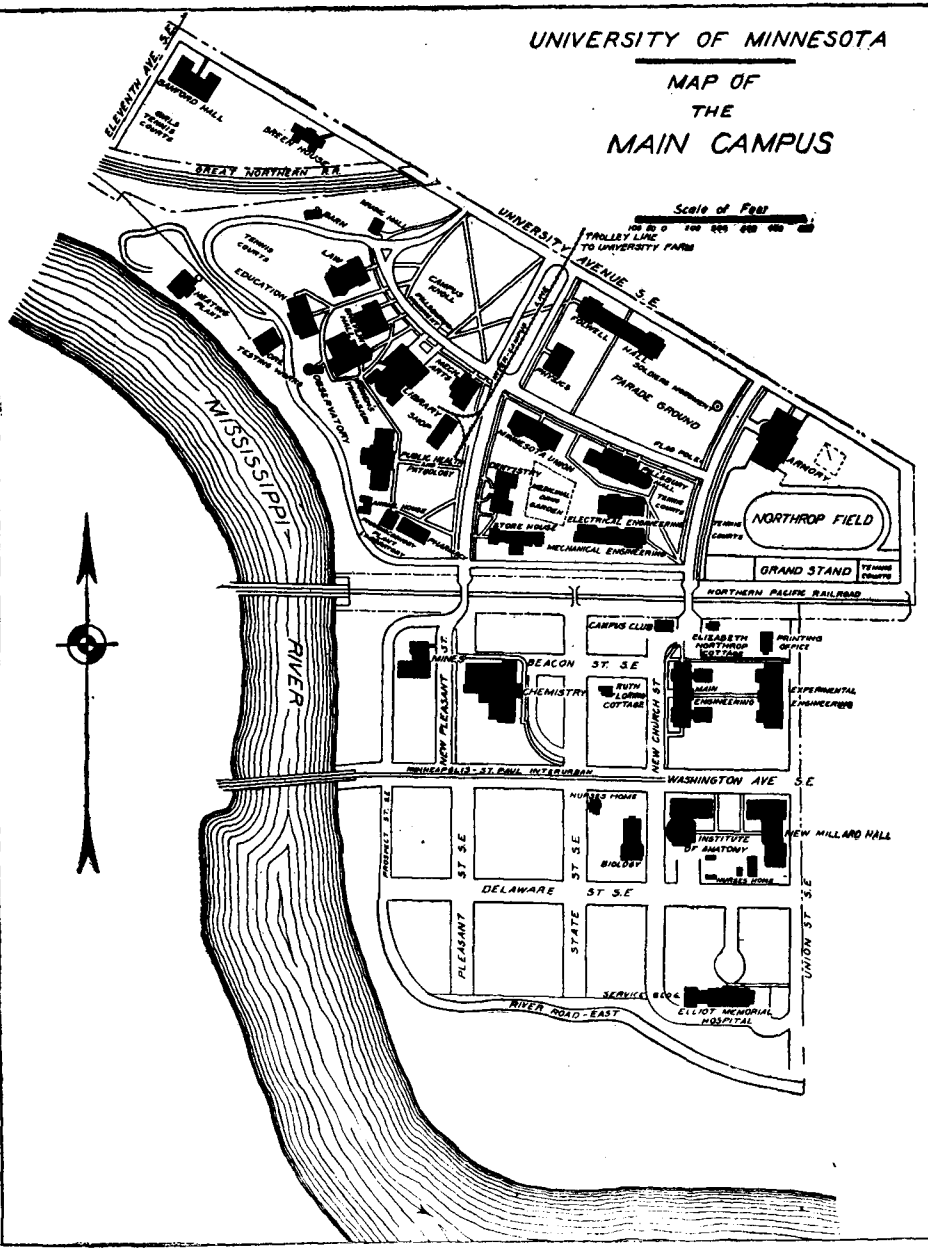
ANNOUNCEMENT OF COURSES  
FOR THE YEAR

1921-1922

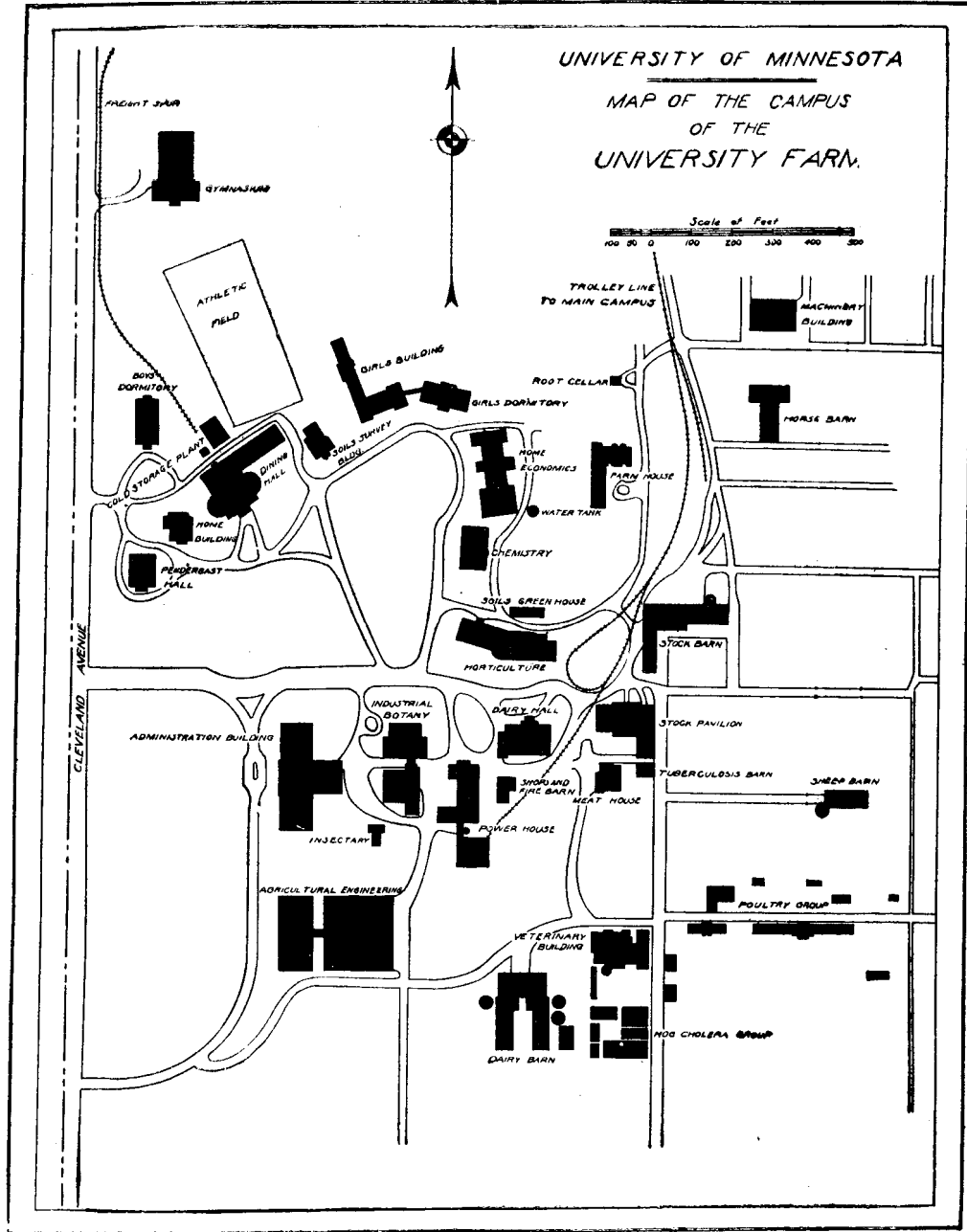
UNIVERSITY OF MINNESOTA  
 MAP OF  
 THE  
 MAIN CAMPUS

Scale of Feet

0 50 100 200 300 400 500



Area of Main Campus, 108.5 acres



Area of University Farm, 422.56 acres

1921							1922														
<b>JULY</b>							<b>JANUARY</b>							<b>JULY</b>							
Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	Su	Mo	Tu	W	Th	Fr	Sa	
..	..	..	..	..	1	2	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	5	6	7	..	..	..	..	..	..	1	
3	4	5	6	7	8	9	8	9	10	11	12	13	14	2	3	<b>4</b>	5	6	7	8	
10	11	12	13	14	15	16	15	16	17	18	19	20	21	9	10	11	12	13	14	15	
17	18	19	20	21	22	23	22	23	24	25	26	27	28	16	17	18	19	20	21	22	
24	25	26	27	28	29	30	29	30	31	..	..	..	..	23	24	25	26	27	<b>28</b>	29	
31	..	..	..	..	..	..	..	..	..	..	..	..	..	30	31	..	..	..	..	..	
<b>AUGUST</b>							<b>FEBRUARY</b>							<b>AUGUST</b>							
..	1	2	3	4	5	6	..	..	..	1	2	3	4	..	..	1	2	3	4	5	
7	8	9	10	11	12	13	5	6	7	8	9	10	11	6	7	8	9	10	11	12	
14	15	16	17	18	19	20	12	13	14	15	16	17	18	13	14	15	16	17	18	19	
21	22	23	24	25	26	27	19	20	21	<b>22</b>	23	24	25	20	21	22	23	24	25	26	
28	29	30	31	..	..	..	26	27	28	..	..	..	..	27	28	29	30	31	..	..	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
<b>SEPTEMBER</b>							<b>MARCH</b>							<b>SEPTEMBER</b>							
..	..	..	..	1	2	3	..	..	..	1	2	3	4	..	..	..	..	..	1	2	
4	5	6	7	8	9	10	5	6	7	8	9	10	11	3	4	5	6	7	8	9	
11	12	13	14	15	16	17	12	13	14	15	16	17	18	10	11	12	13	14	15	16	
18	19	20	21	22	23	24	19	20	21	22	<b>23</b>	<b>24</b>	<b>25</b>	17	18	19	20	21	22	23	
25	26	27	<b>28</b>	29	30	..	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	30	31	..	24	25	26	27	28	29	30	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
<b>OCTOBER</b>							<b>APRIL</b>							<b>OCTOBER</b>							
..	..	..	..	..	..	1	..	..	..	..	..	..	1	1	2	3	4	5	6	7	
2	3	4	5	6	7	8	2	3	4	5	6	7	8	8	9	10	11	12	13	14	
9	10	11	12	13	14	<b>15</b>	9	10	11	12	13	14	15	15	16	17	18	19	20	21	
16	17	18	19	20	21	22	16	17	18	19	20	21	22	22	23	24	25	26	27	28	
23	24	25	26	27	28	29	23	24	25	26	27	28	29	29	30	31	..	..	..	..	
30	31	..	..	..	..	..	30	..	..	..	..	..	..	..	..	..	..	..	..	..	
<b>NOVEMBER</b>							<b>MAY</b>							<b>NOVEMBER</b>							
..	..	1	2	3	4	<b>5</b>	..	1	2	3	4	5	6	..	..	..	1	2	3	4	
6	7	8	9	10	<b>11</b>	12	7	8	9	10	11	12	13	5	6	7	8	9	10	11	
13	14	15	16	17	18	19	14	15	16	17	18	19	20	12	13	14	15	16	17	18	
20	21	22	23	<b>24</b>	25	26	21	22	23	24	25	26	27	19	20	21	22	23	24	25	
27	28	29	30	..	..	..	28	29	<b>30</b>	31	..	..	..	26	27	28	29	30	..	..	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	
<b>DECEMBER</b>							<b>JUNE</b>							<b>DECEMBER</b>							
..	..	..	..	1	2	3	..	..	..	..	1	2	3	..	..	..	..	..	..	1	2
4	5	6	7	8	9	10	4	5	6	7	8	9	10	3	4	5	6	7	8	9	
11	12	13	14	15	16	17	11	12	<b>13</b>	14	15	16	17	10	11	12	13	14	15	16	
18	19	20	<b>21</b>	<b>22</b>	<b>23</b>	<b>24</b>	18	19	<b>20</b>	21	22	23	24	17	18	19	20	21	22	23	
<b>25</b>	<b>26</b>	<b>27</b>	<b>28</b>	<b>29</b>	<b>30</b>	<b>31</b>	25	26	27	28	29	30	..	24	25	26	27	28	29	30	
..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..	

# UNIVERSITY CALENDAR

1921-1922

1921

September	17	Saturday	Payment of fees closes, except for new students
September	19-24	Week	Registration for new students
September	20-27	Week	Examinations for removal of conditions and entrance examinations
			Physical examination for all new students
September	26-27		Changes in registration
September	27	Tuesday	Payment of fees for new students closes
September	28	Wednesday	Fall quarter begins, 8:30 a.m.
October	15	Saturday	Class Scrap Day; all classes dismissed the fourth hour
October	20	Thursday	Senate meeting, 4:30 p.m.
November	5	Saturday	Home Coming Day; classes dismissed the third and fourth hours
November	11	Friday	Armistice Day; a holiday
November	24	Thursday	Thanksgiving Day; a holiday
December	21	Wednesday	Fall quarter ends, Christmas vacation begins, 5:20 p.m.

1922

January	2	Monday	Registration for new students
January	4	Wednesday	Christmas vacation ends, winter quarter begins, 8:30 a.m.
February	16	Thursday	Senate meeting, 4:30 p.m.
February	20 to	March 4	Condition examinations
February	22	Wednesday	Washington's Birthday; a holiday
March	23	Thursday	Winter quarter ends, spring vacation begins, 5:20 p.m.
March	27	Monday	Registration for new students
March	29	Wednesday	Spring vacation ends, spring quarter begins, 8:30 a.m.
May	15 to	25	Condition examinations
May	18	Thursday	Senate meeting, 4:30 p.m.
May	30	Tuesday	Memorial Day; a holiday
June	11	Sunday	Baccalaureate service
June	13	Tuesday	Spring quarter closes, 5:20 p.m.
June	14	Wednesday	Fiftieth annual commencement
June	17-19		Registration days for summer session
June	20	Tuesday	Summer session begins
July	28	Friday	Summer session closes

# THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

## FACULTY

- LOTUS DELTA COFFMAN, Ph.D., President  
WILLIAM WATTS FOLWELL, LL.D., President Emeritus  
CYRUS NORTHRUP, LL.D., President Emeritus  
JOHN B. JOHNSON, Ph.D., Dean, Professor of Neurology  
EDWARD E. NICHOLSON, M.A., Dean of Student Affairs, Assistant Professor  
of Chemistry  
JOSEPH M. THOMAS, Ph.D., Assistant Dean for the Senior College, Profes-  
sor of Rhetoric, and Head of the Department of Rhetoric and Public  
Speaking  
WILLIAM H. BUSSEY, Ph.D., Assistant Dean for the Junior College, Pro-  
fessor of Mathematics, and Chairman of the Department of Mathe-  
matics  
ROYAL R. SHUMWAY, B.A., Assistant Dean for Students' Work and Asso-  
ciate Professor of Mathematics  
CEPHAS D. ALLIN, LL.B., M.A., Professor of Political Science, Chairman  
of the Department of Political Science  
CLARENCE W. ALVORD, Ph.D., Professor of History  
WILLIAM ANDERSON, Ph.D., Assistant Professor of Political Science  
LEON ARNAL, Architecte Diplômé Government France, Professor of  
Architecture  
CLYDE H. BAILEY, M.S., Professor of Agricultural Biochemistry  
FRANCIS B. BARTON, Docteur de l'Université de Paris, Assistant Professor  
of Romance Languages  
RALPH M. BARTON, B.A., Assistant Professor of Mathematics  
JOSEPH W. BEACH, Ph.D., Associate Professor of English  
RICHARD O. BEARD, M.D., Associate Professor of Physiology  
LUTHER L. BERNARD, Ph.D., Professor of Sociology  
ALMA BINZEL, M.A., Assistant Professor of Home Economics  
JOHN D. BLACK, Ph.D., Professor of Agricultural Economics  
ROY G. BLAKEY, Ph.D., Professor of Economics  
GISLE C. BOTHE, M.A., Professor of Scandinavian Languages and Litera-  
tures, and Head of the Department of Scandinavian Languages  
RAYMOND W. BRINK, Ph.D., Associate Professor of Mathematics  
THOMAS M. BRODERICK, Ph.D., Assistant Professor of Geology  
<sup>1</sup>CARLETON BROWN, Ph.D., Professor of English  
SOLON J. BUCK, Ph.D., Associate Professor of History  
OSCAR C. BURKHARD, Ph.D., Assistant Professor of German  
RICHARD BURTON, Ph.D., Professor of English  
SAMUEL C. BURTON, M.A., Assistant Professor of Architecture  
FREDERIC K. BUTTERS, Ph.D., Associate Professor of Botany

<sup>1</sup> Resigned September 1, 1921.

FACULTY

7

ROYAL N. CHAPMAN, Ph.D., Assistant Professor of Animal Biology  
ALICE M. CHILD, M.A., Assistant Professor of Home Economics  
HELEN CLARK, Ph.D., Assistant Professor of Educational Psychology  
LILLIAN COHEN, Ph.D., Assistant Professor of Chemistry  
GEORGE P. CONGER, B.D., Assistant Professor of Philosophy  
LOUIS JOSEPH COOKE, M.D., Director of Physical Education for Men  
WILLIAM S. COOPER, Ph.D., Assistant Professor of Botany  
ROBERT E. CUSHMAN, Ph.D., Associate Professor of Political Science  
JAMES DAVIES, Ph.D., Assistant Professor of German  
WILLIAM STEARNS DAVIS, Ph.D., Professor of Ancient History  
HERMIONE L. DEALEY, Ph.D., Assistant Professor of Educational Psychology  
Z. CLARK DICKINSON, Ph.D., Assistant Professor of Economics  
HAL DOWNEY, Ph.D., Professor of Animal Biology  
GEORGE W. DOWRIE, Ph.D., Professor of Economics, Head of the Department of Economics  
ELIAS J. DURAND, D.Sc., Professor of Botany  
R. ADAMS DUTCHER, M.S., M.A., Associate Professor of Agricultural Biochemistry  
RICHARD M. ELLIOTT, Ph.D., Associate Professor of Psychology and Chairman of the Department of Psychology  
MANUEL C. ELMER, Ph.D., Associate Professor of Sociology  
WILLIAM H. EMMONS, Ph.D., Professor of Geology, Head of the Department of Geology and Mineralogy  
CHARLES A. ERDMANN, M.D., Associate Professor of Applied Anatomy  
HENRY ANTON ERIKSON, Ph.D., Professor of Physics, Chairman of the Department of Physics  
DONALD N. FERGUSON, B.A., Assistant Professor of Pianoforte  
BEN W. FEILD, Captain U.S.A., Assistant Professor of Military Science and Tactics  
ROSS L. FINNEY, Ph.D., Assistant Professor of Educational Sociology  
OSCAR W. FIRKINS, M.A., Professor of Comparative Literature  
GUY STANTON FORD, Ph.D., Professor of History, Chairman of the Department of History  
JAMES H. FORSYTHE, M.A. in Arch., Associate Professor of Architecture  
WILLIAM K. FOSTER, LL.M., Assistant Professor of Physical Education for Men  
WILLIAM S. FOSTER, Ph.D., Associate Professor of Psychology  
EDWARD M. FREEMAN, Ph.D., Professor of Plant Pathology and Botany  
JULES T. FRELIN, B.A., Assistant Professor of Romance Languages  
FREDERICK B. GARVER, Ph.D., Associate Professor of Economics  
ISAAC W. GEIGER, Ph.D., Assistant Professor of Chemistry  
JOSEF E. GILLET, Ph.D., Assistant Professor of Romance Languages  
HARRIET I. GOLDSTEIN, Associate Professor of Drawing and Design  
ROSS A. GORTNER, Ph.D., Professor of Agricultural Biochemistry  
NORMAN SCOTT BRIEN GRAS, Ph.D., Professor of Economic History  
FRANK F. GROUT, Ph.D., Professor of Geology and Mineralogy



- ALVIN HARVEY HANSEN, Ph.D., Associate Professor of Economics  
 WILLIAM L. HART, Ph.D., Associate Professor of Mathematics  
 RODNEY B. HARVEY, Ph.D., Assistant Professor of Botany  
 ERNEST A. HEILMAN, Ph.D., Assistant Professor of Accounting  
 LAWRENCE M. HENDERSON, Ph.D., Assistant Professor of Chemistry  
 ARTHUR T. HENRICI, M.D., Associate Professor of Bacteriology and Immunology  
 PEDRO HENRÍQUEZ UREÑA, Abogado, Ph.D., Assistant Professor of Romance Languages  
 JAMES T. HILLHOUSE, Ph.D., Assistant Professor of Rhetoric  
 CLARENCE L. HOLMES, M.A., Assistant Professor of Agricultural Economics  
 RALPH E. HOUSE, Ph.D., Associate Professor of Romance Languages  
 NED L. HUFF, M.A., Assistant Professor of Botany  
 WILLIAM H. HUNTER, Ph.D., Professor of Chemistry  
 SIGURD B. HUSTVEDT, Ph.D., Assistant Professor of Rhetoric  
 HARRY C. INGLES, Major U.S.A., Assistant Professor of Military Science and Tactics  
 CLARENCE MARTIN JACKSON, M.S., M.D., Professor of Anatomy and Director of the Department of Anatomy  
 DUNHAM JACKSON, Ph.D., Professor of Mathematics  
 ELIZABETH JACKSON, Ph.D., Assistant Professor of Rhetoric  
 ALBERT ERNEST JENKS, Ph.D., Professor of Anthropology, Chairman of the Department of Anthropology and Director of the Americanization Training Course  
 ROBERT T. JONES, B.S. in Arch., Assistant Professor of Architecture  
 ROY C. JONES, M.S. in Arch., Assistant Professor of Architecture  
 CORNELIA KENNEDY, M.S., Ph.D., Assistant Professor of Agricultural Biochemistry  
 FRANCIS B. KINGSBURY, Ph.D., Associate Professor of Physiologic Chemistry  
 WILLIAM H. KIRCHNER, B.S., Professor of Drawing and Descriptive Geometry and Head of the Department of Drawing and Descriptive Geometry  
 MAY S. KISSOCK, B.A., Assistant Professor of Physical Education for Women  
 FREDERICK KLAEBER, Ph.D., Professor of Comparative and English Philology, Head of the Department of Comparative Philology  
 HARRY H. KNIGHT, B.S., Assistant Professor of Entomology  
 LEE I. KNIGHT, Ph.D., Professor of Botany  
 LEONARD V. KOOS, Ph.D., Professor of Secondary Education  
 AUGUST CHARLES KREY, Ph.D., Associate Professor of History  
 SAMUEL KROESCH, Ph.D., Assistant Professor of German  
 VALERIA G. LADD, B.A., Assistant Professor of Physical Education for Women  
 WINFORD P. LARSON, M.D., Professor of Bacteriology and Immunology, Head of the Department of Bacteriology and Immunology  
 KARL S. LASHLEY, Ph.D., Assistant Professor of Psychology

- JULIAN G. LEACH, M.S., Assistant Professor of Plant Pathology and Botany
- FRANCIS P. LEAVENWORTH, M.A., Professor of Astronomy, Head of the Department of Astronomy
- IRVILLE C. Lecompte, Ph.D., Professor of Romance Languages
- THOMAS G. LEE, B.S., M.D., Professor of Comparative Anatomy
- ELMER J. LUND, Ph.D., Associate Professor of Zoology
- GUSTAV A. LUNDQUIST, M.A., Assistant Professor of Rural Sociology
- ELIAS P. LYON, Ph.D., M.D., Professor of Physiology and Director of the Department of Physiology
- JESSE F. McCLENDON, Ph.D., Associate Professor of Physiology
- FRANK H. MACDOUGALL, Ph.D., Associate Professor of Chemistry
- FREDERICK M. MANN, M.S. in Arch., Professor of Architecture, Head of the Department of Architecture
- EDGAR B. MOOMAU, First Lieutenant, U.S.A., Assistant Professor of Military Science and Tactics
- CECIL A. MOORE, Ph.D., Associate Professor of English
- WILLIAM MOORE, B.A., Associate Professor of Entomology
- CLARENCE A. MORROW, B.S., Ph.D., Assistant Professor of Agricultural Biochemistry
- AMY P. MORSE, B.A., Assistant Professor of Drawing and Design
- BRUCE D. MUGGETT, Ph.D., Associate Professor of Economics
- HENRY F. NACHTRIEB, B.S., Professor of Animal Biology, Head of the Department of Animal Biology and Director of the Zoological Museum
- <sup>1</sup>CHARLES W. NICHOLS, Ph.D., Assistant Professor of Rhetoric
- HOWARD S. NOBLE, B.A., M.B.A., Assistant Professor of Accounting
- J. ANNA NORRIS, M.D., Professor of Physical Education for Women, Director of Health and Physical Education for Women
- OSCAR W. OESTLUND, Ph.D., Assistant Professor of Animal Biology
- EVERETT W. OLMSTED, Ph.D., Lit.D., Professor of Romance Languages, Head of the Department of Romance Languages
- LEROY S. PALMER, Ph.D., Associate Professor of Agricultural Biochemistry
- EUGENE F. PARKER, Ph.D., Assistant Professor of Romance Languages
- E. MAUD PATCHIN, B.S., Assistant Professor of Textiles and Clothing
- CHAUNCEY J. V. PETIBONE, Ph.D., Associate Professor of Physiological Chemistry
- ANNA A. H. PHELAN, Ph.D., Assistant Professor of Rhetoric
- RUTH S. PHELPS, M.A., Associate Professor of Romance Languages
- JOSEPH B. PIKE, M.A., Professor of Latin, Head of the Department of Latin
- HAROLD QUIGLEY, Ph.D., Assistant Professor of Political Science
- <sup>1</sup>NORMAN J. RADDER, B.A., Assistant Professor of Journalism
- FRANK M. RARIG, M.A., Associate Professor of Public Speaking
- ANDREW T. RASMUSSEN, Ph.D., Associate Professor of Neurology
- WILLIAM A. RILEY, Ph.D., Professor of Entomology

<sup>1</sup> On leave, 1921-22.

- THOMAS S. ROBERTS, M.D., Professor of Ornithology and Associate Director of the Zoological Museum
- HAL M. ROSE, First Lieutenant U.S.A., Assistant Professor of Military Science and Tactics
- CARL O. ROSENDAHL, Ph.D., Professor of Botany, Chairman of the Department of Botany
- ARTHUR G. RUGGLES, M.A., Professor of Entomology
- <sup>1</sup>MARTIN B. RUUD, Ph.D., Assistant Professor of Rhetoric
- THOMAS H. SANDERS, M.Com., Assistant Professor of Accounting
- CHARLES ALBERT SAVAGE, Ph.D., Professor of Greek, Chairman of the Department of Greek
- RICHARD E. SCAMMON, Ph.D., Professor of Anatomy
- GERTRUDE B. SCHILL, B.A., Assistant Professor of Physical Education for Women
- CARL SCHLENKER, B.A., Professor of German, Chairman of the Department of German
- CARLYLE M. SCOTT, Professor of Music, Chairman of the Department of Music
- FREDERICK H. SCOTT, Ph.D., M.B., D.Sc., Professor of Physiology
- COLBERT SEARLES, Ph.D., Professor of Romance Languages
- EDWARD G. SHERBURNE, Major U.S.A., Assistant Professor of Military Science and Tactics
- LESTER B. SHIPPEE, Ph.D., Assistant Professor of History
- CHARLES F. SIDENER, B.S., Professor of Chemistry
- RAYMOND W. SIES, Ph.D., Professor of Educational Administration and Supervision
- CHARLES P. SIGERFOOS, Ph.D., Professor of Zoology
- EDWARD H. SIRICH, Ph.D., Assistant Professor of Romance Languages
- M. CANNON SNEED, Ph.D., Associate Professor of Chemistry
- CLINTON R. STAUFFER, Ph.D., Professor of Geology
- J. WARREN STEHMAN, M.A., Assistant Professor of Economics
- <sup>1</sup>ELMER E. STOLL, Ph.D., Professor of English, Chairman of the Department of English
- ANDREW A. STOMBERG, M.S., Professor of Scandinavian Languages and Literatures
- LUCY A. STUDLEY, M.A., Assistant Professor of Home Economics
- GIRARD STURTEVANT, Colonel U.S.A., Professor of Military Science and Tactics
- EMERSON G. SUTCLIFFE, Ph.D., Assistant Professor of Rhetoric
- WILLIAM F. G. SWANN, D.Sc., Professor of Physics
- DAVID F. SWENSON, B.S., Professor of Philosophy
- CLARA F. SYKES, B.A., B.S., Assistant Professor of Office Management
- JOHN T. TATE, Ph.D., Professor of Physics
- JOSEPHINE E. TILDEN, M.S., Professor of Botany

<sup>1</sup> Absent on leave, 1921-22.

- <sup>1</sup>ARTHUR J. TODD, Ph.D., Professor of Sociology, Chairman of the Department of Sociology and Director of the Social and Civic Training Course
- ALICE J. H. TOLG, M.D., Assistant Professor of Physical Education for Women
- MASON W. TYLER, Ph.D., Assistant Professor of History
- ANTHONY L. UNDERHILL, Ph.D., Associate Professor of Mathematics
- GUSTAV L. VAN ROOSBROECK, Ph.D., Assistant Professor of Romance Languages
- MARVIN J. VAN WAGENEN, Ph.D., Assistant Professor of Educational Psychology
- LAURENCE T. WALKER, Major, U.S.A., Assistant Professor of Military Science and Tactics
- FREDERIC L. WASHBURN, M.A., Professor of Economic Vertebrate Zoology
- LEE R. WATROUS, JR., Major, U.S.A., Assistant Professor of Military Science and Tactics
- MILDRED WEIGLEY, B.S., Professor of Home Economics and Chief of the Division of Home Economics
- MARION WELLER, B.A., Associate Professor of Textiles
- <sup>2</sup>ALBERT B. WHITE, Ph.D., Professor of History
- NORMAN WILDE, Ph.D., Professor of Philosophy, Head of the Department of Philosophy
- JOHN J. WILLAMAN, Ph.D., Assistant Professor of Plant Chemistry
- HERBERT WOODROW, Ph.D., Associate Professor of Psychology
- HOLBROOK WORKING, M.A., Assistant Professor of Agricultural Economics
- QUINCY WRIGHT, Ph.D., Assistant Professor of Political Science
- JEREMIAH S. YOUNG, Ph.D., Professor of Political Science
- ANTHONY ZELENY, Ph.D., Professor of Physics
- RUBY BAUGHMAN, M.A., Professorial Lecturer in Anthropology and Americanization Training
- FRANK J. BRUNO, B.D., Lecturer in Sociology, Acting Chairman of the Department of Sociology
- ANTHONY CONSTANS, Licencié ès Lettres, Professorial Lecturer in Romance Languages
- OTTO W. DAVIS, B.A., Lecturer in Sociology
- J. FRANKLIN EBERSOLE, M.A., Ph.B., Professorial Lecturer in Economics
- ABBOTT L. FLETCHER, LL.B., Lecturer in Political Science
- PAUL C. GAUGER, B.S. in Arch., Special Lecturer in Architecture
- ANTONIO HERAS, Bachiller, Licenciado en Derecho, Professorial Lecturer in Romance Languages
- WILLIAM HODSON, B.A., LL.D., Lecturer in Sociology
- FREDERICK KUHLMAN, Ph.D., Professorial Lecturer in Educational Psychology
- MILDRED W. LORING, Ph.D., Professorial Lecturer in Psychology
- LOUALLEN F. MILLER, M.A., Professorial Lecturer in Physics

<sup>1</sup> Resigned June 30, 1921.

<sup>2</sup> Absent on leave, 1921-22

- MARTHA B. MOORHEAD, M.D., Lecturer in Hygiene, Department of Home Economics
- ARTHUR R. NICHOLS, B.S., Special Lecturer in Architecture
- BENJAMIN W. PALMER, LL.B., Lecturer in Business Law
- EDWARD F. WAITE, LL.B., LL.M., Lecturer in Social and Civic Work
- IRA S. ALLISON, B.A., Instructor in Geology and Mineralogy
- ARTHUR K. ANDERSON, M.S., Instructor in Agricultural Biochemistry
- HILDING E. ANDERSON, B.A., Instructor in Agricultural Economics
- RICHARD ATWATER, B.A., Instructor in Rhetoric
- J. FREDERICK BAIER, JR., B.A., Instructor in Mathematics
- GERTRUDE A. BAKER, Instructor in Physical Education for Women
- HENRY D. BARKER, M.S., Instructor in Plant Pathology
- REUEL R. BARLOW, B.A., Instructor in Journalism
- MARY BARNICLE, M.A., Instructor in Rhetoric
- WILLIAM O. BEAL, M.A., M.S., Assistant Astronomer
- CECIL C. BEAN, M.A., Instructor in Rhetoric
- CHARLES BIRD, Ph.D., Instructor in Psychology
- LOUIS A. BOETTIGER, M.A., Instructor in Sociology and Social Work
- ALFRED BRANDT, SERGEANT U.S.A., Instructor in Military Science and Tactics
- CARLOTTA BROWN, Instructor in Millinery
- EDWIN S. BROWN, M.D., Instructor in Physical Education for Men
- HENRY W. BROWN, Sergeant U.S.A., Instructor in Military Science and Tactics
- KENNA B. CALDWELL, Sergeant U.S.A., Instructor in Military Science and Tactics
- HARRY S. CANNON, Ph.D., Instructor in German
- THERESA MAIER COURTURE, B.A., Instructor in Music
- JOHN O. CEDERBERG, JR., Instructor in Drawing and Descriptive Geometry
- HERMAN H. CHAPMAN, B.A., Instructor in Accounting
- MARY ELLEN CHASE, M.A., Instructor in Rhetoric
- HAROLD D. CLAYBERG, Ph.D., Instructor in Animal Biology
- J. BURTON CONFREY, M.A., Instructor in Rhetoric
- ROBERT V. CRAM, Ph.D., Instructor in Latin
- JOSEPH E. CUMMINGS, M.A., Instructor in Economics
- LOUISE DOSDALL, M.A., Instructor in Plant Pathology
- LYNWOOD G. DOWNS, M.A., Instructor in German
- CHARLES B. DRAKE, M.A., Instructor in Romance Languages
- JOHN W. DRAPER, Ph.D., Instructor in Rhetoric
- AUBREY R. DUNKUM, Sergeant U.S.A., Instructor in Military Science and Tactics
- WILLIAM P. DUNN, B.D., M.A., Instructor in Rhetoric
- GEORGE H. FAIRCLOUGH, Instructor in Music
- CHARLES L. FARABAUGH, B.S., Diplome d'Etudes Superieures, Instructor in Botany
- GLADYS A. FELLOWS, B.A., Instructor in Physical Education for Women
- WILLIAM R. FINKE, Sergeant U.S.A., Instructor in Military Science and Tactics

DONALD W. FISHER, Ph.D., Instructor in Rhetoric  
HALLY J. FISHER, R.N., Instructor in Home Nursing  
CARL FOSSE, M.S., Instructor in Chemistry  
MARGARET GABLE, M.A., Instructor in Rhetoric  
CHARLES C. GAULT, M.A., M.B., Instructor in Physiology  
GLADYS E. C. GIBBENS, Ph.D., Instructor in Mathematics  
THADDEUS P. GIDDINGS, Instructor in Public School Music  
MINA GILDERSLEEVE, B.A., Instructor in Romance Languages  
MYRTLE MANN GILLET, Ph.D., Instructor in Romance Languages  
PERCY C. GLIDDEN, Instructor in Physical Education for Men  
VETTA GOLDSTEIN, Instructor in Drawing and Design  
SAMUEL A. GRAHAM, M.F., Instructor in Entomology  
RICHARD A. GRAVES, M.A., Instructor in Economics  
ESTHER M. GREISHEIMER, B.S. in E., Ph.D., Instructor in Physiology  
MARGUERITE GUINOTTE, Brevet Supérieur, Certificat d'Aptitude Pédagogique,  
M.A., Instructor in Romance Languages  
JOHN W. GRUNER, B.A., Instructor in Geology and Mineralogy  
RALPH HAMMETT, B.S. in Arch., Instructor in Architecture  
ALVIN H. HANSON, Ph.D., Instructor in Plant Pathology  
JOSEPH HAVLICEK, Sergeant U.S.A., Instructor in Military Science and  
Tactics  
CASPER HECKEMEYER, Sergeant U.S.A., Instructor in Military Science and  
Tactics  
WILLIAM L. HOGAN, Sergeant U.S.A., Instructor in Military Science and  
Tactics  
GERTRUDE R. HULL, Instructor in Voice  
KENNETH B. HUNTER, B.A., Instructor in Rhetoric  
RICHARD JENTE, Ph.D., Instructor in German  
ARTHUR M. JOHNSON, Ph.D., Instructor in Botany  
CARL E. JOHNSON, Instructor in Architecture  
HARRISON W. JOHNSON, Instructor in Music  
FRANCES E. KELLEY, M.A., Instructor in Rhetoric  
JOHN KIERZEK, M.A., Instructor in Rhetoric  
PAUL C. KING, B.A., Instructor in Romance Languages  
CHARLES B. KUHLMAN, M.A., Instructor in Economics  
CLARENCE G. LANGE, Sergeant U.S.A., Instructor in Military Science and  
Tactics  
WALTER M. LAUER, M.S., Instructor in Chemistry  
COWDEN LAUGHLIN, Ph.D., Instructor in German  
JOSEPH LEES, Sergeant U.S.A., Instructor in Military Science and Tactics  
FRED LILLIE, Sergeant U.S.A., Instructor in Military Science and Tactics  
RUTH M. LINDQUIST, B.S., Instructor in Foods Management  
CHARLES F. LINDSLEY, M.A., Instructor in Public Speaking  
CHARLES E. LIVELY, M.A., Instructor in Sociology and Social Work  
GERTRUDE K. LYON, B.A., Instructor in Physical Education for Women  
EDMUND T. MCCANN, Sergeant U.S.A., Instructor in Military Science and  
Tactics

- MABEL C. McDOWELL, B.S., Instructor in Home Economics  
 WALTER MACKELLAR, B.A., Instructor in Rhetoric  
 ARIEL MACNAUGHTON, M.A., Instructor in Public Speaking  
 JOHN MCWILLIAMS, Sergeant U.S.A., Instructor in Military Science and Tactics  
 DWIGHT E. MINNICH, Ph.D., Instructor in Animal Biology  
 ANDREW R. MOREHOUSE, B.A., Instructor in Romance Languages  
 MILDRED D. MUDGETT, B.A., Supervisor of Field Work in Social and Civic Training Course  
 MARGARET K. MUMFORD, B.A., Instructor in Home Management and Nutrition  
 WALTER R. MYERS, Ph.D., Instructor in Economics  
 MARJORIE NICOLSON, Ph.D., Instructor in Rhetoric  
 HARRY J. OSTLUND, B.A., Instructor in Economics  
 ROSCOE E. PARKER, M.A., Instructor in Rhetoric  
 VICTOR H. PELZ, M.S., Instructor in Economics  
 ABE PEPINSKY, Instructor in Violin  
 ETHEL L. PHELPS, B.S., Instructor in Textiles and Clothing  
 ARCHIE D. POWERS, M.A., Instructor in Physics  
 GERTRUDE REEVES, Instructor in Pianoforte  
 LLOYD H. REYERSON, Ph.D., Instructor in Chemistry  
 PRESTICE B. RHODES, Sergeant, U.S.A., Instructor in Military Science and Tactics  
 GRACE RICHARDS, M.A., Instructor in Rhetoric  
 ADOLPH RINGOEN, Ph.D., Instructor in Animal Biology  
 HARRY W. ROBBINS, M.A., Instructor in Rhetoric  
 GRACE M. ROCKWOOD, B.A., Instructor in Physical Education for Women  
 CARL B. ROEMER, Instructor in Physical Education for Men  
 OSWALD ROGNLEY, M.A., Instructor in Physics  
 STANLEY I. RYPINS, Ph.D., Instructor in Rhetoric  
 WILLIAM P. SANFORD, B.A., Instructor in Public Speaking  
 LANDON A. SARVER, M.A., Instructor in Chemistry  
 KARL SCHEURER, Instructor in Music  
 MINNA SCHICK, M.A., Instructor in Mathematics  
 ROBERT F. SCHUCK, B.S. in Elec. Eng., Instructor in Drawing and Descriptive Geometry  
 GEORGE M. SCHWARTZ, M.A., Instructor in Geology and Mineralogy  
 JAMES S. SEAL, M.S., Instructor in Plant Pathology  
 PAUL F. SHARP, B.A., Instructor in Agricultural Biochemistry  
 CLARENCE SHELTON, Sergeant U.S.A., Instructor in Military Science and Tactics  
 HERMAN SMITH, Sergeant U.S.A., Instructor in Military Science and Tactics  
 LAWRENCE SMITH, M.A., Instructor in Economics  
 LEE I. SMITH, M.A., Instructor in Chemistry  
 GLADYS SPEAKER, M.A., Instructor in Anthropology and Americanization Training

DAVID O. SPRIESTERSBACH, M.S., Instructor in Bacteriology and Immunology  
 SAMUEL R. STAUFFER, M.A., Instructor in Rhetoric  
 GEORGE M. STEPHENSON, Ph.D., Instructor in History  
 HARRY E. STRIDER, Sergeant U.S.A., Instructor in Military Science and  
 Tactics  
 GEORGE A. THIEL, B.A., Instructor in Geology and Mineralogy  
 GERTRUDE I. THOMAS, Instructor in Dietetics  
 ELLA A. THORP, B.A., Instructor in Mathematics  
 JOSEPH VALASEK, B.S., Instructor in Physics  
 BERT A. WALLACE, M.A., Instructor in Economics  
 GEORGE B. WATTS, M.A., Instructor in Romance Languages  
 W. COURTNEY WERNER, B.A., Instructor in Geology and Mineralogy  
 PAUL T. YOUNG, Ph.D., Instructor in Psychology

ASSISTANTS AND SCHOLARS

1920-21

ANIMAL BIOLOGY

OSCAR B. BERGMAN, Assistant  
 JOHN A. CEDERSTROM, Ph.B., Assistant  
 GEORGE H. CHILDS, M.A., Teaching Fellow  
 MARION IRWIN, B.A., Assistant  
 BRAND A. LEOPARD, Assistant  
 LEWIS E. NELSON, Assistant  
 EMILY PAYNE, M.A., Assistant  
 EMMETT ROWLES, Assistant  
 ETHEL M. SLIDER, B.A., Technician  
 MRS. J. A. URNER, Assistant  
 CAROL YOUNG, Assistant

ANTHROPOLOGY

GENEVIEVE ANDERSON, B.A., Scholar  
 ALONZO GRACE, B.A., Assistant

BACTERIOLOGY AND IMMUNOLOGY

ROBERT G. GREEN, B.A., Assistant in Bacteriology and Immunology

BOTANY

F. A. COLLATZ, M.S., Assistant  
 RAYMOND LONDON, B.A., Assistant  
 ETHEL MYGRANT, B.A., Teaching Fellow  
 EDNA SONTAG, B.A., Assistant  
 NELLIE A. THOMPSON, B.A., Technician

ENGLISH

MARGARET HOWARTH, B.A., Scholar  
 HELEN M. SCURR, M.A., Assistant



## GEOLOGY

EARL R. CARLSON, B.A., Scholar  
F. B. HANLEY, B.A., Scholar

## GERMAN

ESTHER STRAND DOWNS, B.A., Teaching Fellow  
W. O. GRAF, B.A., Scholar  
ESTHER HENDRICKSON, B.A., Teaching Fellow

## GREEK

DOROTHY STRONG, B.A., Assistant

## HISTORY

JOHN BARNHARD, B.A., B.D., Assistant  
JOHN P. DAVIDSON, B.A., Teaching Fellow  
GEORGINA DROITCOUR, B.A., Assistant  
OLIVER P. FIELD, B.A., Scholar  
MARY GOLD, B.A., Teaching Fellow  
ELIZABETH M. LYNKY, B.A., Teaching Fellow  
FAITH THOMPSON, M.A., Assistant

## MATHEMATICS

RUTH ASKELAND, B.A., Teaching Fellow  
ELIZABETH CARLSON, M.A., Assistant  
CHA CHIEN, Scholar  
CAREY M. JENSEN, M.A., Teaching Fellow

## MUSIC

HELEN SCHMIDT, B.A., Assistant

## PHYSICS

JAMES W. BROXON, B.A., Teaching Fellow  
GERHARD ELLESTAD, B.A., Assistant  
H. F. FRUTH, M.A., Assistant  
IWAO FUKUSHIMA, Assistant  
CHRISTINA JOY HAMRIN, B.A., Teaching Fellow  
FRANCES JOHNSON, M.A., Teaching Fellow  
LEILA MUNSON, B.A., Assistant  
KARL E. ROLLEFSON, Teaching Fellow  
CHARLOTTE ZIMMERSCHIED, Assistant

## POLITICAL SCIENCE

A. W. ANDERSON, B.A., Scholar  
DARRELL F. JOHNSON, B.A., Scholar  
HAROLD KUMM, LL.B., Assistant  
FRED OSSANNA, B.A., Scholar  
C. R. ROBINSON, B.A., LL.B., Assistant  
PERCIVAL VIESSelman, LL.B., Assistant

FACULTY

17

PSYCHOLOGY

DOROTHY H. BROWN, M.A., Teaching Fellow  
AUGUST DVORAK, B.A., Assistant  
RAYMOND O. FILTER, M.A., Teaching Fellow  
EVA FILLMORE, B.A., Scholar  
JOSEPHINE C. FOSTER, Ph.D., Assistant  
MARGARET KINCAID, M.A., Teaching Fellow  
CALVIN P. STONE, M.A., Teaching Fellow

RHETORIC

DOROTHY HUDSON, M.A., Assistant  
BENJAMIN MCCLURE, B.A., Assistant  
TRACY PEYCKE, B.A., Assistant  
ALFRED J. SCHWEPPE, M.A., Assistant  
LEE J. SEYMOUR, B.A., Assistant  
MARY SLIFER, Assistant

ROMANCE LANGUAGES

ETHEL ELLIOTT BENTON, B.A., Assistant  
O. K. LUNDEBERG, B.A., Assistant  
OLGA LONGI, Bachelier ès science, Certificat d'Aptitude Pédagogique.  
Teaching Fellow  
ELIZABETH NISSEN, Teaching Fellow  
LUCIENNE PETIT, B.A., Teaching Fellow

SOCIOLOGY

ERNEST J. MEILI, B.A., Scholar  
ETHEL LIVELY, Assistant  
ELIZABETH SEEBERG, Ph.D., Assistant  
ANNE VAN DER HAGEN, B.A., Assistant

## GENERAL INFORMATION

### ADMISSION

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

1. Four units of English; or three units of English and four units of a foreign language; or three units of English and two units of each of two foreign languages.
2. One unit of algebra and one unit of plane geometry.
3. Enough additional work to make in all fifteen units, of which not more than four may be in Group F (vocational and miscellaneous subjects).

A detailed statement of admission requirements may be found in the bulletin of general information.

*To advanced standing.*—Attention is called to the following rules governing students entering with advanced standing.

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

A student entering with advanced standing must earn an average of one honor point for every credit of work for which he is registered.

A student admitted to the Senior College and failing to meet this requirement may be excluded from the Senior College at any time after the first quarter.

*Examinations for advanced standing.*—Any student upon first registration at the University may, with the approval of the Students' Work Committee, be allowed without charge to take examinations for advanced standing in subjects in which the student declares himself to be prepared. Such examinations must be taken within the first six weeks of residence.

### FEES

Tuition fee (per quarter)	
Residents of Minnesota.....	\$20.00
Non-residents .....	30.00
Deposit (first quarter only).....	5.00
Military deposit (required of all students taking military drill).....	10.00
Health fee (per quarter).....	2.00
Minnesota Union or Shevlin Hall (per quarter).....	1.00
Special fees	
Examination for removal of conditions.....	1.00
Examinations for credit (after the first quarter in residence)...	5.00
Special examinations .....	5.00
Laboratory deposit (required of students registered for courses in chemistry) .....	5.00

**Penalty fees**

*Registration penalties.*—The penalty fee for late registration, late change of registration, or late payment of fees is two dollars (\$2.00), with one dollar (\$1.00) additional for each day of delay after classes begin, provided that no student shall pay more than twelve dollars (\$12.00) of penalty in any given quarter.

**CLASS ROUTINE AND SCHOLASTIC REQUIREMENTS**

*Schedule.*—Classes are held every week-day, ending for the week at 12:20 p.m. on Saturday. Class periods begin at 8:30, 9:30, 10:30, 11:30 a.m., 1:30, 2:30, 3:30, and 4:30 p.m., and continue fifty minutes. A convocation of faculty and students is held at 11:30 on certain Thursdays.

In the Junior College, courses are normally five-credit courses; in the Senior College, three-credit courses. There are also three-credit courses in the Junior College and one, two, four, and five-credit courses in the Senior College.

*Examinations and grades.*—Examinations are held at the close of each quarter. A student's grade is based on class work and examinations. Four grades, A, B, C, and D are given for work done satisfactorily. Work not done satisfactorily is marked E (condition) or F (failure). Work which is satisfactory but not complete, may, if the student presents a satisfactory excuse, be marked I (incomplete). For rules governing the removal of incompletes and conditions, see the pamphlet of faculty regulations.

*Credits and honor points.*—Requirements for graduation are expressed in credits, indicating amount of work, and in honor points, indicating grade of work. Each credit demands on the average three hours a week of the student's time; that is, one recitation with two hours of preparation, or three hours of laboratory work. Honor points are computed as follows; each credit with the grade of A carries three honor points; each credit with the grade of B, two honor points; each credit with the grade of C, one honor point. The grade of F carries minus one honor point per credit hour, the penalty being removed if the course is repeated with a passing grade.

*Reasonable advance toward graduation.*—Continued residence in the college is conditioned upon reasonable advance toward graduation. The Students' Work Committee may at any time drop from the rolls of the college any student who does not make such reasonable advance.

No student will be considered to have a wholly satisfactory standing who fails to secure, in the course of any year, the normal advance of one honor point for each credit for which he is registered. Students who fall below this normal standard will be subject to special consideration as individual cases by the Students' Work Committee.

*Habitual bad English.*—Any student who, either in speaking or in writing, habitually uses bad English shall be reported by his instructor to the dean with all available evidence. If the dean considers this evidence sufficient, he will require the student to take without credit such further work in rhetoric as the head of the Department of Rhetoric may specify.

## THE JUNIOR AND SENIOR COLLEGES

1. The college distinguishes between the Junior College, consisting of the first two years, and the Senior College, consisting of the third and fourth years.

2. The college distinguishes also between Junior College courses, intended primarily for freshmen and sophomores, and Senior College courses, intended primarily for juniors and seniors.

3. Senior College courses appear in the announcement as open to "juniors and seniors" or to "juniors, seniors, and graduates." The prerequisites for these courses are governed by the following rule: If the prerequisite courses are open to freshmen in their first and second quarters, they must amount to at least fifteen credits; if not, they must amount to at least ten credits. (Certain courses restricted to juniors and seniors are not Senior College courses in this sense.)

Senior College courses may be taken by sophomores who have had one honor point per credit in their previous work, and have completed with a grade of C the prerequisites for the courses desired; but courses which carry graduate credit may not be taken earlier than the third quarter of the student's sophomore year.

4. Students registered in combined arts and professional courses shall secure forty-five credits and forty-five honor points per year (three quarters) of work required in this college before being recommended for entrance to the work of the professional school. In order that such students may receive the Bachelor's degree after completion of the required professional work, the faculty of the professional school shall certify that they have maintained an equivalent standing in the work of the professional school which is counted toward the degree given by this college.

5. Any student who fails to complete the Junior or Senior College requirements within the normal period will, in order to complete the work, be required to continue in that college for one or more University sessions. During this period, he will be required to secure an average of one honor point for every credit of work for which he is registered.

## FACULTY ADVISERS FOR STUDENTS

*In the Junior College.*—Every freshman is assigned to a class officer whose general purpose is to help the student to get the best out of his college course, to develop his responsibility for planning his work, and to encourage him to make the most of his own powers. The student should go to his class officer for information and help in all matters pertaining to his college work.

The class officer discusses with the student the selection of studies and approves his program and registration; gives information or sends the student to the best source of information about the choice of a vocation and the preparation for it; helps the student to understand the proper sequence of studies and the relationship of various fields of study to the main purpose toward which the student is aiming. Living conditions,

methods of study, and the other activities of the student strongly influence college work and are subjects for consideration by the class officers.

The efforts made to aid and advise the student call for prompt response on his part. Every student is required to attend conferences when notified and to follow the instructions of his class officer.

In the sophomore year the class officer gives especial attention to the completion of the requirements of the Junior College and the preparation for the major study in the Senior College.

*In the Senior College.*—When the student has chosen his major subject, he is assigned by the department in charge of that subject to a major adviser who has oversight of all his scholastic work in the Senior College.

#### AUDITORS

Persons who wish to hear lectures and class discussions regularly are registered as auditors and pay a prescribed fee. They must first secure the permission of the instructor in charge of the course and of the dean. Admission of auditors may be denied in case of classes which are crowded or in which the work is of such a nature that the presence of visitors would be a detriment. Regularly enrolled students are not admitted as auditors.

## COURSES OF STUDY

A student may, while registered in the College of Science, Literature, and the Arts, pursue one of the following courses:

*Courses given within this college:*

1. A general course leading to the degree of Bachelor of Arts.
- ✓ 2. A four-year course with a major in music, leading to the degree of Bachelor of Arts.
3. A four-year course in Training for Diplomatic and Consular Service leading to the degree of Bachelor of Arts.
4. A four-year course in Training for State and Federal Administration leading to the degree of Bachelor of Arts.
5. A four-year course leading to the degree of Bachelor of Arts with special training in military science and tactics.
6. A four-year course in Americanization Training Work leading to the degree of Bachelor of Science.
7. A four-year course in Architecture and Decoration leading to the degree of Bachelor of Science.
8. A four-year course in Training for Municipal Administration and Engineering leading to the degree of Bachelor of Science.
9. A four-year course in Training for Social and Civic Work leading to the degree of Bachelor of Science.
10. A two-year course prescribed for admission to the School of Business.
11. A two-year course prescribed for admission to the College of Education.
12. A one-year course prescribed as the minimum requirement for admission to the College of Dentistry and a two-year course recommended as an alternative for pre-dental students.
13. A two-year course recommended for students intending to enter the Law School.
14. A five-year course leading to the degrees of Bachelor of Arts and Bachelor of Science in Chemistry.
15. A seven-year course leading to the degree of Bachelor of Arts and Doctor of Dental Surgery.
16. A six-year course leading to the degrees of Bachelor of Arts and Bachelor of Laws.
17. An eight-year course leading to the degrees of Bachelor of Arts, Bachelor of Medicine, and Doctor of Medicine.
18. A seven-year course leading to the degrees of Bachelor of Science, Bachelor of Medicine, and Doctor of Medicine.
19. A six-year course leading to the degrees of Bachelor of Science and Master of Science in Architecture.
20. A five-year course leading to the degrees of Bachelor of Science and Graduate in Nursing.

## REGULATIONS APPLYING TO ALL COURSES

Military drill is required of all freshman and sophomore men and physical education of all freshman men and all freshman and sophomore women.

Rhetoric-English A-B-C (or in some courses Rhetoric 4-5-6) is required of all students in their freshman or sophomore year.

No student may elect work in any quarter in more than five departments.

Students must elect at least 13 credits of work a week. To take less than that number, a student must secure permission from the Students' Work Committee.

Students ordinarily may not elect more than 17 credits. After two quarters of residence a student who has an average of  $1\frac{1}{2}$  honor points per credit for the previous two quarters, and who has no condition or failure the previous quarter may elect 18 credits.

All freshmen and sophomores are required to elect one third of their credit hours in the afternoon.

To secure a degree from this college a student must earn at least 45 credits in residence at this college. If the term of residence is only one year, the year must be the senior year; and in any case, he must spend two "quarters" of the senior year in residence.

## I. GENERAL COURSE LEADING TO THE DEGREE OF BACHELOR OF ARTS

### GENERAL REQUIREMENTS

1. The student must earn 180 credits and 180 honor points.
2. The student may not receive credit for beginning courses (two quarters, 10 credits) in more than one of the foreign languages, except Greek and Italian, unless his major adviser approves such courses as necessary for the proper development of the student's major work.
3. Not later than the end of his sophomore year, each student must elect the department in which he intends to do his major work. He will then be assigned to a major adviser by that department.

### *Junior College*

Departments offering Junior College courses are grouped as follows:

- Group A English, Rhetoric, Public Speaking.
- Group B Foreign languages: German, Greek, Latin, Romance Languages, Scandinavian.
- Group C Social sciences: Anthropology, Economics, History, Political Science, Sociology.
- Group D Natural sciences: Animal Biology, Astronomy, Bacteriology and Immunology, Botany, Chemistry, Geology and Mineralogy, Human Physiology, Physics, Psychology
- Group E Mathematics, Music, Philosophy.



## REQUIREMENTS FOR THE JUNIOR COLLEGE

1. Group A 15 credits in English-Rhetoric  
 Group B The student must present for entrance four years of one foreign language, or he must complete 20 credits in one language in college, or he must continue a language, which he presented for entrance, according to the following schedule:
- | <i>Amount Presented<br/>for Entrance</i> | <i>Amount Required<br/>in Junior College</i> |
|--|--|
| Four years of one language               | None   |
| Three years of one language              | 5 credits in same language                   |
| Two years of one language                | 10 credits in same language                  |
| Less than two years of one language      | 20 credits in one language                   |
- Group C 10 credits in one subject  
 Group D 10 credits in one subject (courses in physiography and geography do not meet this requirement)  
 Group E No requirement

2. Two of these required subjects must be begun the first quarter and the others not later than the fourth quarter of a student's course. A subject taken to meet one of these requirements must be continued for at least two quarters.

3. The student must earn 15 additional credits in each of two of the five groups, A, B, C, D, E.

4. The requirements in Physical Education and Drill stated above must be met during the Junior College years.

5. The student must earn a total of 90 credits and 90 honor points.

*Senior College*

*Admission.*—For admission to the Senior College a student must have satisfied the requirements of the Junior College.

*Requirements.*—I. A major sequence, 27 to 36 credits. Each student must complete a coherent and progressive sequence of courses, known as a major sequence, which shall include, as specified by the department which offers it, from 27 to 36 credits in Senior College courses. Such major sequences are offered by the following departments: Animal Biology, Astronomy, Bacteriology, Botany, Chemistry, Economics, English, Rhetoric, and Public Speaking, Geology and Mineralogy, German, Greek, History, Human Anatomy, Human Physiology, Latin, Mathematics, Music, Philosophy, Physics, Political Science, Psychology, Romance Languages, Sociology. The courses constituting a major sequence in any department are announced in the departmental statement.

A student must maintain an average of one honor point per credit hour in the work of the major sequence.

2. A minor sequence, 9 credits. A student must secure in some department other than his major department and in addition to his major sequence, 9 credits in Senior College courses.

## OLD CURRICULUM

Students who intend to satisfy the requirements for graduation or for admission to the Senior College under the Old Curriculum, are referred to page 23 of the 1920-21 bulletin.

## SPECIAL REGULATIONS

*Election of subjects in other colleges or schools.*—In the senior year, any student registered in the College of Science, Literature, and the Arts may elect not to exceed 6 credits per quarter in any other college or school of this University, provided that (1) the courses are indicated by the dean of the college or school in question and approved by the Advisory Committee of this college as suitable for such election; (2) no duplication of subjects occurs; and (3) the subjects so elected are specifically approved by the major adviser. Courses so taken are counted toward the Bachelor of Arts degree on the same terms as those taken in the College of Science, Literature, and the Arts. A list of such courses will be found at the end of the program.

By resolution of the Board of Regents students in any college electing work in any other college must complete the work so elected before they are allowed to come up for the degree for which they are candidates.

Seniors desiring further information regarding courses open should consult the assistant dean for the Senior College.

*Extension courses.*—Credits received in University extension courses are counted as credits in this college only after the student has completed one year of work in the college and has met the requirements of the department concerned.

No student registered in the College of Science, Literature, and the Arts may enroll for an extension course without permission of the Students' Work Committee.

*Correspondence courses.*—The equivalent of some of the introductory courses in various departments is offered by correspondence under the auspices of the General Extension Division. Those desiring information regarding such courses should consult the General Extension Division.

Students registered in this college must obtain the permission of the Students' Work Committee to register for correspondence courses.

## II. FOUR-YEAR COURSE LEADING TO THE DEGREE OF BACHELOR OF ARTS WITH A MAJOR IN MUSIC

To secure the degree of Bachelor of Arts with a major in music, a student must fulfill the requirements of both the Junior and Senior colleges as stated on pages 23 and 24, securing 144 credits in courses other than practical music (piano, voice, etc.). The following program satisfies the requirement for a student who has had three years of a single language in high school. Other students will require more than four years to complete the course.

In order to register for courses in music during his freshman and sophomore years, a student must signify his intention of working for a

major in music. A student transferring to another major would lose credit for courses in practical music taken during the freshman and sophomore years.

Students completing the course as announced in 1920-21, will receive the degree of Bachelor of Music. However, students now pursuing that course may secure the Bachelor of Arts degree by fulfilling the new requirements.

FRESHMAN YEAR		SOPHOMORE YEAR	
	Credits		Credits
Piano, etc.....	9	Piano, etc.....	9
Harmony .....	9	Counterpoint .....	6
Ear-Training .....	3	Ear-Training .....	0
History 11-12-13.....	10	Psychology 1-2, 4-5.....	10
English A-B-C .....	15	Elective in one group other than E (see p. 24).....	15
		Language (see p. 24).....	5
JUNIOR YEAR			
	Group I	Group II	Group III
Advanced Harmony.....	..	6	..
Ensemble .....	6 <sup>1</sup>	6	9
History of Music.....	9	9	9
Normal Piano.....	..	..	6
Piano .....	9	9	9
Elective .....	15 to 27	9 to 21	6 to 18
SENIOR YEAR			
	Group I	Group II	Group III
Advanced Counterpoint .....	..	6	..
Advanced Normal Piano.....	..	..	6
Analysis .....	3	..	..
Bach-Beethoven .....	9	9	9
Composition-Orchestration .....	..	9	..
Ensemble .....	6	6	6
Piano .....	9	9	9
Romantic Movement.....	6	..	6
Elective .....	6 to 18	0 to 12	3 to 15

### III. A FIVE-YEAR COURSE IN TRAINING FOR DIPLOMATIC AND CONSULAR SERVICE

The degree of Bachelor of Arts is conferred at the end of four years. Students whose programs satisfy the requirements of the Graduate School may receive the degree of Master of Arts at the end of the fifth year.

<sup>1</sup> Students in Group I may take Opera as an alternative.

## JUNIOR COLLEGE

Students in this course must satisfy the Junior College requirements. In addition, certain prescribed courses in history, economics, and political science should be taken under the direction of the student's major adviser.

## SENIOR COLLEGE

In the Senior College the student will take the following work:

Major sequence E in political science and such additional work in economics, history, and law, not exceeding 30 credits, as may be prescribed by the major adviser and the committee in charge of the course.

In foreign languages, 15 credits, or at least a minor sequence. A speaking knowledge of one language is required and a thoro reading knowledge of a second.

Electives to make up a total of not less than 90 credits in this college.

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

## GRADUATE SCHOOL

In the fifth year the student will take the following work:

Research in economics or political science for the consular service.

Research in history or political science for the diplomatic service.

Additional Senior College courses in history, economics, law, or political science, to be selected by the student under the direction of the Graduate School and the committee in charge of the course.

## IV. A FIVE-YEAR COURSE OF TRAINING FOR STATE AND FEDERAL ADMINISTRATION

The degree of Bachelor of Arts is conferred at the end of four years. Students whose programs satisfy the requirements of the Graduate School may receive the degree of Master of Arts at the end of the fifth year.

## JUNIOR COLLEGE

Students in this course must satisfy the Junior College requirements. Certain specified courses in history, economics, and political science must be taken under the direction of Mr. J. S. Young of the Department of Political Science.

## SENIOR COLLEGE

In the Senior College the student will take the following work:

Major sequence A or F in political science. In economics 18 credits selected from the following courses: 191f-192w, Public Finance; 193s, State and Local Taxation; 161f, Labor Problems; 72f, Economics of Transportation; 14s, Statistics; 158w, Government and Business; 154s, Public Utilities; 41s, Financial History of the United States.

In history 9 credits selected from 113-114-115, Economic History of the United States; 144f-145w, History of Minnesota; and 146w-147s, Constitutional History of the United States.

Electives to make up a total of not less than 90 credits in this college. The selection of these courses will be made under the direction of the major adviser and the committee in charge of the course.

## GRADUATE SCHOOL

In the fifth year the student will take the following work:

Research in the field of American government or administration.

Additional Senior College courses in history, economics, law, or political science, to be selected by the student under the direction of the Graduate School and the committee in charge of the course.

## V. MILITARY SCIENCE AND TACTICS

## REQUIRED WORK

All physically fit male students are required to take military training during the first two undergraduate years of their course unless they have secured such training at an approved institution endorsed by the Military Department. When this course is entered upon it must be carried to completion as a prerequisite for graduation. No credits are allowed for this work.

All students, of any class, registered for military training, are members of the Reserve Officers' Training Corps, and as such are issued all necessary uniform clothing and equipment by the government free of charge.

After completing the two years required students may discontinue military work if they wish.

## ELECTIVE WORK

Students who have completed the Basic Course, R.O.T.C., and are selected for advanced work by the professor of Military Science and Tactics, and who sign an agreement with the government to continue this work for the remainder of their college course (not to exceed two years) and to attend one summer training camp, are eligible for the Advanced Course, R.O.T.C., prescribed in Special Regulations No. 44, War Department, 1919.

The faculty will recommend for graduation any student who has satisfactorily completed the work of the Advanced Course, R.O.T.C., and has completed 174 college credits, with 174 honor points, including all other specific requirements for graduation.

Students enrolled in the Advanced Course, R.O.T.C., are furnished with the necessary uniforms and equipment, and receive from the government an allowance of fifty-three cents per day while enrolled in this course, except during the period in which they are actually at a training camp, when they are paid at the rate of one dollar per day.

All students who complete the Advanced Course, R.O.T.C., and who graduate from the University will, if recommended by the professor of Military Science and Tactics and the president of the University, be commissioned in the Officers' Reserve Corps of the United States Army.

VI. FOUR-YEAR COURSE IN AMERICANIZATION TRAINING  
WORK LEADING TO THE DEGREE OF BACHELOR  
OF SCIENCE

This course is developed to equip its students with the anthropological, professional, technical, and practical field knowledge of the various phases of americanization leadership. Its graduate courses lead to higher degrees in anthropology.

The following program presents the required courses to be taken during the freshman and sophomore years by all students who are registered in the four-year course. The courses for the junior and senior years are merely suggested. All registrants will find a conference with the department the best way to answer questions about registration.

1. Animal Biology 1-2
2. Anthropology 1, 4, 5, 12
3. Economics 3-4, Principles of Economics
4. English A-B-C
5. History 1-2, Modern World, 5-6, American History
6. Modern Language, 10 credits
7. Political Science 1
8. Psychology 1-2

FRESHMAN YEAR

FALL		WINTER		SPRING	
	Credits		Credits		Credits
English A.....	5	English B.....	5	English C.....	5
History 1.....	5	History 2.....	5	History 5.....	5
Animal Biology 1.....	5	Animal Biology 2.....	5	Anthropology 1.....	5

SOPHOMORE YEAR

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Modern language.....	5	Modern language.....	5	Political Science 1.....	5
Anthropology 5.....	3	Anthropology 4.....	3	Anthropology 12.....	3
History 6.....	5	Economics 3.....	5	Economics 4.....	5
Psychology 1.....	3	Psychology 2.....	3	Electives .....	0-4

JUNIOR AND SENIOR YEARS

Credits  
 Credits in Department of  
 Americanization ..... 60  
 Electives ..... 30  
 (Consult director concerning  
 electives)

For the requirements for teacher's certificate in americanization training, see bulletin of College of Education.

For courses in home economics open to students in americanization training, see statement of Department of Home Economics.

VII. FOUR-YEAR COURSE IN ARCHITECTURE AND DECORATION LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

This course offers to students of the College of Science, Literature, and the Arts the opportunity to prepare themselves for certain lines of work such as domestic architecture and interior decoration without taking the full technical course in Architecture.

Students registering in this course should secure the approval of the staff in Architecture, and the advice of the staff should be sought with regard to the choice of electives and of special courses in architecture.

SCIENCE, LITERATURE, AND THE ARTS

REQUIRED	Credits
English A-B-C.....	15
Mathematics 6, with prerequisites..	5 or 10
French (See Junior College require- ments, page 24).....	0 to 20
History 11-12-13.....	10
Physics 1 and 2 and any one of the continuations, 21, 22; 31, 32; or 41, 42 .....	8
Architecture 4-5-6.....	18

FOR THOSE WHO ENTER WITH HIGHER ALGEBRA AND TWO YEARS OF FRENCH

*Freshman Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
English A.....	5	English B.....	5	English C.....	5
Mathematics .....	5	Physics 1-2.....	4	Physics .....	4
French .....	5	French .....	5	Elective .....	4 to 8
	<hr/> 15		<hr/> 14		<hr/> 13 to 17

*Sophomore Year*

Credits	
Architecture 4-5-6...18	
History 11-12-13.....10	
Electives .....	12 to 24 (To complete a total of 90 for the two years)
	<hr/> 39 to 51

*Junior Year*

Credits	
Architecture .....	27
Electives .....	18

*Senior Year*

Credits	
Architecture .....	36
Electives .....	9

VIII. A FIVE-YEAR COURSE OF TRAINING FOR MUNICIPAL ADMINISTRATION AND ENGINEERING

The degree of Bachelor of Science is conferred at the end of four years. Students whose programs satisfy the requirements of the Graduate School may receive the Master's degree at the end of the fifth year.

FIRST YEAR

	Credits
Rhetoric-English .....	15
Modern language.....	10
Engineering mathematics.....	10 or 15
American Government.....	5
Electives .....	5 or 10
	<hr/> 45

## COURSES OF STUDY

31

### SECOND YEAR

	Credits
Municipal Government.....	5
Principles of Economics.....	10
History .....	10
Physics .....	12
Drawing .....	5
Electives .....	5

47

### THIRD AND FOURTH YEARS

(Courses in italics are required; others are elective)

**POLITICAL SCIENCE:** 171, *Municipal Corporations*; 115, *Municipal Problems*; 221-222-223, *Seminar in Local Government and Administration*; 51-52-53, *Business Law*; 157, *Police Power*; 111, *Government of Minnesota*; 141, *Problems in State Government*.

**ECONOMICS:** 25-26, *Principles of Accounting*; 191-192, *Public Finance*; 193, *State and Local Taxation*; 154, *Public Utilities*; 161, *Labor Problems and Trade-Unionism*; 91, *Principles of Organization and Management*; 158, *Government and Business*; 72, *Economics of Transportation*; 14, *Elements of Statistics*.

**ENGINEERING:** 11-12-13, *Surveying*; 51-52, *Highways and Pavements*; 162, *Water Supply*; 163, *Sanitary Engineering*; 272, *City Planning*.

**OTHER COURSES:** *Bacteriology 1*, *General Bacteriology*; *Sociology 1*, *Introduction to Sociology*; *Sociology 55*, *Housing Problems*; *Sociology 123*, *Social Statistics*.

### FIFTH YEAR

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

## IX. FOUR-YEAR COURSE IN SOCIAL AND CIVIC WORK LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

This course is organized in response to a demand for distinctive technical training for professional service. Satisfactory completion of the four-year course leads to the degree of Bachelor of Science. The fifth year's work leads primarily to a special certificate of proficiency; but students whose programs satisfy the requirements of both the training course and the Graduate School may receive the degree of Master of Arts in addition to the special certificate.

The organization of the course of study aims to give the undergraduate the fundamentals of a broad modern education with considerable emphasis upon history, economics, political science, psychology, and language. To this end all intensive specialization is reserved for the fourth and later years of study.

The fourth year includes comparatively few required courses, but a long list of advised electives, for which other electives may be substituted according to the individual student's needs. With professional instruction



in view, during the fifth and later years of study only an irreducible minimum of specified courses is required; the emphasis is laid upon providing individual programs to meet the student's special inclination, aptitudes, or need.

## FIRST AND SECOND YEARS

REQUIRED  
 English A-B-C  
 Sociology 1  
 Economics 3-4  
 Political Science 1  
 Psychology 1-2-3

ELECTIVE  
 Sociology 6, 14  
 Animal Biology 1-2  
 Anthropology 1, 5, 12  
 Philosophy 2, 3

## THIRD YEAR

REQUIRED  
 Sociology 51, 52, 53, 55, 56, 57, 60, 61  
 Economics 62, 161  
 Political Science 11

ELECTIVE  
 Sociology 100, 101, 102, [104],<sup>1</sup> 114  
 Anthropology 110, [112]<sup>1</sup>  
 Bacteriology 1  
 Economics [118-119-120]<sup>1</sup>  
 Education 1, 3  
 Pathology and Public Health (Medical School) 103  
 Political Science 7, 58

## FOURTH YEAR AND GRADUATE WORK

REQUIRED  
 Sociology 100 (if not already elected),  
 110, 119, 120, 122, 123, 134, 135  
 Political Science 58 (if not already  
 elected)

ELECTIVE  
 Sociology 128, 130, [132],<sup>1</sup> 133, 138,  
 139, 140, 141  
 Animal Biology 183  
 Anthropology 113, 114, 115  
 Civil Engineering 163  
 Economics 25-26, 162, 167-168, 191-192  
 Home Economics 40, 70, 71, 72  
 Philosophy 124  
 Physical Education 43-44-45, 33  
 Political Science [145],<sup>1</sup> 151, 152, 157  
 Psychology 144-145  
 Educational Psychology 134-135-136  
 Agricultural Education 73

NOTE: For a fifth year's work consisting of nine hours of class work and twelve hours of supervised field work per week for three quarters the student will receive a special certificate. He will be eligible for the Master's degree if his program is approved by the Graduate School and if he prepares a satisfactory thesis in addition to the work required for the special certificate.

## X. PRE-BUSINESS COURSE

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

1. 10 credits in Economic History (Economics 1-2)
2. 15 credits in English-Rhetoric (Rhetoric A-B-C)
3. 10 credits in *one* of the following social sciences: anthropology, history, political science, sociology

<sup>1</sup> Courses in brackets not offered in 1921-22.

4. 10 credits in mathematics or in *one* of the laboratory sciences: animal biology, botany, chemistry, physics. (Mathematics 8 and 20 are required of students who intend to specialize in accounting or banking.)
5. Four years of one language in preparatory school or 20 credits in one language in college, or the continuance of a language begun in preparatory school according to the following schedule:

*Amount presented for entrance      Amount required in the pre-business course*

- |                                       |                             |
|---------------------------------------|-----------------------------|
| 4 years of one language.....          | None                        |
| 3 years of one language.....          | 5 credits in same language  |
| 2 years of one language.....          | 10 credits in same language |
| Less than 2 years of one language.... | 20 credits in one language  |
6. 6 credits in psychology (Psychology 1-2)
  7. 10 credits in the Principles of Economics (Economics 3-4)
  8. 8 credits in the Principles of Accounting (Economics 25-26). Three additional credits (Economics 27) are required of students who expect to specialize in accounting
  9. 5 credits in Statistics (Economics 14)
  10. A total of at least 90 credits and an average of one honor point per credit.

NOTE: Students preparing to follow lines of business relating to agriculture may substitute for items 1, 7, and 9 Courses 20-21, 5-6 and 13 in the Department of Agricultural Economics. (See bulletin of the College of Agriculture.) In lieu of items 3 and 4, they are expected to take 5 credits in American Government, 20 credits in chemistry and animal biology or botany, and a minimum of 5 credits in technical agricultural courses.

## XI. GENERAL COURSE PRELIMINARY TO THE COLLEGE OF EDUCATION

The requirements for admission to the College of Education are identical with those for admission to the Senior College, with the addition that students must have completed six credits in General Psychology. All students who expect to receive the teacher's certificate from the University of Minnesota at the end of a four-year college course must register in the College of Education beginning with their junior year.

## XII. PRE-DENTAL COURSES

1. The one-year course consists of a year of prescribed work during which the students are registered in this college and are subject to its regulations. The required courses are as follows:

1. Animal Biology 4-5-6 (12 cr.)
2. Chemistry 4-5, General Chemistry, two quarters (8 cr.)
3. Chemistry 11, Qualitative Chemistry, one quarter (4 cr.)
4. English A-B-C (15 cr.)
5. Shop practice in the engineering shops, three quarters (6 cr.) or Drawing 41-42-43, Technical Drawing (6 cr.)

2. The two-year course recommended for pre-dental students is identical with the first two years of the seven-year course in Science and Medicine on page 38.

### XIII. GENERAL COURSE PRELIMINARY TO THE LAW SCHOOL

This course is designed to satisfy the requirements for admission to the Law School, which are ninety academic credits and ninety honor points.<sup>1</sup>

Pre-legal students are required to comply with the rules of the Junior College. The following course is recommended by the faculty of the Law School as the best available under these rules:

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

Other subjects recommended for pre-legal students are Psychology 1-2, Public Speaking 45-46, Economics 1-2, 54, 143-144, and 167-168, History 146-147, and 116-117-118, Philosophy 1, 3, 124, and 129, Political Science 7, 11, 15, 65, 121-122, 123, and 161.

The faculty of the Law School strongly advises students to complete the whole or at least three years of the Arts course before entering upon the study of law. Attention is called to the combined six-year course in Arts and Law, on page 37.

#### OTHER VOCATIONAL COURSES

For information and advice regarding the selection of studies in preparation for various vocations, the student should consult the heads of the departments concerned. The studies offered by the college are so varied and the opportunities for election are so great that the student who first forms an intelligent plan can usually find an excellent combination and sequence of courses serving his particular purpose. It is important in preparation for a vocation, not only to secure training in the major subjects, but also in the related subjects.

A considerable collection of literature and other information bearing upon the choice of a vocation and especially upon occupations open to women is available for the use of class officers and students.

#### COMBINED ARTS AND PROFESSIONAL COURSES

For the benefit of those who wish to begin a professional course before completing the four-year course in Science, Literature, and the Arts, the following combination courses and short courses are offered.

#### REGULATIONS GOVERNING COURSES LEADING TO THE BACHELOR OF ARTS DEGREE

1. The degree of Bachelor of Arts shall be voted by the faculty of the College of Science, Literature, and the Arts.

<sup>1</sup> As students are admitted to the Law School only at the beginning of the academic year, those who have at that time 75 credits with 75 honor points may, with the consent of the faculty of the Law School be admitted as special students with the right to become regular by securing the additional credits and honor points before the beginning of the third year in the Law School. But these additional credits can not be secured while carrying the full Law course.

2. For the first three years of his course the student shall be registered in the College of Science, Literature, and the Arts and be subject to the regulations of that college.

3. During his first two years he must satisfy the requirements of the Junior College. (p. 24.)

4. During his junior year he may elect, with the approval of his adviser, from such courses as are designated by the dean of the professional school or college and the assistant dean for the Senior College.

5. One full year of professional work may be offered as the equivalent of the senior year (forty-five credits) of the College of Science, Literature, and the Arts, provided:

(a) That the professional courses taken have as a prerequisite at least two years of collegiate work.

(b) That there is no duplication of courses already taken in the College of Science, Literature, and the Arts.

(c) That no substitution of professional courses for courses in the College of Science, Literature, and the Arts has been permitted.

(Note: It will be the policy of the College of Science, Literature, and the Arts to introduce into its curriculum those courses in other colleges or schools which in the judgment of the faculty may properly be credited toward the Bachelor of Arts degree.)

6. The student shall be required to secure at least one hundred and eighty credits and an average of one honor point per credit hour.

#### XIV. THE FIVE-YEAR COURSE IN ARTS AND CHEMISTRY

The degree of Bachelor of Arts is given at the end of the fourth year and the degree of Bachelor of Science in Chemistry at the end of the fifth year.

##### FRESHMAN, SOPHOMORE, AND JUNIOR YEARS

During the first three years of the course the student is registered in the College of Science, Literature, and the Arts and is subject to its rules. He must complete the requirements of the Junior College and 45 credits in the Senior College, approved by the dean of the School of Chemistry and the assistant dean for the Senior College, and must secure 135 honor points. This work must include the following subjects:

1. Chemistry 6-7-8 or 9-10
2. Chemistry 12-13, Qualitative Analysis
3. Chemistry 20-21, Quantitative Analysis
4. Drawing 41-42-43, Technical Drawing
5. German 28-29, Advanced Chemical German, and prerequisites
6. Mathematics 6, 7, 30, 50, 51, 52
7. Physics, 1, 2, 21, 22, 41, 42

The program for students entering with chemistry, higher algebra, and two years of German is given below. Programs for students entering without these requirements are in the offices of the assistant dean for the Junior College and of the dean of the School of Chemistry.

##### SENIOR YEAR

During his fourth year the student must complete the work required in the junior year of the four-year course in Chemistry of the School of Chemistry and must maintain a standing equivalent to that required by this college for graduation.

The degree of Bachelor of Arts is voted by the College of Science, Literature, and the Arts at the end of the fourth year, and the student must present a total of not less than 180 credits and 180 honor points, including the required work mentioned above.

#### POST-SENIOR YEAR

The fifth year is the same as the fourth year of the four-year course in Chemistry, and upon its completion the student will be entitled to the degree of Bachelor of Science in Chemistry.

#### SUGGESTED PROGRAM

For students entering with chemistry, higher algebra, and two years of German.

##### *Freshman Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Rhetoric-English A.....	5	Rhetoric-English B.....	5	Rhetoric-English C.....	5
Chemistry 9.....	5	Chemistry 10.....	5	Chemistry 12.....	5
Mathematics 6.....	5	Mathematics 7.....	5	Mathematics 30.....	5

##### *Sophomore Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
German 27.....	3	German 28.....	3	German 29.....	3
Mathematics 50.....	5	Mathematics 51.....	5	Mathematics 52.....	5
Chemistry 13.....	5	Chemistry 20.....	5	Chemistry 21.....	5
Drawing 41.....	2	Drawing 42.....	2	Drawing 43.....	2

##### *Junior Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Chemistry 35.....	5	Chemistry 36.....	5	Chemistry 130.....	3
Physics 1, 2.....	4	Physics 21, 22.....	4	Physics 41, 42.....	4
Social Science.....	5	Social Science.....	5	Chemistry 137.....	2
Electives .....	3	Electives .....	3	Electives .....	5

#### XV. SEVEN-YEAR COURSE IN ARTS AND DENTISTRY, LEADING TO THE DEGREES OF BACHELOR OF ARTS AND DOCTOR OF DENTAL SURGERY

During the first three years of this course the student does his work in the College of Science, Literature, and the Arts subject to the regulations governing other students of the college and must secure 135 credits. In his third year the student elects work in this college subject to the approval of the dean of the College of Dentistry and of the assistant dean for the Senior College. The final year of the course in the College of Dentistry counts as the equivalent of the fourth year (45 credits) of the Arts course. During this year the student must maintain a standing equivalent to that required by this college for graduation. During the four years the student must earn 180 honor points.

XVI. SIX-YEAR COURSE IN ARTS AND LAW, LEADING TO  
THE DEGREES OF BACHELOR OF ARTS AND  
BACHELOR OF LAWS

The work of the first three years of this course is done in the College of Science, Literature, and the Arts and is subject to the regulations which govern the work of other Arts students. During these three years the student must secure not less than 135 credits. During his third year the student will elect work in this college subject to the approval of the dean of the Law School and the assistant dean for the Senior College. The first year of the course in the Law School counts as the equivalent of the fourth year (45 credits) of the Arts course. During this year the student must maintain a standing equivalent to that required by this college for graduation. During the four years the student must earn 180 honor points.

XVII. EIGHT-YEAR COURSE IN ARTS AND MEDICINE, LEAD-  
ING TO THE DEGREES OF BACHELOR OF ARTS,  
BACHELOR OF MEDICINE, AND DOCTOR  
OF MEDICINE

During the first three years of this course, the student does his work in the College of Science, Literature, and the Arts subject to the regulations governing other students of the college, and must secure 135 credits. During his third year, the student elects work in this college subject to the approval of the director of the professional course and the assistant dean for the Senior College. The first year of the course in the Medical School counts as the equivalent of the fourth year (45 credits) of the Arts course. During this year, the student must maintain a standing equivalent to that required by this college for graduation. During the four years the student must earn 180 honor points.

FRESHMAN AND SOPHOMORE YEARS

The following subjects must be included:

Rhetoric-English, 15 credits

Zoology, 12 credits

Qualitative Analysis and Organic Chemistry, with the elementary courses prerequisite to them

French or German sufficient to secure a reading knowledge

Three quarters of work in physics (including laboratory) with prerequisite work in mathematics

The following subjects are recommended as electives: freehand drawing, Latin, higher mathematics, a fourth quarter of physics, psychology, and sociology.

JUNIOR YEAR

The student elects work in this college subject to the approval of the director of the professional work and the assistant dean for the Senior College.

SENIOR YEAR

This year is taken in the Medical School, and is counted toward the degree of Bachelor of Arts.

XVIII. SEVEN-YEAR COURSE IN SCIENCE AND MEDICINE,  
LEADING TO THE DEGREES OF BACHELOR OF SCIENCE,  
BACHELOR OF MEDICINE, AND DOCTOR OF MEDICINE

To be eligible for admission to the Medical School, students in this course must secure in the College of Science, Literature, and the Arts not less than 90 credits and an average of one honor point per credit hour, and must complete the subjects prescribed above for the eight-year course in Arts and Medicine, substituting 9 credits in rhetoric for 15 credits in rhetoric-English.

Three quarters of physics are required; a fourth is strongly advised.

Students who enter with higher algebra elect trigonometry the first quarter.

Students must select such language work as will give them a reading knowledge of medical French or medical German before entering the Medical School. They may meet this requirement by passing two quarters' work in scientific French (French 8-9-10), or medical German (German 31-32), or by taking a special examination after completing 15 credits of French or two college years of German. This examination is conducted by the department concerned.

Electives in the second year or summer quarter may be taken from any courses open to sophomore students in the College of Science, Literature, and the Arts.

A. FOR THOSE WHO ENTER WITH TWO YEARS OF EITHER FRENCH  
OR GERMAN

*First Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Chemistry .....	4	Chemistry .....	4	Chemistry .....	4
French .....	3	French .....	3	French .....	3
or		or		or	
German .....	4	German .....	3	German .....	3
Algebra or		Trigonometry .....	5		
Trigonometry .....	5	or		Physics .....	4
Zoology .....	4	Physics .....	4	Zoology .....	4
		Zoology .....	4		

*Second Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Chemistry .....	4	Chemistry .....	4	Chemistry .....	4
Rhetoric .....	3	Rhetoric .....	3	Rhetoric .....	3
Physics .....	4	Physics .....	4	Elective .....	5
		or			
Elective .....	4-6	Elective .....	5	Elective .....	4-5
		Elective .....	4-5		

B. FOR THOSE WHO ENTER WITHOUT LANGUAGE AND WITHOUT HIGHER ALGEBRA

*First Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Chemistry .....	4	Chemistry .....	4	Chemistry .....	4
French .....	5	French .....	5	French .....	5
or		or		or	
German .....	5	German .....	5	German .....	5
Algebra .....	5	Trigonometry .....	5	Physics .....	4
Zoology .....	4	Zoology .....	4	Zoology .....	4
SUMMER QUARTER					
Credits					
Physics .....					
Electives .....					

*Second Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Chemistry .....	4	Chemistry .....	4	Chemistry .....	4
German .....	5	French .....	3	French .....	3
or		or		or	
Electives .....	2 to 6	German .....	3	German .....	3
Physics .....	4	Physics .....	4	Electives .....	3 to 7
Rhetoric .....	3	or		Rhetoric .....	3
Electives .....					
Rhetoric .....					

JUNIOR AND SENIOR YEARS

The work during these two years is taken in the Medical School, and is credited toward the degree of Bachelor of Science. To secure this degree the student must have 180 credits and 180 honor points.

Students who have completed elsewhere two or more years of collegiate or university work which includes the required subjects specified above and which is in other respects the full equivalent of the two years of academic work required in the seven-year combined course, will be awarded the degree of Bachelor of Science on recommendation of the faculty of the College of Science, Literature, and the Arts, provided they meet the scholarship requirements stated above. The credit value of work done elsewhere shall be determined by the Students' Work Committee of the College of Science, Literature, and the Arts, but such credits shall not become effective until the student shall have completed, with the required standing, two full years of work in the Medical School of the University of Minnesota.

XIX. SIX-YEAR COURSE IN ARTS AND ARCHITECTURE

This course is designed to combine with the full technical course in Architecture the broad cultural training recognized as most desirable in preparation for the practice of this profession. The course will lead to the degrees of Bachelor of Science at the end of four years, and Master of Science in Architecture at the end of six years.



Students wishing to elect this course should consult the Department of Architecture. For the first two years the requirements do not differ materially from those laid down in the course in Architecture and Decoration on pages 29 and 30 of this bulletin.

## XX. FIVE-YEAR COURSE IN ARTS AND NURSING LEADING TO THE DEGREES OF BACHELOR OF SCIENCE AND GRADUATE IN NURSING

During the first seven quarters of this course the student does her work in the College of Science, Literature, and the Arts. This is followed by nine quarters spent in the University School of Nursing, during which period the student will be assigned to the University Hospital or to one of the group of hospitals under the direction of the School of Nursing.

The last two quarters will be devoted to elective work in the University, either in preparation for teaching and supervision in schools of nursing, or for public-health nursing.

The student is required to earn one hundred and thirty-five credits and one hundred and thirty-five honor points in courses which regularly carry credit in the College of Science, Literature, and the Arts. The satisfactory completion of the required professional work is accepted as the equivalent of the senior year in this college.

### FRESHMAN YEAR

	Credits
Rhetoric-English .....	15
Foreign language.....	15
Chemistry .....	15
	<hr/>
	45

### SOPHOMORE YEAR

FALL	Credits	WINTER	Credits	SPRING	Credits
Psychology .....	3	Psychology .....	3	Psychology .....	3
History .....	5	History .....	5	Human physiology 4....	5
Economics 3.....	5	Economics 4.....	5	Elem. bacteriology 1....	5
Rhetoric 15.....	3	Rhetoric 16.....	3	Human anatomy 2.....	3
	<hr/>		<hr/>		<hr/>
	16		16		16

### THIRD YEAR—FALL QUARTER

	Credits
Elem. pharmacology.....	3
Bacteriology 101.....	4
Home economics.....	5
Sociology 1.....	5
	<hr/>
	17

THIRD YEAR—WINTER QUARTER

Theoretical and practical work during this quarter includes lettering, history and ethics of nursing, hospital economy, personal hygiene, nursing practice, and practical dietetics.

During this quarter the student spends a portion of each day in the wards under supervision.

At the completion of this quarter's work, the student enters the junior class of the School of Nursing and continues her work in theory and practice with the students taking the three-year course.

FOURTH YEAR

Practical and theoretical work at hospital.

FIFTH YEAR

Two quarters in the hospital.

Two quarters in class work during which the student must elect courses carrying 25 credits in the College of Science, Literature, and the Arts, and must complete the requirements stated above for three years' work in this college.

## DEPARTMENTAL STATEMENTS

### EXPLANATIONS

A dagger (†) indicates that all quarters of the course must be completed before credit is received for any quarter.

*Course numbers.*—Junior College courses (primarily for freshmen and sophomores) are numbered from 1 to 49. Senior College courses are numbered as follows: courses primarily for juniors and seniors, from 50 to 99; for juniors, seniors, and graduates, from 100 to 199; for graduates only, from 200 up. This system is not uniformly followed by departments in other colleges than Science, Literature, and the Arts.

### ANIMAL BIOLOGY

Professor HENRY F. NACHTRIEB, Head; HAL DOWNEY, JOHN B. JOHNSTON, WILLIAM A. RILEY, THOMAS S. ROBERTS, CHARLES P. SIGERFOOS; Associate Professor ELMER J. LUND; Assistant Professors ROYAL CHAPMAN, OSCAR W. OESTLUND; Instructors DWIGHT E. MINNICH, ADOLPH RINGOEN; Teaching Fellow GEORGE H. CHILDS; Assistants JOHN A. CEDERSTROM, MARION IRWIN, BRAND A. LEOPARD, LEWIS E. NELSON, EMILY H. PAYNE.

### ANIMAL BIOLOGY

#### *Major Advisers*

Professors Nachtrieb, Downey, and Riley; Associate Professor Lund; Assistant Professor Chapman.

#### *Major Sequences*

A. In ecology, 109-110, 183; 117-118-119; 197-198-199. (Prerequisites, 1-2, 37-38-39.)

B. In embryology, 181-182, 183; 197-198-199 or Mammalian Embryology; and at least 9 additional credits in approved courses. (Prerequisite 1-2, 9-10, 23 or 46-47†.)

C. In entomology, 125-126-127 or 139-140; 144-145-146 or 197-198-199; 197-198-199 or 9 more credits in approved courses. (Prerequisite 1-2, 37-38-39, 23 or 11 or 9-10.)

D. In physiology, 109-110, 183; 197-198-199. In addition the student should get 10 or 12 credits early in his course in one of the following: Human Physiology 100-101, Physical Chemistry 140-141-142, Organic Chemistry 35-36, Physiology 103, 104. (Prerequisite 1-2, 9-10, 43 or 47.)

E. In hematology, 109-110 or Human Physiology 103, 104 or An. Biol. 181-182; 149-150-151; 154-155 or 197-198-199. (Prerequisite 1-2, 9-10, Anat. 5.)

NOTE: Any of the above sequences may be modified with the approval of the adviser, who will also suggest related courses offered in this and other departments.

Courses in human anatomy and mammalian embryology may be arranged for with the head of the Department of Anatomy.

Courses in human physiology may be arranged for with Dean Lyon.

Courses in psychology may be arranged for with Mr. Elliott.

#### INTRODUCTORY COURSES

- 1-2†. GENERAL ZOOLOGY. A survey of the animal kingdom, emphasizing the principles of structure, physiology, embryology, classification, and evolution of animals. Textbook, lectures, laboratory, and quizzes. MR. SIGERFOOS, MR. MINNICH, MR. RINGOEN.
- 5-6-7†. GENERAL ZOOLOGY. Same as 1-2, for pre-medical and pre-dental students. MR. SIGERFOOS, MR. RINGOEN.
- 14-15-16†. GENERAL ZOOLOGY. Same as 1-2, for Agriculture, Forestry, and Home Economics. MR. SIGERFOOS, MR. RILEY.
23. PRINCIPLES OF ANIMAL BEHAVIOR. Comparative physiology of the nervous system, sense organs, and reactions in lower animals. Laboratory, lectures, and reading. MR. LUND.
43. INTRODUCTORY ENTOMOLOGY. The structure, development, and classification of insects. An introductory course in entomology and preparatory for courses in economic entomology. MR. OESTLUND.
44. ANIMAL PARASITES AND PARASITISM. Lectures and laboratory work. A consideration of the origin and biological significance of parasitism, and the structure, life history, and economic relations of representative parasites. Methods of control and prevention will be emphasized. MR. RILEY.
45. RELATIONS OF INSECTS TO DISEASE. The causation and transmission of disease by insects and other arthropods. Life history, habits, and methods of control of hominoxious species. MR. RILEY.
48. GENERAL ECOLOGY. A general course covering the relationships of animals, animal societies, and faunas to the inorganic and organic factors of the environment. The course consists of lectures, assigned reading, recitations, laboratory, and field work. MR. CHAPMAN.

#### INTERMEDIATE AND ADVANCED COURSES

- 9-10†. HISTOLOGY. A comparative microscopic study of the origin and structure of the tissues of vertebrates and invertebrates, and of the organs of mammals. Textbook, lectures, and laboratory. MR. DOWNEY.
11. CYTOLOGY AND TECHNIC. The structure and properties of the animal cell and the elements of microscopical technic. Lectures; reference and laboratory work. MR. NACHTRIEB.

- 17-18†. GENERAL PHYSIOLOGY. Physical and chemical properties of living protoplasm and cells. Various organisms which show to the best advantage the nature of physiological processes and introduce the student to quantitative, experimental methods in biology. Laboratory, lectures, reading. MR. LUND.
- 37-38-39†. GENERAL ENTOMOLOGY. Elements of entomology leading up to discussion of the principles of taxonomy and their application to the classification of insects. MR. OESTLUND.
- 46-47†. ORNITHOLOGY. Study of the structure, classification, and habits of birds with special reference to birds of Minnesota. Considerable time devoted to field study. Bird or field-glasses and handbook required. Laboratory, lectures, and quizzes. Class limited to ten. MR. ROBERTS.
75. NATURE STUDY. Discussions, references, field and laboratory work. Especially for the fitting of teachers in the secondary schools. MR. SIGERFOOS.
107. PROTOZOOLOGY. Lectures; reference and laboratory work on the structure and life histories of Protozoa. MR. SIGERFOOS.
- 109-110†. GENERAL PHYSIOLOGY. A thoro survey of fundamental physiological processes in organisms. Based on Bayliss's *Principles of General Physiology*. Laboratory, lectures, and reading. MR. LUND.
- 117-118-119†. ECOLOGY OF INSECTS. General principles of ecology with special reference to the insects of Minnesota. Lectures, laboratory, assigned reading, and field work. MR. CHAPMAN.
124. ADVANCED ECOLOGY. Similar to Course 117-118-119 with special field work. MR. CHAPMAN.
- 125-126-127†. ADVANCED ENTOMOLOGY. Advanced work in the lines of morphology and classification of insects, with lectures on the history of entomology. MR. OESTLUND.
130. BIOLOGY AND TAXONOMY OF THE APHIDIDAE. Intensive study of the natural history, bibliography, and classification of the Aphididae. MR. OESTLUND.
- 139-140†. HISTOLOGY AND DEVELOPMENT OF INSECTS. Lectures and laboratory work on the histology, embryonic and postembryonic development of insects. MR. RILEY.
- 144-145-146. ANIMAL PARASITES AND PARASITISM. Lectures and laboratory work. Origin and biological significance of parasitism, and structure, life history, and economic relations of representative parasites. Second half of the work devoted primarily to relation of insects to diseases of man and animals. MR. RILEY.
- 149-150-151†. BLOOD OF VERTEBRATES. A comparative study of blood and blood-forming organs of vertebrates. A portion of time to be devoted to research. MR. DOWNEY.

- 154-155†. HEMATOLOGY. Primarily for medical students, but open to others with proper qualifications. Lectures and laboratory work on the blood and blood-forming organs of man and mammals. MR. DOWNEY.
- 181-182‡. EMBRYOLOGY. A survey of the principles of animal development and a detailed study of the development of the circulatory or urinogenital system of a vertebrate. Lectures; reference and laboratory work. MR. NACHTRIEB.
183. GENETICS AND EUGENICS. Facts and theories of heredity and the application of the laws governing natural inheritances for the improvement of the race. Lectures, references, quizzes, and demonstrations. MR. NACHTRIEB.
- 197-198-199. PROBLEMS. Advanced work in some special line. MR. NACHTRIEB, MR. DOWNEY, MR. JOHNSTON, MR. RILEY, MR. SIGERFOOS, MR. LUND, MR. CHAPMAN, MR. OESTLUND.

GRADUATE COURSES. CONSULT THE BULLETIN OF THE  
GRADUATE SCHOOL.

- 201-204. RESEARCH IN ENTOMOLOGY.
- 213-216. RESEARCH IN BIOLOGICAL OXIDATIONS.
- 217-218-219. RESEARCH IN THE PHYSIOLOGY OF THE LOWER ORGANISMS WITH SPECIAL REFERENCE TO THE PROTOZOA.
- 225-228. RESEARCH ON THE GROSS AND MICROSCOPIC ANATOMY OF THE GANOIDS.
- 229-232. RESEARCH IN ANIMAL HISTOLOGY.
- 233-236. RESEARCH IN VERTEBRATE CONNECTIVE TISSUE WITH SPECIAL REFERENCE TO THE CELLULAR ELEMENTS.
- 237-240. RESEARCH IN VERTEBRATE HEMATOLOGY.
- 245-248. COMPARATIVE NEUROLOGY.
- 249-252. RESEARCH IN NEUROLOGY.
- 253-254. DYNAMICS OF PROTOPLASM AND CELLS.

ENTOMOLOGY AND ECONOMIC ZOOLOGY

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

Professors WILLIAM A. RILEY, ARTHUR G. RUGGLES, FREDERIC L. WASHBURN; Associate Professor WILLIAM MOORE; Assistant Professors ROYAL N. CHAPMAN, HARRY H. KNIGHT, OSCAR W. OESTLUND; Instructor SAMUEL A. GRAHAM.

## COURSES

The courses in this department are closely correlated with those of the Department of Animal Biology. Courses 37-38-39, 44, 117-118-119, 125-126-127, 130, 139-140, 144-145-146 are offered under these numbers in both departments. In addition the following courses in entomology and economic zoology are available:

3. **ELEMENTARY ECONOMIC ENTOMOLOGY.** A brief course dealing with the characteristics and habits of insect pests and beneficial insects and methods of control. Not open to students planning to specialize in entomology. MR. GRAHAM.
4. **ECONOMIC VERTEBRATE ZOOLOGY.** Relation of birds and wild animals to agriculture. Lectures, laboratory, and field work. Identification and study of Minnesota birds and wild animals affecting the horticulturist and agriculturist, methods of combating injurious, and conserving useful, forms. MR. WASHBURN.
8. **FUR-BEARING ANIMALS.** Varieties and habits of fur-bearing animals. Deals with North American fur bearers with special reference to their adaptability to domestication and commercial fur-farming. MR. WASHBURN.
12. **FOREST ZOOLOGY.** Forest animals. Relation of birds and of various four-footed, animals to forest protection. Habits, range, usefulness; the manner of protecting the important large and small game, fish, and birds; fish culture. MR. WASHBURN.
16. **PLANT-PEST CONTROL.** The theory and practice of control of insect and fungous pests of crop plants. Practical applications. Not open to those who have completed Plant Pathology 14. Same as Plant Pathology 6. MR. RUGGLES, MR. STAKMAN, MR. BISBY.
150. **INSECTICIDES AND THEIR ACTION.** A study of the chemical composition, and physical properties, and the physiological action of standard, of little-known, and of new insecticides. MR. MOORE.
197. **INTRODUCTION TO RESEARCH.** Preparation for investigational work in lines of entomology, parasitology, or economic zoology. Advanced laboratory, field, and library work; training in the preparation of bibliographies and manuscripts; special problems. Summer work should be planned when possible. MR. RILEY, parasitology, insect morphology; MR. RUGGLES, general economic entomology; MR. WASHBURN, economic vertebrate zoology; MR. MOORE, insecticides; MR. CHAPMAN, insect ecology; MR. OESTLUND, MR. KNIGHT, systematic entomology.

GRADUATE COURSES. CONSULT THE BULLETIN OF THE GRADUATE SCHOOL.

201-204. RESEARCH IN ENTOMOLOGY.

213-216. RESEARCH, BIOLOGICAL OXIDATIONS.

- 217-218-219. RESEARCH, PHYSIOLOGY OF LOWER ORGANISMS.
- 225-228. RESEARCH, GROSS AND MICROSCOPIC ANATOMY OF GANOIDS.
- 229-232. RESEARCH, ANIMAL HISTOLOGY.
- 233-236. RESEARCH, VERTEBRATE CONNECTIVE TISSUE.
- 237-240. RESEARCH, VERTEBRATE HEMATOLOGY.
- 249-252. RESEARCH IN NEUROLOGY.
- 253-254. RESEARCH, DYNAMICS OF PROTOPLASM AND CELLS.

## ANTHROPOLOGY AND AMERICANIZATION TRAINING

Professor ALBERT ERNEST JENKS, Chairman; Professorial Lecturer RUBY BAUGHMAN; Instructors GLADYS SPEAKER, RUTH M. LINDQUIST (Home Economics), MARGARET K. MUMFORD (Home Economics); Assistant ALONZO G. GRACE.

## COURSES

1. INTRODUCTION TO ANTHROPOLOGY. Origin and development of mankind and the races; racial distribution, and immigration; the bearing of anthropology on present-day thought and problems. MR. JENKS, MR. GRACE.
4. CULTURAL ANTHROPOLOGY. Origin and early development of the most important activities and institutions which had their beginning among primitive man. MR. JENKS.
5. GENERAL IMMIGRATION. Facts of recent world migrations. Chief causes of emigration from old nests, and of immigration to the United States; federal and state problems of immigrant legislation, control, and distribution. MR. GRACE.
12. ETHNOLOGY. The different so-called races of men; their historical classifications; determinance of ethnic types; important ethnic problems. MISS SPEAKER, MR. GRACE.
- 57-58-59. RACE LEADERS AND PROGRAMS. Studies of racial or national leaders in Europe. Preparation of programs, in English, from racial data as means of contact for mutual understanding between Americans and various racial groups in America. MISS SPEAKER.
70. FOOD PREPARATION IN RELATION TO SOCIAL WORK. A study of the principles underlying cookery with special emphasis on the preparation of foods to be used in homes with limited incomes. MISS LINDQUIST.
71. ELEMENTARY DIETETICS FOR THE SOCIAL WORKER. Involves principles underlying adequate feeding. Food habits of different economic and racial groups forming the basis for actual planning and preparation of meals. MISS MUMFORD.



72. HOME-MANAGEMENT PROBLEMS. Involves the making of sound budgets. Studies are based upon racial groups and the size of the family, together with the income. MISS LINDQUIST.
108. PHILIPPINE PEOPLES. Comparative study of the four large ethnic and cultural groups of people in the Philippine Islands; policy of the insular government as it affects American home interests in the Orient. (Not offered in 1921-22.) MR. JENKS.
110. PHYSICAL ANTHROPOLOGY AND AMALGAMATION. Theory of evolution as applied to natural and cultural man. Eugenics in theory, law, and practice. Studies in amalgamation of peoples. MR. JENKS.
112. THE AMERICAN NEGRO. Development of the American negro; his characteristics, conditions, and developing tendencies; negro and immigration adjustments. (Not offered in 1921-22.) MR. JENKS.
113. THE OLDER IMMIGRANTS. Characteristics, contributions, and distribution of the older immigrant peoples in America; their modification and importance to us. MR. JENKS.
114. THE NEWER IMMIGRANTS. Characteristics, contributions, and distribution of the newer immigrant peoples in America; their modification and importance to us. MR. JENKS.
115. AMERICANISMS AND ASSIMILATION. Essential and unique historical americanisms, and their value and virility for the future in America. Conditions and facts of assimilation. MR. JENKS.
117. THE IMMIGRANT WOMAN. The peculiar problems of the woman immigrant in personal service, in industrial groups, in the home, and out of regular employment. MISS SPEAKER.
118. GOVERNMENT AND THE IMMIGRANT. Legal and administrative aspects of americanization. Federal and state laws affecting immigration, citizenship, and naturalization; practical administration of these laws through governmental agencies; political experiences of the foreign-born. MR. GRACE.
- 123-124. PROBLEMS IN ANTHROPOLOGY. An advanced course of method and independent research. MR. JENKS.
128. TECHNIC OF TEACHING ADULTS. Technic of teaching adults—the foreign-speaking, the illiterate, the fatigued—in keeping with the dignity of mature years, and the mental processes of mature minds of foreigners. MISS BAUGHMAN.
129. METHODS OF AMERICANIZATION. Practical methods of americanization in use in the United States, together with facts and conditions of their success and failure. MR. JENKS, MISS BAUGHMAN.
130. ORGANIZATION OF AMERICANIZATION WORK. Existing americanization organizations, federal, state, municipal, neighborhood, industrial, church,

- racial, family, etc. Methods of organizing groups, and of interorganic coöperation. MR. JENKS, MISS SPEAKER, MR. GRACE.
- 131-132-133. SUPERVISED AMERICANIZATION WORK. Practical field work among foreign peoples in our vicinity. MISS BAUGHMAN, MISS SPEAKER, MR. GRACE.
136. AMERICANIZATION DIRECTORSHIP. The direction of americanization work in federal, state, county, city, community, school, industrial, and home groups. MR. JENKS, and expert practical directors in various fields.
141. PRINCIPLES OF ADULT ELEMENTARY EDUCATION. Language study as a fundamental tool in assimilation of peoples; ethnic peculiarities of language habit; racial bases for development of subject-matter; problems of adult language-habit substitution; voluntary versus compulsory nationalization of language. MISS BAUGHMAN.
142. THE ADULT ELEMENTARY LEARNING PROCESS. Physiology of vocal sound production; psychology of sound and symbol interpretation; phonics and phonetics and their relation to reading, spelling, writing, and intelligible speech. MISS BAUGHMAN.
143. THE ADULT ELEMENTARY TEACHING PROCESS. Survey of current methods of instruction; courses of study, textbooks, leaflets, vocabulary studies; beginning, intermediate, and advanced instruction in the English language; teaching materials and devices. MISS BAUGHMAN.
- 150-151-152. FIELD PROBLEMS IN AMERICANIZATION. An advanced course of method and independent research. MISS BAUGHMAN.
204. SEMINAR IN ANTHROPOLOGY. Consult Graduate School bulletin. MR. JENKS.

## ARCHITECTURE

### COLLEGE OF ENGINEERING AND ARCHITECTURE

Professors FREDERICK M. MANN, Head; LEON ARNAL; Associate Professor JAMES H. FORSYTHE; Assistant Professors SAMUEL C. BURTON, ROY C. JONES, ROBERT T. JONES; Special Lecturers PAUL C. GAUGER, ARTHUR R. NICHOLS; Instructors RALPH HAMMETT, CARL E. JOHNSON.

### COURSES

- 4-5†-6. ELEMENTS OF ARCHITECTURE. Beginning study for students in the Science, Literature, and the Arts course in Architecture and Decoration. Includes architectural and freehand drawing. MR. FORSYTHE, MR. HAMMETT, MR. JOHNSON.
- 10-11-12†. FREEHAND DRAWING. Drawing with charcoal, pencil, pen and ink, and color from architectural ornament and details of the figure; drawing from memory. The course is arranged to give an appreciation of balance in light and shade. MR. BURTON, MR. JOHNSON.

- 15-16-17. ARCHITECTURAL DESIGN. Original problems dealing in general with elements of elevation and their composition into simple architectural units. Sketch problems dealing with elementary plan compositions. Individual criticism and library research. MR. R. C. JONES.
- 21-22-23†. ELEMENTS OF CONSTRUCTION. Preparation of plans and detailed working drawings of small frame and small masonry buildings. Specifications, measured drawings of important details of construction. Written reports from buildings under construction. MR. R. T. JONES.
- 51-52-53. FREEHAND DRAWING. Drawing from the antique in charcoal, pen and ink, pastel, and pencil. Painting from still life in oils and water-color. Study of the elementary principles of composition and of color arrangement. MR. BURTON, MR. JOHNSON.
- 55-56-57. ARCHITECTURAL DESIGN. INTERMEDIATE. Original problems dealing with buildings. Sketch problems dealing with plain composition. Individual and general criticism and library research. MR. ARNAL.
- 61-62-63. FREEHAND DRAWING. Drawing and painting from the antique and from life; figure composition. Study of draperies in preparation for work in decoration, figure composition; and of the application of the figure to mural decoration. MR. BURTON.
- 65-66. MATERIALS OF CONSTRUCTION. The properties and processes of manufacture of building materials, and their uses in construction. MR. R. T. JONES.
- 71-72-73. ARCHITECTURAL DESIGN. Original problems dealing with composition of single buildings or groups of buildings and those of special character. Subjects of decorative or imaginative interest. Sketch problems. MR. R. C. JONES.
81. BUSINESS PRACTICE. Relations of the architect, owner, and builder; forms of contracts, professional ethics, and office administration. MR. MANN.
82. LANDSCAPE DESIGN. Theory and practice of landscape design. Lectures and design problems. MR. NICHOLS.
83. DECORATION AND THE ALLIED ARTS. Color theory. History of decoration and ornament, furniture, weaving, glass-making, etc. MR. MANN.
85. ARCHITECTURAL HISTORY. Technical study of the architecture of ancient Egypt, Assyria, Persia, and Greece with emphasis on the latter. Study of political, social, and economic conditions affecting the architecture of this period. Illustrated lectures and library research. MR. FORSYTHE.
86. ARCHITECTURAL HISTORY. Technical study of the architecture of ancient Rome and of the Renaissance in Italy to the end of the fif-

- teenth century. Study of political, social, and economic conditions. Illustrated lectures and library research. MR. FORSYTHE.
87. ARCHITECTURAL HISTORY. Technical study of the architecture of the Renaissance of the sixteenth and seventeenth centuries in Italy, and of the architecture of the Renaissance in Spain. Illustrated lectures and library research. MR. FORSYTHE.
100. ARCHITECTURAL HISTORY. Technical study of the architecture of the Middle Ages in Italy, France, and England; sources and influences in the development of the Romanesque and Gothic styles, particularly in France. Lectures and library research. MR. MANN.
101. ARCHITECTURAL HISTORY. Technical study of developed Gothic architecture in France and England. Early Renaissance architecture in France and England, its sources and affecting influences. Lectures and library research. MR. MANN.
102. ARCHITECTURAL HISTORY. Technical study of the development of architecture from the seventeenth century to and including the present time, particularly in France, England, and America. Lectures and library research. MR. MANN.
105. HISTORY OF SCULPTURE AND PAINTING. Historical study of ancient, Renaissance, and modern sculpture and of the Renaissance and modern schools of painting. MR. BURTON.
200. SPECIAL RESEARCHES IN ARCHITECTURAL HISTORY. MR. MANN.

### ASTRONOMY

Professor FRANCIS P. LEAVENWORTH, Head; Assistant Astronomer WILLIAM O. BEAL.

*Major Adviser*

Professor Leavenworth.

*Major Sequence*

Courses 51-52-53, 101-102-103, and Mathematics 50, 51, 52. (Prerequisites: Mathematics 1-6-7 or Physical Science and Mathematics 6.)

### COURSES

- 4-5. INTRODUCTION TO ASTRONOMY.<sup>1</sup> Lectures and recitations on the elements of astronomy. Illustrated by lantern slides, simple apparatus, equipment at observatory, diagrams, and telescopic observations. Questions, exercises, problems, and naked-eye observations are assigned. MR. BEAL.
7. NAVIGATION. A study of the principles of piloting, dead reckoning, nautical astronomy, rules of the road, etc. This course prepares men for positions as ensigns and as officers in the merchant marine. MR. LEAVENWORTH.

<sup>1</sup> This course satisfies the Junior College requirement for science.

11. DESCRIPTIVE ASTRONOMY.<sup>1</sup> Lectures and recitations on the general principles and fundamental facts of astronomy. Illustrated by lantern slides, simple problems, naked-eye and telescopic observations. MR. LEAVENWORTH, MR. BEAL.
25. STELLAR ASTRONOMY.<sup>1</sup> Review of present state of knowledge concerning the stars. Positions, proper motions, parallaxes, spectra, radial velocities, group and stream motions, brightness, color, and temperatures of the stars. Binaries. Variables. Clusters. Nebulae. Theories of stellar evolution. MR. LEAVENWORTH, MR. BEAL.
- 51-52-53. GENERAL ASTRONOMY. A thoro study of the general principles of astronomy, illustrated by lantern slides, simple problems, and telescopic observations. MR. LEAVENWORTH.
62. ELEMENTS OF PRACTICAL ASTRONOMY. Theory and use of astronomical instruments in determining time, latitude, longitude, azimuth and positions of heavenly bodies. MR. BEAL.
- 101-102-103. PRACTICAL ASTRONOMY. Theory and use of astronomical instruments in determining time, latitude, longitude, positions of heavenly bodies; astronomical photography, with measures of plates; study of the method of least squares. MR. LEAVENWORTH.
- 111-112-113. CELESTIAL MECHANICS. Analytical study of the motion of two bodies. General view of the theory of perturbations. MR. BEAL.
140. METHOD OF LEAST SQUARES. The combination and adjustment of observations and the discussion of their precision as applied especially to engineering, physics, astronomy, and psychology. MR. LEAVENWORTH.

## BACTERIOLOGY AND IMMUNOLOGY

### MEDICAL SCHOOL

Professor WINFORD P. LARSON, Chairman; Associate Professor ARTHUR T. HENRICI; Instructors ANNE BENTON, DAVID O. SPRIESTERSBACH; Assistant ROBERT G. GREEN.

#### *Major Advisers*

Professor Larson; Associate Professor Henrici.

#### *Major Sequence*

Sequence A. For work in medical or public-health bacteriology. Courses 101, 114, 116, 117, 119-120, 150-151. (Prerequisites: besides the necessary courses in this department, Animal Biology 144-145-146 and Physiology 100-101 or Biochemistry 111-112.)

Sequence B. For work in industrial bacteriology. Courses 103, 105, 114, 118, 119-120, 150-151. (Prerequisites: besides the necessary courses in this department, Physiology 100-101 or Biochemistry 111-112.)

<sup>1</sup> This course does not satisfy the Junior College requirement for science.

## COURSES

- I. GENERAL BACTERIOLOGY. The preparation of culture media; the morphology of bacteria; methods of staining and identification; anaerobic bacteria; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries.  
Special division for medical students: DR. LARSON and Assistants.  
Special division for dental students: DR. HENRICI and Assistants.  
Divisions for other students: MISS BENTON and Assistants.
101. SPECIAL BACTERIOLOGY FOR MEDICAL STUDENTS. The study of pathogenic bacteria, especially in relation to definite diseases; bacteriological methods in clinical diagnosis; principles of infection and immunity, with practical application of serum reactions. DR. LARSON and Assistants.
103. SPECIAL BACTERIOLOGY FOR STUDENTS OF AGRICULTURE. Bacteriology of the soil in relation to fertility; the nitrogen-fixing bacteria of legumes; bacteria that cause plant diseases; bacterial diseases of domestic animals; the bacteriology of milk and dairying. DR. HENRICI and Assistants.
105. HOUSEHOLD BACTERIOLOGY. The decay, fermentation, and putrefaction of foodstuffs; molds; canning; bacterial food poisoning; bacteriology of the cleansing processes. MISS BENTON.
114. THE HIGHER BACTERIA. Study of morphology, cultivation and classification of actinomycetes, yeasts, and molds. Study of the mycoses. DR. HENRICI.
116. COURSES IN IMMUNITY. Laws of hemolysis. Quantitative relationship between antigen and antibody. Wasserman reaction. Oponins. Vaccines. Precipitin reaction. Blood-grouping. Abderhalden reaction. Anaphylaxis. DR. LARSON.
117. PATHOGENIC PROTOZOA. Study of parasitic protozoa of man, including spirochaets; their morphology and life histories; intermediate hosts as agents in the spread of disease; cultural methods. DR. LARSON.
118. MORPHOLOGY AND TAXONOMY OF BACTERIA. Cytology of bacteria; their origin and systematic position; consideration of morphological, biochemical, and immunological characters as data for classification; variations and mutations in bacteria; the biometrical method as applied to bacteriology. DR. HENRICI.
119. BACTERIOLOGICAL CHEMISTRY. Chemical analysis of bacteria; physical agents influencing bacterial metabolism (salinity, hydrogen-ion concentration, surface tension, etc.); factors stimulating enzyme production; protein, carbohydrate, and fat metabolism of bacteria; nitrogen fixation. MR. GREEN and Assistants.

120. BACTERIOLOGICAL CHEMISTRY. Continuation of 119. Bacterial toxins; "split proteins"; bacterial activity in the alimentary tract; pigment production; autolysis of bacteria; immuno-chemistry; permeability of bacterial cells; behavior of bacteria toward electricity. MR. GREEN and Assistants.

150-151. ADVANCED BACTERIOLOGY. An advanced course giving additional work in bacteriology and the opportunity of working out special problems. DR. LARSON, DR. HENRICI.

### BOTANY

Professors CARL O. ROSENDAHL, Chairman; ELIAS J. DURAND, LEE I. KNIGHT, JOSEPHINE E. TILDEN; Associate Professor FREDERIC K. BUTTERS; Assistant Professors WILLIAM S. COOPER, RODNEY B. HARVEY, NED L. HUFF; Instructors ARTHUR M. JOHNSON, CHARLES L. FARABAUGH.

#### *Major Advisers*

Professors Rosendahl and Knight; Associate Professor Butters.

#### *Major Sequences*

Sequence A. In morphology of algae. Courses 52, 54, 55, 62, 63, and any one of 123, 124, 125, and 126. (Prerequisites: 1-2 and 7.)

Sequence B. In morphology of land plants. Courses 52, 54, 62, 63, and ten credits from 107, 108, and 110. (Prerequisites: 1-2 and 7.)

Sequence C. In morphology of fungi. Courses 52, 54, 62, 63, 105-106-107 in the Department of Botany and Plant Pathology. (Prerequisites: 1-2 and 7.)

Sequence D. In taxonomy. Courses 52, 54, 62, 63, 110, 113-114-115. (Prerequisites: 1-2 and 7.)

Sequence E. In physiology. Courses 52; 53 or 63; 54; 141; Chemistry 35-36. (Prerequisites: 15 credits of botany; Chemistry 6-7-8 or its equivalent.)

Sequence F. In ecology. Courses 52, 54, 113-114-115, and 10 credits from 131, 132, and 133. (Prerequisites: 1-2 and 7, and Geology 1-2 or 29.)

Sequence G. In cytology. Courses 51, 52, 54, 62, 63, 118-119. (Prerequisites: 1-2, 7, and 15.)

### COURSES

1-2†. GENERAL BOTANY. Principles of subject. Survey of organs of flowering plant followed by study of internal structure and physiology. Representatives of algae, fungi, liverworts, mosses, gymnosperms, and angiosperms examined with reference to tracing evolution of vegetable kingdom. MR. DURAND, MR. BUTTERS, MR. HUFF, MR. JOHNSON, and Assistants.

7. TAXONOMY OF FLOWERING PLANTS. A general study of the classification and relationships of flowering plants. Laboratory and field practice in the determination of species, together with lectures and quizzes. MR. ROSENDAHL.

11. GENERAL MORPHOLOGY OF ALGAE AND FUNGI. A general survey of the structure, evolution, and classification of the algae and fungi. Lecture, laboratory, and field work. MR. JOHNSON.
15. ANATOMY OF VASCULAR PLANTS. A study of the microscopic structure of vascular plants, the cell, tissues, and tissue systems with particular attention to the development and evolution of the vascular system in the root, stem, and leaf. MR. BUTTERS.
51. HISTOLOGICAL METHODS. Training in methods used in the preparation and preservation of class material. Special attention is given to methods of killing, imbedding, sectioning, staining, and mounting. MR. ROSENDAHL.
52. ELEMENTARY PLANT PHYSIOLOGY. An introductory course giving a general survey of plant functions. MR. KNIGHT, MR. HARVEY, MR. FARABAUGH.
53. BOTANY OF ECONOMIC PLANTS. A survey course treating the most important botanical features of the common economic plants. MR. KNIGHT, MR. HARVEY.
54. ELEMENTARY ECOLOGY. An introduction to the study of plants and their environment; investigation of the habitat; its effects upon plants as individuals and in mass; plant communities; plant successions. Laboratory and field work, lectures, and discussions. MR. COOPER.
55. ALGAE. A study of freshwater forms, based on collections made by the class. Lectures, laboratory, and field work. MISS TILDEN.
62. GENERAL MORPHOLOGY OF BRYOPHYTES AND PTERIDOPHYTES. A general survey of the structure, evolution, and classification of the liverworts, mosses, and ferns. MR. HUFF.
63. GENERAL MORPHOLOGY OF GYMNOSPERMS AND ANGIOSPERMS. A general survey of the structure, evolution, and classification of seed plants. MR. BUTTERS.
107. MORPHOLOGY AND TAXONOMY OF THE BRYOPHYTES. A special study of the structure and classification of the liverworts and mosses. MR. DURAND.
108. MORPHOLOGY AND TAXONOMY OF THE PTERIDOPHYTES. An intensive study of lycopods, ferns, and their allies, their structure and history, with special attention to the classification of living forms. Lectures, reference reading, and laboratory work. MR. BUTTERS.
110. MORPHOLOGY AND TAXONOMY OF THE GYMNOSPERMS. An intensive study of cycads, conifers, and their allies, their structure and history, with special attention to the classification of living forms. Lectures, reference reading, and laboratory work. MR. BUTTERS.



- 113-114-115. **ADVANCED TAXONOMY.** An advanced course in which special attention is given to the taxonomy of difficult natural groups, involving systematic principles and practice, rules of nomenclature, systems of classification, etc. MR. ROSENDAHL.
- 118-119†. **CYTOLOGY.** A survey of cell structure and the various phenomena of division, fusion, and metamorphosis, together with a review of the history of cytological investigation. Methods of cytological research indicated in the laboratory. MR. ROSENDAHL.
123. **MORPHOLOGY AND TAXONOMY OF THE ALGAE: BLUE-GREEN.** Advanced studies in selected groups of the blue-green algae. Lectures, reports, discussions of current literature, and laboratory work. (Not offered in 1921-22.) MISS TILDEN.
124. **MORPHOLOGY AND TAXONOMY OF THE ALGAE: GREEN.** Advanced studies in selected groups of the green algae. Lectures, reports, discussions of current literature, and laboratory work. (Not offered in 1921-22.) MISS TILDEN.
125. **MORPHOLOGY AND TAXONOMY OF THE ALGAE: BROWN.** Advanced studies in selected groups of the brown algae. Lectures, reports, discussions of current literature, and laboratory work. MISS TILDEN.
126. **MORPHOLOGY AND TAXONOMY OF THE ALGAE: RED.** Advanced studies in selected groups of the red algae. Lectures, reports, discussions of current literature, and laboratory work. MISS TILDEN.
131. **FIELD ECOLOGY.** A careful study of the local plant communities and successions, followed by written report, and by a study of the general principles of plant association and succession. MR. COOPER.
132. **ECOLOGICAL ANATOMY.** The individual plant and its parts as related to environment: greenhouse and microscopic study of special plant forms and structures, their causes and significance. MR. COOPER.
133. **FOREST GEOGRAPHY OF NORTH AMERICA.** Principles of plant distribution discussed, followed by detailed study of forest regions of North America, through reading, discussion, lantern slides, distribution maps, microscopic work, written reports. Should be preceded by Field Ecology, but not necessarily. MR. COOPER.

#### ADVANCED PLANT PHYSIOLOGY

141. **PHYSICAL PHASES OF PLANT PHYSIOLOGY.** A course dealing with the intake of materials and their translocation, also the energy relations of the plant. MR. KNIGHT, MR. HARVEY.
142. **PLANT METABOLISM.** A course dealing with the synthesis of plant food, its transformation and utilization by the plant. MR. KNIGHT, MR. HARVEY, MR. FARABAUGH.

143. PLANT METABOLISM AND GROWTH. Continuation of Course 142, also introducing certain fundamental phases of growth. MR. HARVEY, MR. KNIGHT, MR. FARABAUGH.
144. PLANT MICRO-CHEMISTRY. A study of the localization of materials of physiological importance in the plant and their relation to physiological processes. MR. HARVEY.

## PLANT PATHOLOGY AND BOTANY

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

Professors EDWARD M. FREEMAN, Chairman; ELVIN C. STAKMAN; Instructors HENRY D. BARKER, LOUISE DOSDALL, ALVIN H. LARSON, JULIAN G. LEACH, JAMES S. SEAL.

## GENERAL STATEMENT

For specialization in this department, see special requirements in Course of Study.

## INTRODUCTORY COURSES

1. PLANT PATHOLOGY. Elementary study of plant diseases due to fungi, bacteria, and slime molds; life histories and preventive methods. Lectures, laboratory, and reference. Not open to those who have completed 10. MR. STAKMAN, MR. LEACH, MR. SEAL.
6. PLANT-PEST CONTROL. The theory and practice of control of insect and fungous pests of crop plants. Practical applications. Same as Entomology 16. Not open to those who have completed 14. MR. SEAL.
- 7-8. WEEDS AND GRASSES. Agricultural and applied botanical study of weeds and grasses with special reference to agricultural importance. MR. LARSON.
9. WEEDS AND SEED-TESTING. Detailed study of seed-testing methods and seed legislation. Weed and crop seeds and weed plants studied with special reference to identification. MR. LARSON.
10. FOREST PATHOLOGY. Elementary study of plant diseases due to fungi, bacteria, and slime molds; life histories and preventive methods. Lectures, laboratory, and reference. Not open to those who have completed 1. Offered in alternate years. MR. STAKMAN, MR. LEACH, MR. SEAL.
12. SEED PROBLEMS. Special seed problems are assigned. Advanced work in seed-testing methods. MR. LARSON.
14. PLANT-DISEASE CONTROL. A detailed study of methods of controlling diseases of plants of parasitic origin. Spray materials and spray machinery. Practical applications. Not open to those who have completed 6. MR. BARKER.

## ADVANCED COURSES

- 105-106-107. MYCOLOGY. A general study of the morphology, taxonomy, and biology of fungi. Lectures, laboratory, greenhouse, and field work. MR. FREEMAN, MR. STAKMAN, MISS DOSDALL.
- 108-109. METHODS. Plant pathological methods including mycological and bacteriological technic. Laboratory, lecture, and greenhouse work. Special problems. MR. STAKMAN, MR. LEACH.
110. PRINCIPLES OF PATHOLOGY. Comparative biology of plant pathogens; pathological plant anatomy; parasitism, biologic specialization, resistance, and immunity. Will be given in close coöperation with Division of Agricultural Biochemistry and divisions offering work in plant-breeding. MR. STAKMAN, MR. BARKER.
111. DISEASES OF FIELD CROPS. Detailed study of diseases of cereal and forage crops, including symptomology, etiology, and practical methods of control. Laboratory, lecture, and field work. MR. STAKMAN, MR. BARKER.
112. DISEASES OF FRUIT AND VEGETABLE CROPS. Special study of diseases of fruit and vegetable crops, especially those important in Minnesota. Laboratory, lecture, and greenhouse work.

## CHEMISTRY

## SCHOOL OF CHEMISTRY

Professors WILLIAM H. HUNTER, CHARLES F. SIDENER; Associate Professors FRANK H. MACDOUGALL, M. CANNON SNEED; Assistant Professors LILLIAN COHEN, ISAAC W. GEIGER, LAWRENCE M. HENDERSON; Instructors CARL FOSSE, WALTER M. LAUER, LLOYD H. REYERSON, LANDON A. SARVER, LEE I. SMITH.

*Major Advisers*

Professor Hunter; Associate Professor Sneed.

*Major Sequence*

Courses 20-21, 35-36, 140-141, and any one of 102, 103, 123, 124, 131, 137, 142. (Prerequisites: 6-7-8 or 9-10, 12-13.)

## COURSES

## DIVISION OF GENERAL AND INORGANIC CHEMISTRY

- 1-2†-3. GENERAL INORGANIC CHEMISTRY. (For pre-medical and pre-dental students.) For those who have had no high-school chemistry. Study of the general laws of chemistry and of the non-meta's and their compounds. 2. Continuation of Course 1. 3. Study of the metals and their compounds. Continuation of Course 2. MISS COHEN.
- 4-5†. GENERAL INORGANIC CHEMISTRY. (For pre-medical and pre-dental students.) For those who have had one year of high-school chemistry.

- Study of general laws of chemistry and of non-metals and their compounds. More intensive than Courses 1 and 2. 5. Study of metals and their compounds. Continuation of Course 4. For pre-medical and pre-dental students only. MR. HENDERSON.
- 6-7†-8. GENERAL INORGANIC CHEMISTRY. For those who have had no high-school chemistry. Includes study of general laws of chemistry and non-metals and their compounds. 7. Continuation of Course 6. 8. Metals and their compounds and ionic equilibrium, considered quantitatively. MISS COHEN.
- 9-10†. GENERAL INORGANIC CHEMISTRY. For those who have had one year of high-school chemistry. General laws of chemistry; non-metals and their compounds. More intensive than Courses 6 and 7. 10. Metals and their compounds and ionic equilibrium, considered quantitatively. MR. SNEED.
11. QUALITATIVE CHEMICAL ANALYSIS. (For pre-medical and pre-dental students.) Laboratory work in systematic qualitative analysis with lectures on solution, ionization, chemical and physical equilibrium, oxidation and reduction, and other subjects pertinent to qualitative analysis. For students who satisfy the requirements of general chemistry. MR. SNEED.
- 12-13†. QUALITATIVE CHEMICAL ANALYSIS. Laboratory work in systematic qualitative analysis with lectures on solution, ionization, chemical and physical equilibrium, oxidation and reduction, and other subjects pertinent to qualitative analysis. For students who satisfy the requirements of general chemistry. 13. Continuation of Course 12. MR. SNEED.
101. HISTORY OF CHEMISTRY. The historical development of the theories of chemistry from the period of the ancients to the present time is covered by this course, particular emphasis being given to modern theories and laws. MISS COHEN.
102. ADVANCED QUALITATIVE ANALYSIS. This course includes an analysis of minerals, alloys, paints, and the methods of detecting some of the rarer elements. MR. SNEED.
103. ADVANCED INORGANIC CHEMISTRY. A discussion of special subjects of inorganic chemistry such as valency, oxidation, and reduction, complex ions, etc. (Not offered in 1921-22.) MR. SNEED.
104. ADVANCED INORGANIC CHEMISTRY. A discussion of the chemistry of certain elements and compounds such as cobalt, silver, mercury, tungsten, and their derivatives. MR. SNEED.

## DIVISION OF ANALYTICAL CHEMISTRY

- 20-21. QUANTITATIVE ANALYSIS. Introductory courses covering the general principles and methods of quantitative analysis. Typical problems are

- assigned and attention given to proper laboratory practice. Course 20, Gravimetric Analysis; Course 21, Volumetric Analysis. MR. SIDENER, MR. GEIGER, MR. SARVER.
27. QUANTITATIVE ANALYSIS. An introductory course covering the general principles and methods of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention given to proper laboratory practice. For pre-medical students. MR. SIDENER, MR. GEIGER, MR. SARVER.
123. IRON AND STEEL ANALYSIS. Rapid technical methods for determination of the common constituents of iron ore, iron, and steel will be discussed and compared, and typical problems assigned for laboratory practice. One lecture and eight laboratory hours per week. MR. SIDENER, MR. GEIGER, MR. SARVER.
124. MINERAL AND ORE ANALYSIS. A course in the rapid technical methods for the determination of important constituents in minerals, ores, and slags. One lecture and eight laboratory hours per week. MR. SIDENER, MR. GEIGER, MR. SARVER.
125. SPECIAL PROBLEMS IN QUANTITATIVE ANALYSIS. Selection may be made to meet the particular needs of the student from the following: silicate analysis, non-ferrous alloy analysis, industrial water analysis, problems in electro-analysis, etc. Six or nine laboratory hours per week. MR. SIDENER, MR. GEIGER, MR. SARVER.
126. SANITARY WATER ANALYSIS. Lectures and laboratory practice in the chemical examination of potable waters. Three or six hours laboratory work per week. MR. SIDENER, MR. GEIGER, MR. SARVER.

## DIVISION OF ORGANIC CHEMISTRY

- 31-32. ELEMENTARY ORGANIC CHEMISTRY. A discussion of the important classes of organic compounds, both aliphatic and aromatic. The laboratory work includes the preparation of typical substances. Offered primarily to pharmacists and pre-medical students. MR. SMITH.
- 35-36. ORGANIC CHEMISTRY. An introduction to the chemistry of carbon compounds. The laboratory work will include the preparation of characteristic substances. MR. HUNTER.
130. INTERMEDIATE ORGANIC CHEMISTRY. A continuation of Chemistry 35-36. Chiefly aromatic series. May be accompanied by appropriate laboratory work in Chemistry 137. MR. HUNTER.
131. ORGANIC ANALYSIS. Practice in the identification of organic compounds, and the modern methods of quantitative organic analysis. Three credits. MR. LAUER.
133. REAGENTS IN ORGANIC CHEMISTRY. A discussion of typical reagents used in organic reactions: their limits of applicability, methods of use,

and types of substances with which they react. Two credits. May be accompanied by appropriate laboratory work in Chemistry 137. MR. SMITH.

137-138: ADVANCED ORGANIC CHEMISTRY LABORATORY WORK. Difficult preparations and problems. It is intended primarily to supplement the student's knowledge of the methods of organic chemistry. Students may also register for this course who desire appropriate laboratory work for other advanced courses.

139. ADVANCED ORGANIC CHEMISTRY LABORATORY WORK. Selected laboratory problems of an advanced nature, including some original work. An introduction to research work. These advanced laboratory courses may be taken under any member of the Division of Organic Chemistry.

## DIVISION OF PHYSICAL CHEMISTRY

140-141†-142. PHYSICAL CHEMISTRY. A general survey of the subject. Three lectures and one recitation. Laboratory work three or six hours per week. Three, four, or five credits, depending on amount of laboratory work. MR. MACDOUGALL.

143-144-145. THERMODYNAMICS AND CHEMISTRY. A detailed study of the principles of thermodynamics and their application to physical and chemical phenomena. MR. MACDOUGALL.

146-147-148. KINETIC THEORY AND ATOMISTICS. This course proposes to study chemical phenomena from the atomistic or molecular point of view and will therefore take up the kinetic theory of gases and liquids, the kinetic interpretation of chemical equilibrium, reaction velocity, catalysis, structure of the atom, etc. (Not offered in 1921-22.) MR. MACDOUGALL.

149. PRINCIPLES OF COLLOIDAL CHEMISTRY. (Not offered in 1921-22.) MR. REYERSON.

150. APPLICATION OF COLLOIDAL CHEMISTRY. MR. REYERSON

151. RADIOCHEMISTRY. The occurrence, methods of isolation, and physical chemical properties of the radioactive substances, together with a brief consideration of the chemical, geological, and biological bearing of the subject. (Not offered in 1921-22.) MR. HENDERSON.

152. LABORATORY COURSE IN RADIOCHEMISTRY. To accompany or follow Course 151. MR. HENDERSON.

153-154-155. ADVANCED PHYSICAL CHEMISTRY LABORATORY. To accompany or follow any of the advanced courses in physical chemistry. MR. MACDOUGALL.

156. APPLICATION OF PHYSICAL CHEMISTRY TO ORGANIC CHEMISTRY.

159. PHYSICAL CHEMISTRY SEMINAR. One hour a week. For students taking advanced courses in physical chemistry. MR. MACDOUGALL, MR. HENDERSON, MR. REYERSON.

## AGRICULTURAL BIOCHEMISTRY

COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

Professors ROSS A. GORTNER, CLYDE H. BAILEY; Associate Professors R. ADAMS DUTCHER, LEROY S. PALMER; Assistant Professors CORNELIA KENNEDY, CLARENCE A. MORROW, JOHN J. WILLAMAN; Instructors ARTHUR K. ANDERSON, PAUL F. SHARP.

## INTRODUCTORY COURSES

3. TYPES OF CARBON COMPOUNDS. An elementary study of the different groups of carbon compounds, with special reference to their relationships and their occurrence in plant and animal materials used as food. MR. ANDERSON.
- 7-8. GENERAL AGRICULTURAL BIOCHEMISTRY. A lecture and laboratory course involving a qualitative and quantitative study of the types of organic and inorganic compounds found in plants and animals and of the chemical changes involved in metabolism, growth, and maintenance. MR. DUTCHER.
15. PRINCIPLES OF ANIMAL NUTRITION. A course consisting of lectures, recitations, and collateral reading emphasizing the chemical and physiological principles underlying digestion, metabolism, utilization of feeds, maintenance, growth, fattening, milk production, vitamine hypothesis, and deficiency diseases. MR. DUTCHER.

## ADVANCED COURSES

101. AGRICULTURAL QUANTITATIVE ANALYSIS. The estimation of inorganic and organic constituents of biological products, the proximate analysis of foods and feeding stuffs, the use of the polariscope, immersion refractometer, colorimeter and nephelometer, viscosimeter, and other special apparatus. MR. MORROW.
103. DAIRY CHEMISTRY. Lectures and laboratory work on the physical, colloidal, and chemical properties of milk and dairy products, the chemistry of the various constituents of milk, and of the processes involved in the manufacture of dairy products. MR. PALMER.
106. CHEMICAL TECHNOLOGY OF AGRICULTURAL PRODUCTS. The composition of the principal products and by-products of agriculture and their utilization as raw material in various industries, and the methods of chemical control work in these industries. MR. BAILEY.
108. CHEMISTRY OF WHEAT AND WHEAT PRODUCTS. A lecture course, with collateral library reference work, on the chemical technology of the production and milling of wheat and the conversion of its products into human food. MR. BAILEY.
110. FLOUR LABORATORY METHODS. A laboratory course in methods of analysis of wheat and its products; milling tests of wheat, baking, and special tests of flour. Designed to train students for research and control work in the cereal industry. MR. BAILEY.

- 111-112. PHYTOCHEMISTRY. Advanced course dealing with the colloidal state, and the chemistry of proteins, carbohydrates, glucosides, tannins, fats, plant acids, enzymes, and pigments and their physico-chemical relations to the vital processes involved in growth and nutrition. MR. MORROW.
- 113-114. BIOCHEMICAL LABORATORY METHODS. A laboratory course paralleling the lectures in 111, using recent methods for the investigation of biologically important compounds, with especial reference to the detection and estimation of such compounds in cells or tissues. MR. MORROW, MR. SHARP.
116. THE CHEMISTRY OF "VITAMINES" AND DEFICIENCY DISEASES. Lectures, consultations, and library work on special nutritional problems accompanied by chemical and biological studies of food materials from the standpoint of their "vitamine" content. MR. DUTCHER, MISS KENNEDY.
118. LABORATORY PROBLEMS IN BIOCHEMISTRY. Special laboratory work in the preparation and isolation of pure compounds which occur in living cells, the study of biochemical reactions, and special methods of identification or determination of biochemical products. MR. GORTNER, MR. BAILEY, MR. DUTCHER, MR. PALMER, MR. MORROW, MR. WILLAMAN.

## COMPARATIVE LITERATURE

Professor O. W. FIRKINS.

## COURSES

- 101-102-103†. DRAMA. An outline of the history of drama, starting with rapid reviews of primitive, oriental, and classical drama and leading to authors so recent as Ibsen, Hauptmann, Brieux, Tolstoi, Shaw, and Galsworthy. Lectures and readings. MR. FIRKINS.
- 105-106-107†. PRINCIPLES OF CRITICISM. Various literary forms such as the lyric, epic, drama, short story, and novel discussed and illustrated. Discussion of such principles as clearness, correctness, precision, unity, taste, beauty, art, style, humor, truth, and feeling. Lectures and reading. MR. FIRKINS.
110. THE INTERNATIONAL ROMANTIC MOVEMENT IN EUROPE (1775-1825). The movement will be studied in French, English, and German literature (Chateaubriand, De Stael, Hugo, Byron, Shelley, Keats, Goethe, and Heine). MR. FIRKINS.
203. THE ARTHURIAN LEGEND. Consult Graduate School bulletin. MR. FIRKINS.
206. FRENCH AND ENGLISH LITERARY CRITICISM: from the sixteenth century to the present time. Consult Graduate School bulletin. MR. FIRKINS.



## COMPARATIVE PHILOLOGY

Professor FREDERICK KLAEBER, Head; Assistant Professor SAMUEL KROESCH (German).

## COURSES

- 101-102†. GENERAL INTRODUCTION TO THE SCIENCE OF LANGUAGE. Prerequisites, one of the following groups: (1) five years foreign language, four may be in high school and one in college; (2) two years foreign language in college; (3) four credits Old English. MR. KLAEBER.
103. UNIVERSAL LANGUAGE. Comparison of important languages grammatically and lexically. Movement for creation of an international language. Consideration of Volapük, Esperanto, Ido, etc. MR. KLAEBER.
105. THE LIFE OF WORDS. Etymology and semasiology. Growth of vocabulary; change of words in form and meaning. MR. KLAEBER.
108. COMPARATIVE PHONETICS. A study of speech sounds and the nature of their production with special reference to English, French, and German. Open to students of the modern languages. Identical with German 108. MR. KROESCH.
- 109-110-111†. HISTORY OF THE GERMAN LANGUAGE. Lectures, discussions, assigned readings. This course is identical with German 109-110-111. (Not given in 1921-22.) MR. KLAEBER.
- 141-142-143†. HISTORICAL GRAMMAR OF THE ENGLISH LANGUAGE. I. Sounds and spelling. II. Accidence and syntax. (Not given in 1921-22.)
- 207-208. OLD SAXON. Consult Graduate School bulletin.
- 209-210. OLD HIGH GERMAN. Consult Graduate School bulletin.

## DRAWING AND DESCRIPTIVE GEOMETRY

## COURSES

Professor WILLIAM H. KIRCHNER, Chairman; Instructors JOHN O. CEDERBERG, ROBERT F. SCHUCK.

## COURSES

- 41-42-43. TECHNICAL DRAWING. A general course in the theory and practice of drawing. Sketching, lettering, tracing, blue-printing, and mechanical drawing. The use of instruments, projections (constructive geometry), and working drawings. MR. KIRCHNER and Assistants.
44. LETTERING. A practical course in plain lettering and the making of graphs and charts. MR. KIRCHNER and Assistants.
45. ALPHABETS. Construction and analysis of various types of letters. Demonstrations and exercises. MR. KIRCHNER.
- 47-48-49. DRAWING, ENGRAVING, AND DECORATION. A study of the graphic arts and processes with special emphasis on their application to the art of printing. MR. KIRCHNER.

ECONOMICS  
SCHOOL OF BUSINESS

Professors GEORGE W. DOWRIE, JOHN D. BLACK, ROY G. BLAKEY, NORMAN S. B. GRAS, JEREMIAH S. YOUNG (Political Science); Associate Professors FREDERIC B. GARVER, ALVIN H. HANSEN, WILLIAM L. HART (Mathematics), BRUCE D. MUDGETT; Assistant Professors Z. CLARK DICKINSON, ERNEST A. HEILMAN, CLARENCE L. HOLMES, HOWARD S. NOBLE, J. WARREN STEHMAN, CLARA F. SYKES, HOLBROOK WORKING; Professorial Lecturer J. FRANKLIN EBERSOLE; Instructors HILDING E. ANDERSON, HERMAN H. CHAPMAN, JOSEPH E. CUMMINGS, RICHARD A. GRAVES, CHARLES B. KUHLMANN, WALTER R. MYERS, HARRY J. OSTLUND, VICTOR H. PELZ, LAWRENCE SMITH, BERT A. WALLACE.

*Major Adviser*

Associate Professor Garver.

*Major Sequence*

In the junior year, Courses 54, 143-144, 161; in the senior year, 72 or 154, 103-104, 191-192. (Prerequisites: Econ. 1-2, and 3-4; for a minor in History, History 1-2, or 3-4, 5-6; in Political Science, Political Science I and 7 or 11; in Sociology, Sociology I and one other course.)

COURSES

- 1-2†. INTRODUCTION TO ECONOMIC HISTORY WITH SPECIAL EMPHASIS ON THE UNITED STATES. Lectures and section work. A general survey of the development of agriculture, manufacture, transportation, storage, and exchange of goods; economic crises; land, capital, management, and labor; the interplay of economic and political forces. MR. GRAS and others.
- 3-4†. PRINCIPLES OF ECONOMICS. Principles that underlie the present industrial order. Application of principles to economic problems such as labor, insurance, finance, transportation, industrial combination, government control. MR. HANSEN and others.
14. ELEMENTS OF STATISTICS. Elementary principles of classification, analysis, and presentation of statistical material, with primary emphasis on economic data. Lectures, readings, and laboratory work. MR. MUDGETT and others.
- 25-26-27†. PRINCIPLES OF ACCOUNTING. Purpose and principles of account classification; capital and revenue; accruals; valuation; depreciation; preparation and interpretation of balance sheets, income accounts, and other statements; introduction to partnership and corporation accounts. A laboratory course with supplementary lectures. MR. HEILMAN, MR. NOBLE, and others.

41. FINANCIAL HISTORY OF THE UNITED STATES. A study of the development of the main features of our systems of money, banking, tariffs, and public finance including a consideration of war-financiering and financial cycles. MR. BLAKEY.
- 51-52-53†. BUSINESS LAW. (See Political Science 51-52-53.)
54. CORPORATION FINANCE. The organizing, financing, and managing of corporations. A study of corporate securities for purposes of promotion and reorganization and of facilities for marketing them. MR. STEHMAN and others.
59. LIFE INSURANCE. Nature and uses of life insurance: uses of various kinds of policies. The policy contract. Organization and operation of various kinds of insurance carriers. Special forms of life insurance: assessment, fraternal group. MR. MUDGETT.
60. PROPERTY INSURANCE. The fire hazard and fire prevention. The standard fire policy. Insurance carriers: stock companies, mutuals, factory mutuals. Development in scientific fire-rating. A brief consideration of marine risks, of marine insurance. MR. MUDGETT.
62. SOCIAL INSURANCE. Risks of death, accident, ill-health, invalidity, unemployment, superannuation. Detailed study of workmen's compensation in the United States; and consideration of progress in the United States and foreign countries of protection against other socially important hazards. MR. MUDGETT.
65. COLONIZATION. (See Political Science 65.)
72. ECONOMICS OF TRANSPORTATION. The theory and practice of rate-making. Government regulation, the conflict between state and federal authorities, and suggested improvements in control of transportation agencies. MR. CUMMINGS.
74. TRANSPORTATION PROBLEMS. An intensive study of certain important problems such as valuation, public ownership, operation, and regulation. MR. CUMMINGS.
85. PRINCIPLES OF MARKETING. A general course dealing with the mechanism and operation of markets: classification, organization, market agencies as factors in production. The price-making process: control of supply, assumption of risk, incidence of marketing costs. Wastes of competition.
90. ECONOMICS OF CONSUMPTION. (See College of Agriculture bulletin.)
91. PRINCIPLES OF ORGANIZATION AND MANAGEMENT. Types of operating organization; specialization; coördination of men and departments; planning; delegation of authority; means of control; establishment and maintenance of standards for materials, operation, machinery; scientific management; personnel problems. MR. PELZ.

- 103-104†. **VALUE AND DISTRIBUTION.** An advanced course in economic theory devoted chiefly to the study of recent theories of wages, interest, rent, and profits. Assigned readings and reports on current problems in distribution. MR. GARVER.
105. **HISTORY OF ECONOMIC IDEAS.** History of economic thought; scope and logical methods, relation to other social sciences; methods of investigation and instruction. Assigned readings, reports, and class discussion. MR. GARVER.
106. **LAND ECONOMICS.** A study of several problems arising out of the land basis of civilization, such as property in land, land utilization, land classification, land settlement, status of the agricultural classes, farm labor, farm ownership and tenancy. MR. BLACK.
107. **LAND TENURE.** (See College of Agriculture bulletin.)
112. **BUSINESS STATISTICS.** Application of statistical methods in analyzing the internal and external aspects of business operations; internal aspects involving analyses of production, markets, etc., within business units; external aspects, dealing with general business conditions. MR. MUDGETT.
113. **THEORY OF STATISTICS.** The calculation and use of various constants of importance in the analysis of statistical data; averages, measures of dispersion and of correlation; partial correlation; and the theory of errors. MR. MUDGETT.
- 118-119-120†. **ECONOMIC HISTORY OF EUROPE AND THE UNITED STATES, 1750 TO THE PRESENT.** (Not offered in 1921-22.) (See History 113-114-115.)
- 121-122-123†. **ECONOMIC HISTORY OF EUROPE, 1300-1750.** (See History 116-117-118.)
- 143-144†. **MONEY AND BANKING.** Relation to industrial system. Monetary principles with special reference to United States. American banking and bank organization, principles of commercial banking, non-commercial banking, relation of government to banking, comparative study of leading foreign systems. MR. DOWRIE, MR. EBERSOLE, MR. STEHMAN.
146. **INVESTMENTS.** Sources of demand and supply of capital; bond houses and stock exchanges as marketing media, criteria for personal selection of prime investments; governments, municipal, corporation, and real-estate loans; and the use of bond tables. MR. EBERSOLE.
149. **BUSINESS CYCLES.** American business conditions since 1890 with regard to the great cycles of alternate prosperity and depression, and financial panics. Critical examination of all the available business barometers designed to forecast similar conditions. MR. EBERSOLE.
153. **THE TRUST PROBLEM.** Social and legal aspects of the corporation. The development of the trust and the regulatory policy of the government.

154. PUBLIC UTILITIES. Economic and legal bases of classification. Relative advantages of public ownership and regulation. Central and municipal regulation compared. The basis of rates; relative rates; rates and service. Summary of the theories of valuation.
157. POLICE POWER. (See Political Science 157.)
158. GOVERNMENT AND BUSINESS. (See Political Science 158.)
160. ECONOMIC MOTIVES. Psychological approach to certain problems of economic theory, e.g., analysis of wants and consumption, "desire for wealth," valuation, pecuniary and other motives of producers—savers, inventors, entrepreneurs, laborers. Possibilities of redirecting motives. MR. DICKINSON.
161. LABOR PROBLEMS AND TRADE UNIONISM. Origin of the labor problem; conditions of labor in American industries; structure, aims, policies, and methods of trade and industrial unionism and employers' associations; collective bargaining and shop committees; mediation and arbitration; injunctions; labor legislation. MR. HANSEN.
162. THE LABOR MOVEMENT IN AMERICA. The conditions, class alignments, and philosophies underlying American labor movements from 1820 to 1920; the historical development of various labor organizations, labor parties, and labor programs; the single-tax movement; reconstruction proposals. MR. HANSEN.
- 167-168. INDUSTRIAL RELATIONS. Labor (personnel) policy in business management. Problems and methods as to employment, promotion, training, health and safety, employees' service, employees' representation, wages, hours, stability of work and working conditions. Studies of actual business practice, written reports. MR. DICKINSON.
169. THE LABOR AND SOCIALIST MOVEMENT IN EUROPE. A theoretical analysis and historical survey of utopian socialism, Marxian socialism, evolutionary socialism, anarchism, syndicalism, sovietism, guild socialism, state socialism, coöperation, and labor parties especially as found in Germany, France, England, and Russia. MR. HANSEN.
176. COMMERCIAL POLICIES. Theory of international commerce; free trade, reciprocity, protection, subsidies, preferential treatment, the open door, international finance, commercial treaties, foreign politics, and other governmental and organized efforts to affect trade. American problems emphasized. MR. BLAKEY.
- 191-192†. PUBLIC FINANCE. National government revenues, expenditures, and debts. This includes a study of the principles and various forms of taxation, budgetary legislation and control, war and emergency financing, the shifting and incidence of taxes and fiscal reforms. MR. BLAKEY.

193. STATE AND LOCAL TAXATION. Principles and problems, e.g., state and local taxation of lands, mineral resources, forests, corporations, incomes, inheritances; also studies of classification, separation, local option, exemption, double taxation, evasion, assessment, centralized administration. MR. BLAKEY.

## EDUCATION

### COLLEGE OF EDUCATION

DEPARTMENT OF EDUCATIONAL ADMINISTRATION AND SUPERVISION

Professors LEONARD V. KOOS, Chairman; RAYMOND W. SIES.

### COURSES

119. THE ELEMENTARY SCHOOL CURRICULUM. A study of the principles underlying the organization of subject-matter for courses in the elementary school, including a critical examination of curricula, syllabi, and school tests in the light of their function in the teaching and administration of the curriculum.
- 124-125-126. EDUCATIONAL ADMINISTRATION. An interpretation of present tendencies in the administration of state and city school systems.
164. PROBLEMS OF HIGH-SCHOOL ADMINISTRATION. A study of elimination from school, secondary vocational education, the marking system, classification of students, high-school library, social organization and extra-curricular activities, community relationships, teaching schedule, buildings, costs. MR. KOOS.
- 167-168. JUNIOR HIGH SCHOOL. A study of the special purposes of this institution and the appropriate reorganizations to achieve them; the history of the movement. MR. KOOS.
174. STATE SCHOOL FINANCE. A critical study of problems of federal and state aid to public schools: sources, methods, principles, needed reforms. Students are strongly advised to take as preparatory or in conjunction with this course Economics 191-192, Public Finance; and Educational Psychology 126-127, Methods of Educational Research. MR. SWIFT.
180. THE JUNIOR COLLEGE. This institution as an upward extension of the secondary school. The forces giving rise to the movement, special purposes, sources of student body, financial responsibilities involved, curriculum, faculty, relationships to schools below and above. MR. KOOS.

### DEPARTMENT OF HISTORY AND PHILOSOPHY OF EDUCATION

Professor FLETCHER H. SWIFT, Chairman; Assistant Professor ROSS L. FINNEY; Instructor JEAN H. ALEXANDER.

- I. BRIEF COURSE IN HISTORY OF EDUCATION. Current school problems and educational theories in the light of their history. Emphasis upon secondary education and those aspects of education of most immediate concern to high-school teachers.

3. **EDUCATIONAL SOCIOLOGY.** The school as a community factor; the present peculiar relation of the school to social problems; the function of the school in these relations.
48. **PUBLIC EDUCATION IN THE UNITED STATES.** A brief survey of the factors determining the problem of public education in America, followed by a brief account of the development and organization of typical state school systems. MR. SWIFT, MISS ALEXANDER.
101. **FOUNDATIONS OF MODERN EDUCATION.** Historical analysis and interpretation of the more important elements in modern education derived from the Hebrews, Greeks, Romans, Middle Ages, and Renaissance.
102. **HISTORY OF MODERN SECONDARY AND HIGHER EDUCATION.** A survey of existing types of American and European secondary and higher schools, followed by a historical study of their origin, aims, growth.
103. **HISTORY OF MODERN ELEMENTARY EDUCATION.** The institutions, theories, and problems of modern elementary education in the light of their history. Emphasis upon the rise of state systems and upon the history of modern educational reform.
- 129-130. **EDUCATIONAL CLASSICS.** An intensive study of selected writings of educational leaders: first quarter, Plato, Aristotle, Quintilian, Comenius, Locke; second quarter, Rousseau, Pestalozzi, Herbart, Froebel, and Dewey. Students may register for either quarter.
- 131-132. **COMPARATIVE SCHOOL SYSTEMS.** A survey of the existing school systems of France, England, Germany, Denmark. Emphasis upon present problems. Special reference to educational conditions in the United States. Students may register for either quarter.
146. **HISTORY AND PRINCIPLES OF RELIGIOUS EDUCATION.** Influence of religion and religious education as social and spiritual forces among certain selected types. Principles of education as applied to religious instruction and training. (Not given in 1921-22.)
- 148T. **PUBLIC EDUCATION IN THE UNITED STATES.** A brief survey of determining factors and problems in public education, followed by an historical study. Emphasis on nineteenth-century movements and development of typical state school systems. MR. SWIFT.

## EDUCATIONAL PSYCHOLOGY

### COLLEGE OF EDUCATION

Professor MELVIN E. HAGGERTY, Chairman; Assistant Professors HELEN CLARK, HERMIONE L. DEALLEY, MARVIN J. VAN WAGENEN; Professorial Lecturer FREDERICK KUHLMAN.

### COURSES

40. **CHILD-TRAINING.** Application of modern science in rearing, training and educating children. Emphasis placed on the physical care of the baby; infant-feeding; infant diseases; early training; the obligation of the home; the obligation of the nation. MRS. BINZEL.

45. **ELEMENTARY EDUCATIONAL PSYCHOLOGY.** A survey of fundamental facts of human behavior involved in educational activities. Open to juniors and seniors. MISS CLARK, MISS DEALEY.
- 106-107-108. **ADVANCED EDUCATIONAL PSYCHOLOGY.** Genetic psychology, origin and nature of human organism, development and control of instincts; their relation to group activities. Measuring rate of learning; typical learning experiments, conditions of the most economic learning. Group and individual differences; their relations to educational practice.
111. **EDUCATIONAL DIAGNOSIS.** The typical educational problems involving educational scales and standard tests. Nature of tests, methods of use, analysis of results obtained, and programs of remedial educational procedure based on the results of the test. MR. VAN WAGENEN.
- 126-127. **METHODS OF 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. MR. VAN WAGENEN.
128. **REVIEW OF STATISTICAL STUDIES.** A survey of statistical studies in education with special reference to the methods employed and the reliability of the results obtained. MR. VAN WAGENEN.
- 134-135-136. **MENTAL TESTS AND MENTAL DIAGNOSIS.** Study of mental variation in children, its nature, degrees, causes, and effects. A laboratory course in the study of individual differences by means of mental tests. Methods of treating superior and subnormal children in schools. MISS DEALEY.
- 138-139. **EXPERIMENTAL EDUCATION.** A laboratory course designed to train students in the use of experimental methods in the study of educational problems, particularly in the field of the psychology of learning. MR. HAGGERTY, MR. VAN WAGENEN.
- 149-150-151. **PSYCHO-EDUCATIONAL CLINIC.** Conducted in coöperation with the Department of Sociology and the Medical School clinics in pediatrics and nervous and mental diseases. Students will receive systematic instruction in giving psychological examinations and in scientific interpretation of data. MR. HAGGERTY, MISS DEALEY.
- 153-154-155. **RESEARCH PROBLEMS.** Intended for properly prepared students who desire to pursue special investigation in the field of educational psychology. MR. HAGGERTY, MR. VAN WAGENEN.
156. **PSYCHOLOGY OF VOCATIONAL EDUCATION.** A practical course covering psychological facts and principles involved in vocational education, and in industrial and commercial administration. Attention is given to matters of personnel, acquisition of skill, motivation of workers, and efficiency of administration. MISS DEALEY.



## ENGLISH, RHETORIC, AND PUBLIC SPEAKING

Chairman for English, ELMER E. STOLL,<sup>1</sup>

Chairman for Rhetoric and Public Speaking, JOSEPH M. THOMAS.

Professors RICHARD BURTON,<sup>2</sup> FREDERICK KLAEBER (Comparative Philology), ELMER E. STOLL,<sup>1</sup> JOSEPH M. THOMAS; Associate Professors JOSEPH W. BEACH, CECIL A. MOORE, FRANK M. RARIG; Assistant Professors JAMES T. HILLHOUSE, SIGURD B. HUSTVEDT, ELIZABETH JACKSON, CHARLES W. NICHOLS,<sup>1</sup> ANNA H. PHELAN, MARTIN B. RUUD,<sup>1</sup> EMERSON G. SUTCLIFFE; Instructors MARY BARNICLE, CECIL C. BEAN, MARY ELLEN CHASE, J. BURTON CONFREY, WILLIAM P. DUNN, DONALD W. FISHER, MARGARET GABLE, KENNETH B. HUNTER, FRANCES KELLEY, JOHN KIERZEK, CHARLES J. LINDSLEY, WALTER MACKELLAR, ARIEL MACNAUGHTON, MARJORIE NICOLSON, ROSCOE E. PARKER, GRACE RICHARDS, HARRY W. ROBBINS, WILLIAM P. SANFORD, LEE J. SEYMOUR, SAMUEL R. STAUFFER; Teaching Assistant DOROTHY ROSE HUDSON, BENJAMIN McCLURE, TRACY J. PEYCKE, ALFRED J. SCHWEPPE, MARY R. SLIFER.

## ENGLISH

*Major Advisers*

Professor Stoll; Associate Professors Beach and Moore; Assistant Professors Hillhouse and Ruud.

*Major Sequences*

A. Medieval. Courses 51 or 136; 145 or 146-147 or 101; 103; 140; 109-110 or 105-106 or 107-108; 141-142-143 or German 100-101-102 or Latin 123 and 121. (Prerequisites, Courses 4, 6, 8.)

B. Renaissance. Courses 136, 62; 152 or 51; 111-112 or 53 and 64; 109-110 or 107-108 or 133 or 146-147; French 150-151-152 or 121-122-123 or Italian 159-160-161 or Latin 121 and 132. (Prerequisites, Courses 6, 8.)

C. Drama. Courses 62 or 133; 136; 129; 160 or 152 or 70; 123-124-125 or Public Speaking 91-92-93 or Rhetoric 115-116-117; French 150-151-152 or German 72, 73, 77 or Spanish 150-151 152. (Prerequisites, Courses 6, 8.)

D. Poetry. Courses 62; 51 or 53 or Rhetoric 100-101; 150 or 151; 136 or 140 or 133; 105-106 or 109-110 or 111-112 or 107-108; 146-147 or Italian 159-160-161 or 153-154-155 or French 153-154-155 or German 160-161-162. (Prerequisites, Courses 6, 8.)

E. Prose. Courses (1 out of 3) 66, 155, 64; (2 out of 4) 109-110, 107-108, 111-112, 123-124-125; (1 out of 5) 51, 62, 151, 150, 105-106; Rhetoric 103-104-105 or Rhetoric 107 and Rhetoric 109-110 or Rhetoric 111-112-113. (Prerequisites, Courses 6, 8.)

## COURSES

A-B-C. FRESHMAN ENGLISH. The study of the fundamental principles of composition; training in the art of writing; an historical survey of the classics of English literature. MR. THOMAS, director of the course.

<sup>1</sup> Absent on leave.

<sup>2</sup> Absent on leave, winter and spring quarters.

- 1-2-3. GENERAL SURVEY OF ENGLISH LITERATURE. Lectures, recitations, and assigned readings. Intended for students who have had work in composition equivalent to that of A-B-C, but who have not had the survey of English classics included in that course.
4. OLD ENGLISH. The language, with reading of representative selections of Old English prose and poetry. The relation to modern English is particularly emphasized.
6. CHAUCER. Reading of tales from the Canterbury collection, with introduction dealing with the grammar and literary forms of fourteenth-century English.
8. SHAKESPEARE. An introductory study of Shakespeare's development as a poet and dramatist up to *King Lear*, with reading of representative plays.
27. HISTORY OF THE ENGLISH LANGUAGE. Outlines of the history of the language. Lectures and assigned readings. MR. KLAEBER.
40. THE BIBLE AS LITERATURE. A literary study of the Old Testament with special attention to forms and the critical study of selected readings. MR. BURTON.
41. BROWNING AND TENNYSON. A reading of the representative work of the two major poets of the Victorian era, in order to show their quality and contrasted power. (Not given in 1921-22.) MR. BURTON.
- 44-45†. AMERICAN LITERATURE. Lectures on American literature, with extensive readings from the principal poets and prose writers of the United States. MR. MOORE.
51. SPENSER. The forms and literary influences in the Elizabethan period illustrated in the poetry of Edmund Spenser, with brief readings from the minor poems and extended study of *The Faerie Queene*.
53. SEVENTEENTH-CENTURY LYRISTS. The tradition of the Elizabethan lyric traced in the work of the metaphysical and cavalier schools of poetry. MR. MOORE.
- 58-59†. NINETEENTH-CENTURY PROSE. Studies in the more important prose writers of the nineteenth century, with reference to their styles, personalities, opinions, and relations to their period. Readings by students, and essays on approved topics. MR. BEACH.
62. MILTON. A special study of Milton, with some consideration of his contemporaries.
64. BACON. A study of Bacon as an essayist and as a promoter of learning.
66. THE ENGLISH NOVEL. Principles and personalities in the evolution of the English novel. Written reports on selected novels. MR. BURTON.

70. MASTERPIECES OF ELIZABETHAN DRAMA. A study of Elizabethan dramatic art aside from Shakespeare's. Less attention will be paid to historical development than in Course 225-226-227 and more to the analysis of the art of the chief writers—Marlowe, Jonson, Beaumont and Fletcher, Webster, and Massinger. (Not given in 1921-22.) MR. STOLL.
101. INTRODUCTION TO MIDDLE ENGLISH. An outline of Middle English grammar, including the interpretation of selected texts. MR. KLAEBER.
103. BEOWULF. An introduction to the Old English poem, with reading of considerable portions of the text. MR. KLAEBER.
- 105-106†. EIGHTEENTH-CENTURY POETRY. The rise of naturalism and romanticism. Eighteenth-century poetry from Pope to Burns, with special reference to the rise and growth of naturalism and romanticism. MR. MOORE.
- 107-108†. EIGHTEENTH-CENTURY PROSE. Lectures on eighteenth-century prose and prose writers; readings by the students and essays on approved topics; special study of fiction and the essay. (Not given in 1921-22.) MR. MOORE.
- 109-110†. THE ROMANTIC POETS OF THE NINETEENTH CENTURY. The Romantic school of poets from Wordsworth to Keats and the influence of the French revolution. MR. BEACH.
- 111-112†. SEVENTEENTH-CENTURY PROSE. General survey of the prose of the century to 1660. History 3-4 is desirable as preparation for this course. MR. MOORE.
- 123-124-125. STUDIES IN VICTORIAN NOVELISTS. George Meredith; or, in alternate years, Thomas Hardy and Henry James. Meredith in 1921-22. MR. BEACH.
129. MODERN DRAMA. Contemporary drama from 1870 to the present; the new impulse in dramatic literature under the stimulus of latter-day thought. MR. BURTON.
131. FORMAL SATIRE. A detailed examination of non-dramatic satire in poetry and prose from the Restoration to the death of Pope, with special emphasis upon Butler, Dryden, Swift, and Pope. (Not given in 1921-22.) MR. MOORE.
133. THE ENGLISH AND SCOTTISH POPULAR BALLADS. A study of a large number of traditional ballads, English and foreign, and a study of ballad style and origins. (Not given in 1921-22.) MR. STOLL.
136. ADVANCED SHAKESPEARE. Shakespeare's development traced to the end. A careful analysis of four plays. Problems in the interpretation of Shakespeare's dramatic methods.

140. **ADVANCED CHAUCER.** A study of the more important of Chaucer's poems aside from *The Canterbury Tales*, with consideration of critical problems relating to the sources and chronology of Chaucer's work.
- 141-142-143†. **HISTORICAL GRAMMAR OF THE ENGLISH LANGUAGE.** This course is identical with Comparative Philology 141-142-143. (Not given in 1921-22.) MR. KLAEBER.
145. **MEDIEVAL ALLEGORY.** A general introduction to the allegory as a type of literature, with special consideration of the more important examples, both religious and secular, in Middle English. (Not given in 1921-22.)
- 146-147†. **THE METRICAL ROMANCES.** A study of the more important Middle English romances; designed as an introduction to the great stories of love and chivalry current in the Middle Ages, particularly those connected with Arthur and the Round Table.
150. **VICTORIAN POETRY.** The poetry of the Victorian era, aside from Browning's and Tennyson's. The principal names are: Matthew Arnold, the Rossettis, Fitzgerald, and Swinburne. (Not given in 1921-22.) MR. STOLL.
151. **RECENT POETRY.** Poetry in England and America since the death of Queen Victoria. The main tradition and tendencies now prevailing. MR. BEACH.
152. **PRE-ELIZABETHAN DRAMA.** A study of the late medieval and the Renaissance drama, moralities, interludes, and farces up through the earlier years of the Elizabethan period. (Not given in 1921-22.)
155. **THE AMERICAN NOVEL.** A study in the beginnings of the American novel and short-story and their development to about 1865. Among the writers included are Charles Brockden Brown, Irving, Cooper, Poe, Hawthorne, Thomas Bailey Aldrich. (Not given in 1921-22.) MR. MOORE.
160. **MEDIEVAL DRAMA.** The origin of the drama in the church service, and the miracle plays.

## COURSES PRIMARILY FOR GRADUATE STUDENTS

201. **OLD ENGLISH.** MR. KLAEBER.
- 202-203. **OLD ENGLISH POETRY.** MR. KLAEBER.
208. **PIERS THE PLOWMAN.**
- 228-229-230. **SEMINARY IN EIGHTEENTH-CENTURY NOVEL.** MR. MOORE.
- 234-235-236†. **SEMINARY IN MIDDLE ENGLISH LITERATURE.**

## RHETORIC

*Major Advisers*

**Professor THOMAS; Assistant Professor NICHOLS.**

*Major Sequence*

Courses 119-120-121, and 6 credits from English 58-59, 107-108, 111-112 in addition to one of the following five groups of courses:

- a. Courses 100-101, and English 51 or 53 or 150 or 151 or 109-110.
- b. Courses 103-104-105 and English 58-59 or 107-108 or 111-112.
- c. Courses 107, and 109-110, and English 58-59 or 107-108 or 111-112.
- d. Courses 111-112-113 and English 58-59 or 107-108 or 111-112.
- e. Courses 115-116-117 and English 129, and either English 136 or Public Speaking 91-92-93.

(Prerequisites, 11-12-13 or 15-16-17.)

## COURSES

A-B-C. FRESHMAN ENGLISH. The study of the fundamental principles of composition; training in the art of writing; an historical survey of the classics of English literature. MR. THOMAS, director of the course.

4-5-6. COMPOSITION FOR TECHNICAL STUDENTS. Required in the College of Engineering, the School of Chemistry, in the seven-year course in Science and Medicine in the College of Science, Literature, and the Arts, and in the course in Art Education in the College of Education. Practical training in the art of writing; the principles of structure, and analysis of specimens of good prose.

11-12-13. DESCRIPTION, NARRATION, AND EXPOSITION. Principles and practice; analysis of specimens; short themes and fortnightly essays, with emphasis on planning and amplification; description, the first quarter; narration, the second; and literary criticism, the third. Number in each section limited to twenty.

15-16-17. EXPOSITION AND ARGUMENT. Exposition during the first quarter, followed by argument. The study of a text and the analysis of specimens, accompanied by weekly essays, and shorter themes. Number in each section limited to twenty.

31. TECHNICAL WRITING. See program for College of Engineering.

100-101. VERSIFICATION. 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. (Not offered in 1921-22.) MR. NICHOLS.

103-104-105. STUDIES IN STRUCTURE AND STYLE. Theory of structure and style; rhetorical analysis of standard English prose; themes based on **personal** observation, current readings, and investigation; preparation of essays with particular classes of readers in view.

107. IMITATIVE WRITING. The principles of structure, diction, and style, which underlie the work of leading English writers; application of these principles in both imitative and original composition.

- 109-110. **SHORT-STORY WRITING.** The technique of the short story accompanied by constructive work in story-writing.
- 111-112-113. **ESSAY-WRITING.** Practice in writing didactic, biographical, critical, informal essays. Extended composition. Individual aid in gathering of material, planning of papers, and criticism of essays. Analysis of a considerable body of modern essays. MR. SUTCLIFFE.
- 115-116-117. **DRAMATIC TECHNIQUE.** Principles of plotting, characterization, climax, dialog, and scenario-making. Writing of three plays—two original, one dramatized short story. Required readings, laboratory work, criticisms of local productions.
- 119-120-121. **SEMINAR IN WRITING.** Open to advanced students who write with facility and who desire personal direction. Criticism of manuscripts submitted. Lectures on fundamental principles of English composition. MR. THOMAS.

#### PUBLIC SPEAKING

*Major Adviser*

Associate Professor Rarig.

#### *Major Sequences*

Either of groups A and B and either of groups C and D.

Sequence A. Debate. Course 55-56-57; Economics 118-119-120 or 143-144 or 103-104, or Political Science 125 and 127 or 115.

Sequence B. Advanced Public Speaking. Course 85-86-87; Philosophy 50, 51 or 124 or 129 and Sociology 100 or 120.

Sequence C. Interpretative Reading. Course 81-82-83; Philosophy 55; English 109-110, 150.

Sequence D. Play Production. Course 91-92-93; English 129 or 136; and Education 65.

(Prerequisites: 41-42-43 or 45-46, 11-12-13.)

*Honorable Mention in Public Speaking.*—Students who have won honors in debate or oratory, if the department deems them worthy, may receive honorable mention on the commencement program. To be eligible for such distinction a student must (1) have represented his class in the freshman-sophomore debate, or won a place in the freshman-sophomore oratorical contest; (2) have taken part in an intersociety debate; (3) have represented the University in an intercollegiate debate; or won a place in the Pillsbury oratorical contest.

#### COURSES

- 11-12-13. **VOICE AND SPEECH CORRECTION.** A special course for the correction of such disorders as wrong placement, faulty resonance, huskiness, indistinctness, lisping, and stammering. MR. RARIG. MR. LINDSLEY, MISS MACNAUGHTON.
- 41-42-43. **A GENERAL COURSE IN PUBLIC SPEAKING.** Fundamentals of effective speaking; breathing, voice production, enunciation, and action; delivery of extracts from the works of well-known writers and speakers;

principles underlying speech-making applied in both oral and written compositions. Each section limited to twenty-five. MR. RARIG, MR. LINDSLEY, MISS MACNAUGHTON, MR. SANDFORD, MR. SEYMOUR.

- 45-46. A GENERAL COURSE IN PUBLIC SPEAKING. A five-credit course identical in subject-matter with 41-42-43.
- 55-56-57. ARGUMENTATION AND DEBATING. Analysis, gathering of evidence, briefing. Critical study of models, including Lincoln-Douglas debates. Principles governing persuasive speaking applied in practice debates. MR. LINDSLEY.
- 81-82-83. INTERPRETATIVE READING. The interpretation and oral reading of the various forms of literature, such as the essay, prose narrative, lyric and narrative poetry, and the drama. MR. RARIG.
- 85-86-87. ADVANCED PUBLIC SPEAKING. The distinctive characteristics of oratorical style; analysis of the styles of representative orators. Written and extemporaneous speeches. Individual criticism and direction. Those desiring to prepare for the Pillsbury contest should register for this course. MR. RARIG.
- 91-92-93. PLAY PRODUCTION. Principles and practice of play production; studies of the various aspects, such as the reading of lines, characterization, action, and stage business, settings, and lighting; the coaching of plays. MISS MACNAUGHTON.
97. INTERCOLLEGIATE DEBATE AND ORATORY. The question for intercollegiate debate studied and briefed, and frequent practice debates held. MR. LINDSLEY, MR. RARIG.

### GEOLOGY

Professors WILLIAM H. EMMONS, Head; FRANK F. GROUT, CLINTON R. STAUFFER; Assistant Professor THOMAS M. BRODERICK; Instructors IRA S. ALLISON, JOHN W. GRUNER, GEORGE M. SCHWARTZ, GEORGE A. THIEL, W. COURTNEY WERNER.

#### *Major Advisers*

Professors Emmons (economic geology), Stauffer (general geology and paleontology), and Grout (mineralogy and petrography).

#### *Major Sequences*

Sequence A. For general geologist, federal and state surveys, etc. Courses 51-52, 57-58-59, 144-145 or 124-125, 85.

Sequence B. For petroleum geologist. Courses 91-92-93 or 57-58-59, 101, 105, 111, 112, 137, 144-145 or 124-125.

Sequence C. For mining geologist and mineralographer. Courses 51-52, 101, 112, 113, 137, 124-125 or 144-145, 85, 166-167.

Sequence D. For paleontologist. Courses 57-58-59, 107-108-109, 150, 151-152-153.

Sequence E. For mineral statistician and geographer. Courses 51-52, 114, 105, 111, 112, 116, 117. Economics 14.

Sequence F. For foreign-trade service. Courses 114, 116, 117, 118 or 119. Economics 176, 143-144. Political Science 121-122. Courses 114, 51-52, 67 and 6 additional credits as approved by the major adviser.

Sequence G. For mineralogist. Courses 61, 105, 106, 111, 112, 131-132-133, 137, 166-167, 85 or 150.

Sequence H. For petrographer. Courses 105, 106, 111, 112 or 124-125, 131-132-133, 140-141, 85 or 150.

#### COURSES

1-2†.<sup>1</sup> GENERAL GEOLOGY. Open to those who have had some course in chemistry (high-school chemistry sufficient). A synoptical treatment of materials of the earth and of geologic processes. Physiographic, dynamic, structural, and historical geology. Lectures, laboratory work, field excursions, and conferences outside of class hours. MR. EMMONS, MR. ALLISON, MR. THIEL, MR. WERNER.

4. GEOLOGY OF MINNESOTA. The physical geography and geologic history of Minnesota. The relations of industrial development to geological features, the principles of pre-Cambrian geology as exemplified in Minnesota. (Not offered in 1921-22.)

7-8. GENERAL GEOLOGY LABORATORY. Supplements Course 1-2 with study of rocks and ores, topographic and geologic maps, fossils, and reference reading. MR. ALLISON.

11-12†.<sup>2</sup> INTRODUCTION TO GEOLOGY. No prerequisites. A synoptical treatment of materials of the earth and of geologic processes. Physiographic, dynamic, structural, and historical geology. Lectures, laboratory work, field excursions, and conferences outside of class hours. MR. WERNER.

15. MINERALS AND ROCKS. An outline study of general principles of petrography; classification of minerals and rocks and practice in their identification. MR. GRUNER.

19. ELEMENTS OF PALEONTOLOGY. An introduction to the study of fossil organisms. Lectures supplemented by field excursions. MR. STAUFFER.

21-22†. ESSENTIALS OF MINERALOGY. Crystal systems, morphological, physical, and chemical character of minerals. Occurrence, genesis, and uses of minerals of economic value. Determinative work, blowpipe analysis, sight identification. MR. BRODERICK, MR. GRUNER.

23-24-25†. MINERALOGY. The crystal systems; morphological, physical, and chemical characters of minerals; occurrence, genesis, and uses of minerals; classification and description of common minerals; rock

<sup>1</sup> This course satisfies the Junior College requirement for science under the new curriculum.

<sup>2</sup> This course does not satisfy the Junior College requirement for science under the new curriculum.



- minerals, and common rocks. Determinative work in laboratory, blow-pipe analysis, sight identification. MR. BRODERICK, MR. GRUNER.
27. **OUTLINES OF MINERALOGY.** A course designed especially for teachers. Methods of identification of minerals, laboratory practice, conferences, reference reading. MR. GRUNER.
- 29.<sup>1</sup> **GENERAL PHYSIOGRAPHY.** Principles of earth sculpture; physiographic changes in progress, and agencies causing them; hydrography and oceanography; planetary relations; climatology.
- 30.<sup>1</sup> **PRINCIPLES OF GEOGRAPHY.** A study of the life reactions to the major types of geographic environment; treats of the influence of climate, topography, soil, and mineral resources upon human affairs. (Not offered in 1921-22.)
- 34.<sup>1</sup> **METEOROLOGY.** The properties and phenomena of the atmosphere, including composition, temperature, pressure, and circulation; the work of the weather bureau; the major climatic divisions of the earth and their climates.
- 37.<sup>1</sup> **ECONOMIC AND COMMERCIAL GEOGRAPHY.** A study of the geographic factors influencing production and trade. Natural resources in their relation to commerce and industry and the major trade routes will be emphasized.
- 51-52†. **ECONOMIC GEOLOGY.** The mineral resources of the United States. The origin, distribution, and uses of the important minerals and mineral fuels. Lectures and field excursions. MR. SCHWARTZ.
- 57-58-59. **PALEONTOLOGY.** A study of fossil forms with special reference to those of geological importance. Faunas and their correlation. MR. STAUFFER.
61. **BLOWPIPE ANALYSIS.** The determination of minerals by systematic blowpipe analysis. MR. BRODERICK, MR. GRUNER.
65. **CRYSTALLOGRAPHY.** Projection and geometric relations of crystal planes; crystal nomenclature; the relation of special properties to morphology. A study of crystal models, crystal drawing, identification of minerals from crystal measurements, and mathematical calculations. (Not offered in 1921-22.) MR. BRODERICK.
67. **MINERALOGY OF CHEMICAL MATERIALS.** Lectures on special laboratory methods of mineralogy, nature and identification of the chief commercial minerals, and the world's supply and market for the same. Laboratory work in identification and tests of the value of minerals. MR. GROUT, MR. BRODERICK.
85. **FIELD WORK.** About two weeks in June are spent in geologic mapping of selected areas in the iron districts of Minnesota. Involves preparation of geologic maps and written reports. MR. GRUNER, MR. SCHWARTZ.

<sup>1</sup> This course does not satisfy the Junior College requirement for science under the new curriculum.

- 91-92-93. INDEX FOSSILS OF NORTH AMERICA. A study of fossils and their uses in correlation. A course intended primarily for mining geologists. MR. STAUFFER.
101. PRINCIPLES OF STRATIGRAPHY. Origin and structure of sedimentary deposits; the interpretation of these in relation to paleogeography; field work in connection with Cambrian and Ordovician problems. (Not offered in 1921-22.)
105. ROCK STUDY. The occurrence and genesis of igneous, sedimentary, and metamorphic rocks; their mineral and chemical composition; their structure, texture, and alteration. The classification and description of rocks. MR. GROUT, MR. GRUNER, MR. THIEL.
106. PETROGRAPHY. The identification and study of minerals and rocks by optical methods; the study of igneous rocks, crystalline schists, and metamorphic rocks. The origin and classification of rocks. MR. GROUT, MR. GRUNER, MR. THIEL.
- 107-108-109. PALEONTOLOGIC PRACTICE. The collection, preparation, and study of materials, with a view to gaining a working knowledge of groups of fossils and the use of literature. MR. STAUFFER.
111. ORE DEPOSITS. The nature, distribution, and genesis of ore deposits of the United States; relations of ore deposits to geologic structure; the deformation and superficial alteration of ore deposits. MR. EMMONS.
112. GEOLOGY OF PETROLEUM. First part of course treats deposits of metals, giving special attention to those outside of United States. Second half treats the nature, origin, and distribution of petroleum and discusses various oil fields of the world. MR. EMMONS.
113. PROBLEMS IN ORE DEPOSITS. Field excursions, map work, lectures on field and laboratory methods. MR. EMMONS.
114. GEOGRAPHY OF NORTH AMERICA. The regional geography of the United States and Canada; their physiography, climate, natural resources, and people. The utilization and conservation of natural resources emphasized.
115. GEOGRAPHIC INFLUENCES. A study of the influence of geographic factors of location, topography, climate, and natural resources upon the economic, social, and political development of America. (Not offered in 1921-22.)
116. GEOGRAPHY OF SOUTH AMERICA. Regional geography of the South American countries; their geology, topography, climate, natural resources, people. Trade relations between South American countries and the United States given special attention. (Not offered in 1921-22.)

117. **RESOURCES AND TRADE.** Major commodities typical of the different sorts of national resources will be selected, and a detailed study of their occurrence, production, manufacture, and exchange made. (Not offered in 1921-22.)
118. **GEOGRAPHY OF EUROPE.** Regional geography of Europe; the geology, topography, climate, natural resources, people, industries, and trade of these countries. (Not offered in 1921-22.)
119. **GEOGRAPHY OF ASIA.** The regional geography of Asia in its physical, economic, commercial, and political aspects. (Not offered in 1921-22.)
- 124-125. **STRUCTURAL AND METAMORPHIC GEOLOGY.** The conditions, processes, and results of metamorphism; structural features resulting from deformation under varying conditions of load. MR. SCHWARTZ.
- 131-132-133. **ADVANCED PETROLOGY.** Advanced optical methods. Criteria for rapid identification of minerals and rocks. The uses of schedules and tables. Standard rock types. Regional and genetic studies. Petrographic reports. MR. GROUT.
137. **TESTING ECONOMIC MINERALS.** Methods of determining quality of mineral deposits, described and illustrated by laboratory tests of coal, clay, oil, building stone, and metallic ores. MR. GROUT.
- 140-141. **APPLIED PETROGRAPHY.** Determination of ores and gangue minerals. Microscopic studies of paragenesis of ores and other mineral associations. Practical problems in mining and geology, settled by microscopic and optical examination. MR. GROUT.
- 144-145. **CONSTRUCTION AND INTERPRETATION OF GEOLOGIC MAPS.** Methods of geological examination; study and problems in construction and interpretation of geologic maps. MR. ALLISON.
150. **FIELD GEOLOGY.** Detailed, systematic work conforming with official surveys. Geologic maps, structure sections, reports; paragenesis of ores and their relations to geologic structures. Field for 1922, Black Hills, South Dakota. Reports to be written week before college opens in fall. MR. EMMONS, MR. SCHWARTZ.
- 151-152-153. **ADVANCED GENERAL GEOLOGY.** Geologic processes and their results; development of the North American continent. MR. STAUFFER.
- 166-167. **MINERALOGRAPHY.** Methods of studying opaque minerals and the application of the methods to problems in ore genesis and history. MR. BRODERICK, MR. SCHWARTZ.

#### GRADUATE COURSES

211. **ADVANCED PALEONTOLOGY.**
214. **SEMINAR IN ORE DEPOSITS.**
220. **GLACIAL GEOLOGY.**

241. FIELD COURSE IN GEOLOGY.  
 243-244. RESEARCH COURSE IN GEOLOGY.  
 246. PRE-CAMBRIAN GEOLOGY.  
 247. GEOLOGY AND EXPLORATION OF LAKE SUPERIOR REGION.  
 251-252. ORIGINAL PROBLEMS.  
 253-254. RESEARCH COURSE IN ORE DEPOSITS.  
 263-264. RESEARCH COURSE IN PETROLOGY.  
 289-290. RESEARCH COURSE IN GEOGRAPHY.

## GERMAN

Professors CARL SCHLENKER, Chairman; FREDERICK KLAEBER (Comparative Philology); Assistant Professors OSCAR BURKHARD, JAMES DAVIES, SAMUEL KROESCH; Instructors HARRY S. CANNON, LYNWOOD G. DOWNS, RICHARD JENTE, OTTO KUHLMAN, COWDEN LAUGHLIN; Teaching Fellows ESTHER HENDRICKSON, ESTHER STRAND DOWNS; Scholar WERNER GRAF.

*Major Advisers*

Professor Schlenker; Assistant Professor Kroesch.

*Major Sequences*

Courses 50-51-52; 53-54-55; 63, 64; any two quarters of 65, 66, and 67; 18 additional credits from courses numbered above 50.

*Sequence of Courses*

*For academic students.*—Without entrance German, 1, 2, 3, 10, 11, 14, or 63, other courses numbered 50 or above. With one year entrance German, 2, 3, 4, 10, 11, 14, or 63, other courses numbered 50 or above. With two years entrance German, 10, 11, 14, or 63, other courses numbered 50 or above. With three years entrance German 11, 14, or 63, other courses numbered 50 or above. With four years entrance German, 14 or 63, other courses numbered 50 or above.

*For pre-medical students.*—Without entrance German, 1, 2, 3, 10, 31-32. With one year entrance German, 2, 3, 10, 31-32. With two years entrance German, 15, 31-32. With more than two years entrance German, 31-32.

*For chemists.*—Without entrance German, 4-5-6, 7, 25-26. With one year entrance German, 7, 25-26. With two years entrance German, 27 or 10, 28-29. With more than two years entrance German, 28-29.

*For pre-business students.*—Without entrance German, 1, 2, 3, 10, 40. With one year entrance German, 2, 3, 10, 40. With two years entrance German, 10, 11, 40. With three or four years entrance German, 40.

## COURSES

1. BEGINNING. A. Pronunciation, conversation, grammar, and composition; selected readings in easy prose and verse.
2. BEGINNING. B. Continuation of Course 1.
3. BEGINNING. C. Selected texts from modern writers.
- 4-5-6†. BEGINNING FOR CHEMISTS. Pronunciation, conversation, grammar, and composition; selected readings in easy prose.
7. INTERMEDIATE FOR CHEMISTS. Continuation of Course 4-5-6.
10. RAPID READING. Modern narrative prose.
11. ADVANCED RAPID READING. Continuation of Course 10. Representative works of the eighteenth and nineteenth centuries.
14. NINETEENTH-CENTURY PROSE. Narrative readings from modern novelists.
15. NARRATIVE PROSE FOR PRE-MEDICAL STUDENTS. Reading, grammar review.
- 25-26†. ELEMENTARY SCIENTIFIC. For chemists. Reading from simple expository German. Selections from works on chemistry.
27. NARRATIVE PROSE FOR CHEMISTS. Reading, grammar review.
- 28-29†. ADVANCED CHEMICAL GERMAN. Selections from more difficult works on chemistry.
- 31-32†. MEDICAL GERMAN. Readings from general works on physiology, anatomy, and bacteriology.
40. COMMERCIAL GERMAN. Vocabulary of commerce, business forms; reading of texts on economics.
- 50-51-52†. COMPOSITION. Aims to develop grammatical correctness. Translations from English selections. Essay-writing on assigned subjects. MR. LAUGHLIN.
- 53-54-55†. CONVERSATION. Aims to develop ease and correctness of oral expression. Organized on the laboratory basis—one-hour credit with two hours of recitation and one hour of outside reading. MR. LAUGHLIN.
- 56-57-58†. ESSAY-WRITING. Syntax, structure, and style; criticism of essays on assigned subjects. MR. BURKHARD.
63. MODERN DRAMA. Plays of modern dramatists, Hauptmann, Sudermann, Fulda, and others. MR. DAVIES, MR. DOWNS.
64. CLASSIC DRAMA. Plays of Lessing, Goethe, and Schiller. MR. DAVIES, MR. DOWNS.
65. SURVEY OF GERMAN LITERATURE THROUGH THE REFORMATION PERIOD. Lectures, assigned readings, reports. MR. KROESCH.

66. SURVEY OF GERMAN LITERATURE OF THE EIGHTEENTH CENTURY. Lectures, assigned readings, reports. MR. BURKHARD.
67. SURVEY OF GERMAN LITERATURE OF THE NINETEENTH CENTURY. Lectures, assigned readings, reports. MR. BURKHARD.
72. DRAMA SINCE 1880. The beginnings of the dramatic revival; Sudermann and others. MR. SCHLENKER.
73. DRAMA SINCE 1880. Hauptmann, Wedekind, Halbe, Schnitzler, and others. MR. SCHLENKER.
74. GERMAN POETS. Survey of German poetic literature. MR. DAVIES, MR. DOWNS.
77. GOETHE'S FAUST, PART I. Reading and interpretation of the text; genesis of the work; the Faust legends, Faust books, puppet plays, Marlowe's *Faustus*. MR. SCHLENKER.
- 100-101-102†. MIDDLE HIGH GERMAN. Phonology, morphology, and syntax. Translation into the modern German. MR. KROESCH.
107. HISTORICAL GERMAN GRAMMAR. Phonology, inflection, word formation, syntax. Intended primarily for prospective teachers of German. MR. KROESCH.
108. COMPARATIVE PHONETICS. A study of speech sounds, and the nature of their production with special reference to English, French, and German. Open to students of the modern languages. MR. KROESCH.
- 109-110-111†. HISTORY OF THE GERMAN LANGUAGE. Lectures, discussions, assigned readings. This course is identical with Comparative Philology 109-110-111. (Not offered in 1921-22.) MR. KLAEBER.
- 150-151-152†. DIE NOVELLE. A study of the technic and development. Assigned readings and reports. (Not offered in 1921-22.) MR. BURKHARD.
- 153-154-155†. ASPECTS OF GERMAN LITERATURE OF THE NINETEENTH CENTURY. The subject of the course will be announced from year to year. Subject for 1921-22: Hebbel, Ludwig, Anzengruber. MR. BURKHARD.
- 160-161-162†. LYRIC POETRY OF THE EIGHTEENTH AND NINETEENTH CENTURIES. Historical review of the best lyric poetry and chief writers. MR. DAVIES.
- 225-226-227. LITERARY PROBLEMS. Literary movements of the nineteenth century. MR. SCHLENKER.

## GREEK

Professor CHARLES ALBERT SAVAGE, Chairman; MISS DOROTHY B. STRONG, Assistant.

*Major Adviser*

Professor Savage.

*Major Sequences*

Sequence A. Courses 51, 52, 53; 105, 106 or 107, 108 or 109; Latin 51, 52, 53.

Sequence B. Courses 51, 52, 53; 105, 106 or 107, 108 or 109; History 133, 134, 135.

## COURSES

- 1-2†-3. BEGINNING GREEK. Grammar, composition, word-formations, oral exercises, and selected readings in simple prose and verse.
- 4-5-6. HISTORY AND EPIC POETRY. First quarter, selections from Xenophon's *Anabasis*, or from other historical prose; second quarter, selections from Herodotus; third year, selections from the *Iliad*; syntax, irregular verbs, dialectical forms; two quarters to be completed before credit is given. MR. SAVAGE, MISS STRONG.
7. EVERY-DAY GREEK. A brief course in Greek sources of English words. The practical purpose is to enable students to trace the origin and feel the force of English words derived from Greek, and especially of scientific terms.
51. PHILOSOPHY. Plato's *Apology*, or selections from other dialogues of Plato and from Xenophon's *Memorabilia*. MR. SAVAGE.
52. ORATORY. Selections from Lysias and Demosthenes; study of the principles of Greek rhetoric and Greek oratory. MR. SAVAGE.
53. DRAMATIC POETRY. One play of Euripides; introductory course in the drama. Special attention given to mythology and literary style. MR. SAVAGE.
105. LYRIC POETRY. Selections from the elegiac, iambic, lyric, and bucolic poets. MR. SAVAGE.
106. ADVANCED DRAMA. Aeschylus, Sophocles, or Aristophanes. Special attention given to the development of the drama, and to the literary form and dramatic representation of the plays read. MR. SAVAGE.
107. ADVANCED PROSE. Selections from the Greek historians, or from Plato, or from the orators. Alternates with Course 106.
108. ADVANCED EPIC POETRY. A course of rapid readings in the *Iliad* or the *Odyssey*. The object of this course is to secure as intimate an acquaintance as possible, at first hand, with Homer. MR. SAVAGE.
109. THE NEW TESTAMENT. Especially intended for those who are preparing for the ministry, or for some other form of religious work. Alternates with Course 108. MR. SAVAGE.

## COURSES FOR WHICH NO KNOWLEDGE OF GREEK IS REQUIRED

42. GREEK SCULPTURE. Development of Greek sculpture from its beginnings will be traced; famous statues, friezes, and reliefs will be shown

and described; the personalities of the great sculptors, and their special contributions to art, will be considered. MR. SAVAGE.

43. GREEK DRAMA. The reading and interpretation of representative Greek plays; lectures dealing with the origin, growth, character, and influence of the Greek drama; special stereopticon illustrations. Students taking this course may not receive credit for Course 44. MR. SAVAGE.
44. GREEK LITERATURE AND LIFE. Lectures, textbook work, illustrative and assigned readings; special lectures illustrated by stereopticon views. Recommended to those who intend to teach Greek, Latin, English, or ancient history. MR. SAVAGE.
45. GREEK MYTHOLOGY. Lectures, textbook work, and illustrative readings, supplemented by occasional stereopticon views. Recommended to those specializing in languages, literature, or philosophy. MR. SAVAGE.

### HISTORY

Professors GUY STANTON FORD, Chairman; CLARENCE W. ALVORD, WILLIAM S. DAVIS, NORMAN S. B. GRAS, ALBERT B. WHITE;<sup>1</sup> Associate Professors SOLON J. BUCK, AUGUST C. KREY; Assistant Professors HAROLD QUIGLEY (Political Science), LESTER B. SHIPPEE, MASON W. TYLER, QUINCY WRIGHT (Political Science); Instructor GEORGE M. STEPHENSON.

#### *Major Advisers*

Professors Davis, Gras, and White; Associate Professors Krey and Buck; Assistant Professors Shippee and Tyler.

*General statement.*—A student electing a major sequence in history will take a minimum of twenty-five (25) credits in Junior College courses in history and political science and a minimum of thirty (30) credits in Senior College courses in history distributed as indicated below.

Students electing a major sequence in history will be expected to have taken History 1-2† or History 3-4†, also History 5-6† and Political Science I.

Students who enter from other institutions, or who for acceptable reasons have not met these requirements, may be permitted by their advisers to make up during the junior year not more than 15 credits from the above courses.

*Major sequence.*—During the junior year the student majoring in history will take: (A) one of the following: 105, 133, 134, 135, 116-117-118†, or 119; and (B) if History 1-2† has not been taken, either History 101-102† or 107-108†; if History 3-4† has not been taken, either 109-110† or 121-122†.

During the senior year the student will elect at least ten credits from courses numbered 151 to 200.

During the junior and senior years, the student will elect additional courses in history from those numbered above 51 sufficient to make a total of at least 30 credits.

<sup>1</sup> Absent on leave, 1921-22.



## JUNIOR COLLEGE COURSES

- 1-2†. THE MODERN WORLD, 1648-1918. A historical survey of the last three centuries, dealing chiefly with those political, social, and economic movements which have combined to create the present-day world. MR. FORD, MR. KREY, MR. TYLER.
- 3-4†. ENGLAND, 1066 TO THE PRESENT. General political history of England since the Norman Conquest, with special reference to development of governmental institutions. Serves as introduction to further work in English history, literature, and politics, and to American history. MR. WHITE.
- 5-6†. AMERICAN HISTORY. A general survey of the national period of American history, with a brief consideration of the revolutionary period as an introduction. MR. ALVORD, MR. SHIPPEE.
- 9-10†. INTRODUCTION TO ECONOMIC HISTORY WITH SPECIAL EMPHASIS ON THE UNITED STATES. Lectures and section work. A general survey of the development of agriculture, manufacture, transportation, storage, and the exchange of goods; economic crises; land, capital, management, and labor; the interplay of economic and political forces. Primarily for business students, but open to others who have ten credits in history. MR. GRAS and others.
- 11-12-13†. MEDIEVAL HISTORY THROUGH THE REFORMATION. Development of Europe from the fall of the Roman Empire in the West, with special reference to social, intellectual, and artistic movements of the period. Primarily for music and architecture students, but open to others who have ten credits in the social-science group. MR. KREY.
25. WORLD POLITICS. A study of the foreign policies and international relations of the leading European powers to-day. MR. TYLER, MR. QUIGLEY.
- 33-34†. ENGLISH LEGAL INSTITUTIONS. Beginnings of legal institutions and ideas among the Teutonic peoples, and the development of courts and procedure in England. This course is open to pre-legal students in the second quarter of the sophomore year. MR. WHITE.

## SENIOR COLLEGE COURSES

*American History*

112. HISTORY OF AMERICAN IMMIGRATION. Settlement and development of typical racial stocks in America. Contributions of European immigrants to American life; social, political, and religious activity; reaction to American conditions. Considerable attention to political history. Native American and Know-nothing parties, etc. MR. STEPHENSON.

125. AMERICAN DIPLOMATIC HISTORY. Attention to the principles and policies guiding American diplomacy in its stage of development as well as to the methods pursued and the personality of American diplomats. Identical with Political Science 125. MR. WRIGHT.
127. AMERICAN FOREIGN RELATIONS. Such topics as the Monroe Doctrine, freedom of the seas, the open door, arbitration, and disarmament will be considered with particular reference to the future policy of the United States. Identical with Political Science 127. MR. WRIGHT.
140. RECENT AMERICAN HISTORY. A study of American development from 1876 to the present time. Particular attention is paid to the economic, social, and international aspects of the period. MR. SHIPPEE.
141. THE WEST IN AMERICAN HISTORY TO 1815. The westward movement of population and civilization; its political, economic, and social aspects; effects upon national development. MR. BUCK.
142. THE WEST IN AMERICAN HISTORY, 1815-65. The settlement of the Mississippi valley, and the beginnings of Pacific coast expansion; significance in general American development. This course, while offered separately, follows, and is calculated to form a natural sequence to History 141. MR. SHIPPEE.
- 144-145†. HISTORY OF MINNESOTA. The settlement and development—political, economic, and social—of a typical American commonwealth. (Not offered in 1921-22.) MR. BUCK.
- 146-147†. CONSTITUTIONAL HISTORY OF THE UNITED STATES. A study of the evolution of American constitutional government through legislation, judicial interpretation, and administrative rule and custom. MR. SHIPPEE.
- 148-149-150†. BRITISH EMPIRE IN THE EIGHTEENTH CENTURY. A study of imperial politics, including the development of the English colonies in America and the American Revolution. MR. ALVORD.
153. THE WEST IN AMERICAN POLITICS SINCE 1865. An intensive study of independent parties and radical or progressive political movements. Students will be expected to use material in the library of the Minnesota Historical Society, St. Paul. MR. BUCK.
154. SELECTED TOPICS IN THE HISTORY OF MINNESOTA. Students will be expected to use material in the library of the Minnesota Historical Society, St. Paul. (Not offered in 1921-22.) MR. BUCK.
155. THE UNITED STATES, 1850-65. An intensive study of the period beginning with the Compromise of 1850 and extending through the Civil War; consideration of social and economic questions as well as political issues. MR. SHIPPEE.

156. THE RECONSTRUCTION PERIOD. An intensive study of the period after the close of the Civil War. This course follows History 155 as a natural sequence. (Not offered in 1921-22.) MR. SHIPPEE.
160. SELECTED TOPICS IN LATER AMERICAN COLONIAL HISTORY. MR. ALVORD.
166. SELECTED TOPICS IN THE HISTORY OF IMMIGRATION. MR. STEPHENSON.
- 208-209-210. SEMINAR IN AMERICAN HISTORY. MR. ALVORD, MR. BUCK, MR. SHIPPEE, MR. STEPHENSON.

See also 113-114-115† under Economic History; 121-122† under English History; and 111 under European History.

#### *Ancient History*

103. OLD ORIENT. Origin of Egyptians, Babylonians, Assyrians, and Persians, and main features of their political history and civilization. History of the Hebrews discussed so far as it bears upon general oriental problems. MR. DAVIS.
- 105.<sup>1</sup> HISTORY OF ROME. Roman institutions, especially those which influenced the later world. Conquest of the Roman world; founding of the Roman Empire, and history of the empire up to the period of the decline. MR. DAVIS.
133. POLITICAL HISTORY OF GREECE. With special reference to the reaction upon cultural progress. MR. DAVIS.
134. ANCIENT CIVILIZATION: GREECE. Social and intellectual life of Greece. MR. DAVIS.
135. ANCIENT CIVILIZATION: ROME. Social and intellectual life of Rome. MR. DAVIS.

#### *Economic History*

- 113-114-115†. ECONOMIC HISTORY OF EUROPE AND THE UNITED STATES, 1750 TO THE PRESENT. The industrial revolution, and changes in transportation, agriculture, tariff, and labor. (Not given in 1921-22.) MR. GRAS.
- 116-117-118†. ECONOMIC HISTORY OF EUROPE, 1300-1750. The chief interests are the manor, the town, the metropolis; national economic regulation; developments in agriculture, commerce, manufacture, and economic thought, leading up to the industrial revolution. MR. GRAS.
169. ECONOMIC HISTORY OF THE UNITED STATES SINCE THE CIVIL WAR. The chief emphasis is on the growth of manufacture and commerce, and government regulation. (Not offered in 1921-22.) MR. GRAS.
- 205-206-207. SEMINAR IN ECONOMIC HISTORY. MR. GRAS.

#### *English History*

- 109-110. ENGLISH HISTORY, 1815-1920. Assigned readings and lectures. Emphasis placed upon party history, the colonies, foreign relations, the

<sup>1</sup> Not open to students who took 135 in 1920-21, except by consent of instructor.

- social-democratic movement, and especially British foreign policy preceding the Great War. MR. TYLER.
- 121-122†. ENGLISH BACKGROUNDS AND THE AMERICAN COLONIES. Studies in the transfer of English civilization, and its early modifications and development in America. Some account taken of the contrasting French settlements. MR. WHITE.
162. THE BEGINNINGS OF PARLIAMENT. Parliamentary beginnings from the Norman Conquest to the reign of Edward I, based wholly on original sources. Demands knowledge of at least high-school Latin. MR. WHITE.
183. THE STUART PERIOD. Emphasizes selected problems connected with the Long Parliament. (Not given in 1921-22.)  
See also 113-114-115† and 116-117-118† under Economic History.

*European History*

- 101-102. THE FRENCH REVOLUTION AND NAPOLEONIC ERA. French conditions in the eighteenth century before 1774; events between 1774 and 1789 which precipitated revolution in France; reform work of the early revolution; Napoleon and the Empire. Reading knowledge of French desirable. MR. FORD.
104. THE NEAR EAST; MODERN. The Saracen Empire, Turkey, the Balkan States, and European diplomacy in the East, since the beginning of the Middle Ages. MR. DAVIS.
- 107-108. EUROPE, 1848-1914. The development of Europe in its various phases—political, social, and economic—from the Revolution of 1848 to the outbreak of the war of 1914. A reading knowledge of French or German will be helpful. MR. TYLER.
111. EUROPEAN BACKGROUND OF AMERICAN IMMIGRATION. The history of the movement of population from Europe to America in the nineteenth century, with the emphasis on the economic, political, social, and religious forces. MR. STEPHENSON.
119. THE RENAISSANCE AND THE REFORMATION. The Renaissance and the Reformation as general European movements with special emphasis upon the work of individual men and upon ideas rather than upon politics and institutions. MR. KREY.
120. MEDIEVAL CIVILIZATION. A study of the social and intellectual development of Europe from the period of the German migrations to the end of the thirteenth century. MR. KREY.
- 157-158. SELECTED TOPICS IN NINETEENTH CENTURY HISTORY. A detailed study of selected topics in the history of the nineteenth century. Discussion based on a wide range of reading. A reading knowledge of French or German will be required. MR. FORD, MR. TYLER.
164. STUDIES IN THE CRUSADES. Problems connected with the crusades. Demands knowledge of at least high-school Latin. MR. KREY.

201-202-203. HISTORICAL BIBLIOGRAPHY AND CRITICISM. MR. FORD, MR. WHITE, and others.

See also 113-114-115† and 116-117-118† under Economic History.

### HOME ECONOMICS

#### COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

Professor MILDRED WEIGLEY, Chief; Associate Professors HARRIET GOLDSTEIN, MARION WELLER; Assistant Professors ALMA BINZEL, ALICE M. CHILD, AMY P. MORSE, E. MAUD PATCHIN, LUCY A. STUDLEY; Lecturer in Hygiene MARTHA B. MOORHEAD; Instructors CARLOTTA BROWN, HALLY J. FISHER, VETTA GOLDSTEIN, RUTH LINDQUIST, MABEL C. McDOWELL, MARGARET K. MUMFORD, ETHEL L. PHELPS.

#### COURSES

3. TEXTILES. A study of textile fibers, their structure, properties, and chemical reactions; of fabrics, their structure and processes of manufacture; of art and economic considerations in selection and purchase of materials for clothing and household furnishing. MISS WELLER.
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. MISS McDOWELL.
13. DRESSMAKING. Consideration of quality, suitability, and cost of materials adapted to technic involved in construction of simple wool and silk dresses; adaptation of art principles in selection of designs; instruction and practice in methods of construction. MISS PATCHIN, MISS McDOWELL.
17. ADVANCED CLOTHING CONSTRUCTION. Laboratory course involving the application of principles of costume-modeling in the construction of one high-grade garment, suit, coat, or dress. One day a week will be given to a millinery problem. MISS WELLER, MISS BROWN, MISS PATCHIN.
21. FOODS AND COOKERY. (a) Production, manufacture, chemical composition of typical foods; their classification into food principles; changes in digestion; function in nutrition; (b) fundamental science principles from chemistry, physics, biology, bacteriology, and their application in typical cookery processes. MISS CHILD.
22. FOOD ECONOMICS. Cost and nutritive value of typical foods; the study of dietaries; preparation and serving of meals, the cost bearing a definite relation to the family budget. MISS CHILD.
34. HOME MANAGEMENT: OPERATION AND MAINTENANCE. Lectures. The family budget for varying incomes, and for the home management house; household accounts. MISS STUDLEY.

37. HOME CARE OF THE SICK. (a) First aid; communicable diseases; their transmission and prevention; hygiene of infancy, maidenhood, maturity. (b) The care of the sickroom; observation and care of the patient; elementary symptomatology. MISS MOORHEAD, MISS FISHER.
40. CHILD-TRAINING. Application of modern science in rearing, training, and educating children. Emphasis is placed on the physical care of the baby; infant-feeding; infant diseases; early training; obligation of the home; the obligation of the nation. MISS BINZEL, MISS FISHER.
51. DRAWING AND DESIGN. Composition, perspective; principles of design and color harmony applied to live and area designs, dress designs, and interiors. MISS HARRIET and MISS VETTA GOLDSTEIN.
52. ART HISTORY AND APPRECIATION. The historical development of art, architecture, decoration, furniture, and costume studied with special emphasis on design and influence upon modern styles. MISS HARRIET and MISS VETTA GOLDSTEIN.
53. ADVANCED DESIGN. Problems in design for house furnishings and for costume, including dress-modeling. MISS HARRIET and MISS VETTA GOLDSTEIN.
70. FOOD PREPARATION IN RELATION TO SOCIAL WORK. A study of the principles underlying cookery with special emphasis on the preparation of foods to be used in homes with limited incomes. MISS LINDQUIST.
71. ELEMENTARY DIETETICS FOR THE SOCIAL WORKER. Involves principles underlying adequate feeding. Food habits of different economic and racial groups forming the basis for actual planning and preparation of meals. MISS MUMFORD.
72. HOME-MANAGEMENT PROBLEMS. Involves the making of sound budgets. Studies are based upon racial groups and the size of the family, together with the income. MISS LINDQUIST.
123. CLOTHING ECONOMICS. General consideration of the economic problems in clothing production; woman's responsibility for conditions in textiles and clothing industries; study of budget for clothing and household textiles, hygiene and standardization of dress. MISS WELLER.

### HUMAN ANATOMY

#### THE MEDICAL SCHOOL

Professors CLARENCE M. JACKSON, Chairman; JOHN B. JOHNSTON, THOMAS G. LEE, RICHARD E. SCAMMON; Associate Professor CHARLES A. ERDMANN; Assistant Professor ANDREW T. RASMUSSEN.

For list of courses, see bulletin of the Medical School.

## HUMAN PHYSIOLOGY

## THE MEDICAL SCHOOL

Professors ELIAS P. LYON, Dean; JESSE F. McCLENDON, FREDERICK H. SCOTT; Associate Professors RICHARD O. BEARD, FRANCIS B. KINGSBURY, CHAUNCEY J. V. PETIBONE; Instructors ESTHER GREISHEIMER, CHARLES C. GAULT, GERTRUDE I. THOMAS.

*Major Advisers*

Professors Scott and McClendon.

*Major Sequences*

Sequence A. Physiology. 100-101; 103; 104; 6 credits in courses numbered 113 to 140, or Animal Biology, 109-110.

Sequence B. Physiologic chemistry. 100-101; 103; 104; 6 credits in courses numbered 138-164.

4. HUMAN PHYSIOLOGY. A brief course offered to academic, agricultural, and home economics students. Lectures and laboratory work.
- 56.<sup>1</sup> PHYSIOLOGIC CHEMISTRY. Chemistry of the components of the body and the changes they undergo.
- 57-58.<sup>1</sup> HUMAN PHYSIOLOGY. An intermediate course dealing chiefly with the physical and nervous aspects of bodily activity.
- 100-101. PHYSIOLOGIC CHEMISTRY. The components of the animal body; foods, digestion, the excreta, and metabolism. MR. KINGSBURY, MR. PETTIBONE, and Assistants.
103. PHYSIOLOGY OF MUSCLE, NERVE, BLOOD, CIRCULATION, AND DIGESTION. DR. LYON, MR. McCLENDON, MR. SCOTT, and Assistants.
104. PHYSIOLOGY OF THE NERVOUS SYSTEM AND SPECIAL SENSES. Respiration, metabolism, nutrition, and excretion. DR. LYON, MR. McCLENDON, MR. SCOTT, DR. BEARD, and Assistants.
113. PROBLEMS IN PHYSIOLOGY. Arranged by instructors with qualified students. Each student will be assigned a topic for special laboratory study. Conference and reading. DR. LYON, MR. McCLENDON, MR. SCOTT, MISS GREISHEIMER.
131. ADVANCED PHYSIOLOGY OF MUSCLE, BLOOD, CIRCULATION, AND DIGESTION. Alterations due to physiological conditions. MR. SCOTT.
132. ADVANCED PHYSIOLOGY OF RESPIRATION, EXCRETION, METABOLISM, NERVOUS SYSTEM, AND SENSE ORGANS. Conference and laboratory. MR. SCOTT.

<sup>1</sup> Courses 56 and 57-58 constitute a sequence recommended for students who wish a knowledge of human physiology, but who do not desire the detailed consideration given in Courses 100-101, 103, and 104. A student cannot receive credit for both of these sequences.

137. **FOODS AND PRACTICAL DIETETICS.** A study of human foods and food value; principles of food selection, balanced rations, etc. DR. BEARD, MISS THOMAS.
139. **SOME NEWER ASPECTS OF NUTRITION.** Role of vitamins and inorganic constituents in nutrition; preservation of food to preserve vitamins; purification of vitamins; effect of vitamin deficiency on mineral metabolism; chemistry of rickets and pellagra. MR. McCLENDON.
140. **PHYSICAL CHEMISTRY OF VITAL PHENOMENA.** Osmotic pressure, surface tension, electric conductivity, hydrogen-ion concentration. MR. McCLENDON.
153. **ADVANCED PHYSIOLOGIC CHEMISTRY.** Course arranged by instructors with qualified students for special work. MR. McCLENDON, MR. KINGSBURY, MR. PETTIBONE.
163. **METABOLISM.** Lectures and laboratory work on special phases of metabolism. Lectures may be taken alone; number of students unlimited; laboratory course limited to ten students. MR. PETTIBONE.
164. **QUANTITATIVE METHODS.** The estimation of certain important substances in the urine, blood, and other body fluids. MR. KINGSBURY.

### JOURNALISM

Instructor REUEL R. BARLOW, Chairman.

- 13-14-15†. **REPORTING.** Writing and rewriting types of stories covered by reporters for metropolitan newspapers. Study of news values. Exercises in journalistic style. Frequent tests on knowledge of current news. Practice in getting news for *Minnesota Daily* and Minneapolis and St. Paul papers.
- 51-52†. **EDITING.** Instruction and practice in editing copy, correcting proof, writing headlines, make-up, and newspaper office system. Lectures on law of libel and copyright and on newspaper ethics.
55. **SPECIAL FEATURE STORIES.** Lectures and practice in preparing special articles for newspaper and magazine publication; study of the newspaper feature story; examination of the magazine market and the needs of trade journals.
61. **EDITORIAL-WRITING.** Emphasis on subject-matter. Lectures by members of the departments of Economics, Political Science, History, and Sociology. Analysis of various types of newspaper and magazine editorials with practice in writing.
65. **NEWSPAPER PROBLEMS.** Detailed study of news policy of more important American newspapers, with emphasis placed upon the ethics of the profession, handling of crime news, editorial policy, government regulation of the press, and the newspaper of the future.



67. PRACTICAL NEWSPAPER WORK. Practical work arranged in connection with trade journals and Minneapolis and St. Paul newspapers. To be taken in the last quarter of the senior year.

### LATIN

Professor JOSEPH B. PIKE; Instructor ROBERT V. CRAM.

#### *Major Adviser*

Professor Pike.

#### *Major Sequences*

Courses 51, 52, 53; 131, 132, 133; 211-212-213 or Greek 51, 52, 53. (Prerequisites: any two of 21, 22, and 23. Students entering with two or three years of Latin will take any two of 11, 12, and 13 in their first year and any two of 21, 22, 23, in their second year. Students entering with no Latin will take 1-2 and 3 in their first year, 11, 12, and 13 in the second year, and any two of 21, 22, and 23 in their third year.)

### JUNIOR COLLEGE COURSES

- 1-2†. BEGINNING LATIN. Ten weeks are spent in mastering inflections; the remainder of the course is devoted to reading easy Latin prose and the study of elementary syntax.
3. CAESAR. Selections from the Gallic Wars are read. Elementary Latin composition is taken in connection. Students entering with one year of Latin may select this course.
11. SELECTIONS FROM LATIN AUTHORS.
12. SELECTIONS FROM LATIN AUTHORS. SURVEY OF LATIN LITERATURE.
13. SELECTIONS FROM THE WORKS OF OVID. A continuation of Course 3. Students entering at third quarter with two or three years' preparation in Latin may select Course 13.
21. LIVY. Selections from Books 1 to 10.
22. PLAUTUS AND TERENCE. One play each of Plautus and Terence with a study of the beginnings of Roman drama. Students entering at second quarter with four years' preparation in Latin may select Course 22.
23. HORACE, ODES, SATIRES, AND EPISTLES. Selections from these works.

### SENIOR COLLEGE COURSES

51. PLINY'S LETTERS. Selected letters of Pliny the Younger with a study of Roman society in his time.
52. APULEIUS' SHORT STORIES. Reading of Apuleius' tales and a study of the Roman novel.

53. Suetonius. Lives of Tiberius, Caligula, Claudius, and Nero.
61. ROMAN LITERATURE AND LIFE. Lectures, textbook work, and assigned reading in standard editions. (Not offered in 1921-22.)
121. ADVANCED VERGIL. Selections from Books 7-12 of the Aeneid. Alternates with Course 131.
122. CICERO'S LETTERS. (Not offered in 1921-22.)
123. MEDIEVAL LATIN. Selected documents illustrating conflict between church and state in Middle Ages. Selections from history of Franks by Gregory of Tours. Aims to accustom students to handle medieval Latin easily for historical and literary purposes. (Not offered in 1921-22.)
131. JUVENAL. Selected satires. Alternates with Course 121. (Not offered in 1921-22.)
132. SENECA'S EPISTLES. Alternates with Course 122.
133. PETRONIUS AND VULGAR LATIN. Selections from Petronius and the *Peregrinatio Sanctae Silviae*. The relation of vulgar to literary Latin will be discussed. Alternates with Course 123.
- 201-202-203. ANNALS OF TACITUS. Graduate seminar, but open to students who register for a major in Latin. (Not offered in 1921-22.)
- 211-212-213. LUCRETIIUS. Graduate seminar but open to students who register for a major in Latin.

### MATHEMATICS

Professors WILLIAM H. BUSSEY, Chairman; DUNHAM JACKSON; Associate Professors RAYMOND W. BRINK, WILLIAM L. HART, ROYAL R. SHUMWAY, ANTHONY L. UNDERHILL; Assistant Professor RALPH M. BARTON; Instructors GLADYS E. C. GIBBENS, MINNA SCHICK, ELLA THORP

#### *Major Advisers*

Professor Jackson; Associate Professors Brink and Underhill.

#### *Major Sequence*

Courses 50, 51, 52, 62-63, 71 and either 80-81-82 or 106-107-108 or 102-103-104 or Physics 101-103-105.

### COURSES

1. HIGHER ALGEBRA. A review and a collegiate treatment of the topics of elementary algebra for those who have had one year of elementary algebra. Not open to those who presented higher algebra for entrance.

6. TRIGONOMETRY.<sup>1</sup> Logarithms and plane trigonometry.
7. COLLEGE ALGEBRA.<sup>1</sup> Quadratic equations, equations in the quadratic form, simultaneous quadratic equations, graphical representation, progressions, mathematical induction, the binomial theorem, permutations, combinations, probability, determinants, and the theory of equations with special reference to graphical methods.
8. COMMERCE ALGEBRA.<sup>1</sup> Selected topics in college algebra with emphasis on logarithms and on those phases of the subject which are of most importance in applications to business problems. Open only to students in the pre-business course.
16. SOLID GEOMETRY. A collegiate treatment of solid and spherical geometry intended primarily for those who did not have the subject in high school and who are planning to specialize in mathematics. Not open to those who presented solid geometry for entrance.
20. THE MATHEMATICS OF INVESTMENT. First principles of the mathematical theory of interest, annuities, amortization, valuation of bonds, sinking funds and depreciation, etc., with brief discussion of probability and its application to life annuities and some problems in life insurance.
30. ANALYTIC GEOMETRY. The elements of plane, analytic geometry including the geometry of the conic sections, with a brief introduction to solid, analytic geometry.
- 50.<sup>2</sup> CALCULUS I. Differential calculus.
- 51.<sup>2</sup> CALCULUS II. Integral calculus.
- 52.<sup>2</sup> CALCULUS III. Selected topics in differential and integral calculus with special reference to infinite series, partial differentiation, multiple integrals and applications of the calculus.
- 62-63. THEORY OF EQUATIONS. Cubic and biquadratic equations, the solution of numerical algebraic equations, reciprocal equations and the construction of regular polygons, determinants and symmetric functions with applications to systems of linear equations and the theory of elimination.
70. HISTORY OF ELEMENTARY MATHEMATICS. A brief course in the history of arithmetic, algebra, and geometry intended primarily for those who are preparing to teach high-school mathematics.

<sup>1</sup> Courses 6 and 8 involve some duplication, and no student may take both without special permission. No student may receive credit for both of Courses 7 and 8. Students who elect mathematics to meet the requirement of 10 credits in mathematics or laboratory science in the pre-business course should take Courses 1 and 8 if they have not had high-school higher algebra and Courses 8 and 20 if they have had high-school higher algebra.

<sup>2</sup> Courses 50, 51, 52 constitute a course in differential and integral calculus in three parts. The course is so arranged that the student may discontinue it at the end of Calculus I or the end of Calculus II, but students who expect to do graduate work in mathematics, physics, or astronomy, ought to finish Calculus III.

71. **SOLID ANALYTIC GEOMETRY.** The analytic geometry of space of three dimensions. It should be taken by those who expect to do graduate work in mathematics, physics, or astronomy.
- 80-81-82. **MECHANICS.** An introduction to theoretical mechanics as deduced from a small number of fundamental principles, with applications to a large variety of problems; analytical and graphical statics; motion of particles and of rigid bodies. (Not offered in 1921-22.)
- 102-103-104. **ADVANCED ANALYTIC AND SYNTHETIC GEOMETRY.** An introduction to modern methods of studying the straight line and the conic; the use of imaginaries in geometry; abridged notation; homogeneous coordinates; contact of conics; envelopes; anharmonic ratio; polar reciprocation; projection; inversion.
- 106-107-108. **ADVANCED CALCULUS AND DIFFERENTIAL EQUATIONS.** Selected topics in advanced differential and integral calculus and a study of the more common types of differential equations with emphasis on applications to geometry, elementary mechanics, and physics.
140. **THE METHOD OF LEAST SQUARES.** The same as Astronomy 140.

Courses in Functions of a Real Variable, Modern Higher Algebra, Projective Geometry, Differential Geometry, and the Mathematics of Small Vibrations listed in the Graduate School bulletin, are open to properly qualified juniors and seniors. For more information consult the chairman of the Department of Mathematics.

The department offers also the following courses primarily for graduate students:

Theory of Functions of a Complex Variable, Theory of Numbers, Galois Theory of Equations, and Calculus of Variations.

### MILITARY SCIENCE

Professor GIRARD STURTEVANT, Colonel, Infantry, Chairman; Assistant Professors BEN W. FEILD, Major, Infantry; LAURENCE T. WALKER, Major, Coast Artillery Corps; LEE R. WATROUS, JR., Major, Coast Artillery Corps; HARRY C. INGLES, Major, Signal Corps; EDWARD G. SHERBURNE, Major, Infantry; EDGAR B. MOOMAU, 1st Lieutenant, Infantry; HAL M. ROSE, 1st Lieutenant, Cavalry; Instructors ALFRED BRANDT, Master Sergeant, Infantry; HARRY E. STRIDER, Master Sergeant, Signal Corps; JOSEPH HAVLICEK, Regimental Commissary Sergeant, Retired; JOSEPH LEES, 1st Sergeant, Retired; JOHN McWILLIAMS, 1st Sergeant, Retired; WILLIAM R. FINKE, 1st Sergeant, Coast Artillery Corps; WILLIAM L. HOGAN, 1st Sergeant, Coast Artillery Corps; AUBREY R. DUNKUM, 1st Sergeant, Coast Artillery Corps; KENNA B. CALDWELL, Sergeant, Coast Artillery Corps; HENRY W. BROWN, Sergeant, Coast Artillery Corps; CLARENCE G. LANGE, Sergeant, Field Artillery; EDMUND T. McCANN, Sergeant, Infantry; FRED LILLIE, Sergeant, Infantry; PRESTICE B. RHODES, Sergeant, Infantry; CLARENCE C. SHELTON, Sergeant, Infantry; HERMAN SMITH, Sergeant, Infantry; CASPER M. HECKEMEYER, Sergeant, Infantry.

## COURSES

- 1-2-3. FIRST-YEAR BASIC COURSE R.O.T.C. INFANTRY. Practical and theoretical instruction in school of soldier squad and company; elementary subjects of military training; infantry weapons and equipment.
- 4-5-6. SECOND-YEAR BASIC COURSE R.O.T.C. INFANTRY. Practical instruction in school of platoon and company; military sketching and map-reading; infantry weapons including machine gun and automatic rifle; minor tactics.
- 51-52-53. FIRST-YEAR ADVANCED COURSE R.O.T.C. INFANTRY. Field engineering; infantry weapons, including trench mortars, 37 mm. gun, grenades, and pistol; minor tactics.
- 54-55-56. SECOND-YEAR ADVANCED COURSE R.O.T.C. INFANTRY. Minor tactics; administration; military law; musketry: military history and policy of the United States; rules of land warfare.

## MUSIC

Professor CARLYLE SCOTT, Chairman; Assistant Professor DONALD N. FERGUSON; Instructors THERESA MAIER COURTURE, GEORGE FAIRCLOUGH, THADDEUS GIDDINGS, GERTRUDE R. HULL, HARRISON W. JOHNSON, ABE PEPINSKY, GERTRUDE REEVES, KARL SCHEURER, ENGELBERT ROENTGEN, HENRY WILLIAMS.

## COURSES

NOTE: Courses in music are not open to freshmen and sophomores except those working for a major in music.

- 1-2-3. HARMONY. The study of chords, their construction, relations, and progressions. Written exercises on basses, the harmonization of given melodies. MR. SCOTT.
- 4-5-6. COUNTERPOINT. Strict counterpoint up to eight parts; free contrapuntal harmonization of chorales and composition of smaller contrapuntal forms such as inventions. MR. FERGUSON.
- 7-8-9. EAR-TRAINING. MISS REEVES.
- 10-11-12. FIRST-YEAR ORGAN. MR. FAIRCLOUGH.
- 13-14-15. SECOND-YEAR ORGAN. MR. FAIRCLOUGH.
- 16-17-18. FIRST-YEAR PIANOFORTE. MR. SCOTT, MR. FERGUSON, MR. JOHNSON, MISS REEVES.
- 19-20-21. SECOND-YEAR PIANOFORTE. MR. SCOTT, MR. FERGUSON, MR. JOHNSON, MISS REEVES.
- 22-23-24. FIRST-YEAR VIOLIN. MR. SCHEURER.
- 25-26-27. SECOND-YEAR VIOLIN. MR. SCHEURER.

- 28-29-30. FIRST-YEAR VOCAL TRAINING. MISS HULL.
- 31-32-33. SECOND-YEAR VOCAL TRAINING. MISS HULL.
- 34-35-36, 37-38-39, 74-75-76, 77-78-79. OTHER ORCHESTRAL INSTRUMENTS.
- 40-41-42. ORCHESTRA. Study of standard orchestral literature and accompaniment of vocal and instrumental soloists. This ensemble group is an ideal campus institution, supporting and inducing campus spirit and activities. MR. PEPINSKY.
- 43-44-45. UNIVERSITY CHOIR. Open to juniors and seniors. May be taken only with the consent of the instructor. May be taken a second year with credit. MR. SCOTT.
- 46-47-48. APPRECIATION OF MUSIC. A non-technical course. MISS REEVES.
- 50-51-52. THIRD-YEAR ORGAN. Open to juniors. May be taken only with the consent of the instructor. MR. FAIRCLOUGH.
- 53-54-55. FOURTH-YEAR ORGAN. Open to seniors. May be taken only with the consent of the instructor. MR. FAIRCLOUGH.
- 56-57-58. THIRD-YEAR PIANOFORTE. Open to juniors, who have mastered technical difficulties of the degree of Czerny's *School of Velocity* and the easier Haydn and Mozart sonatas. MR. SCOTT, MR. FERGUSON, MR. JOHNSON, MISS REEVES.
- 59-60-61. FOURTH-YEAR PIANOFORTE. Open to seniors. Same requirements as far 45-46-47. MR. SCOTT, MR. FERGUSON, MR. JOHNSON, MISS REEVES.
- 62-63-64. THIRD-YEAR VIOLIN. Open to juniors. May be taken only with the consent of the instructor. MR. SCHEURER.
- 65-66-67. FOURTH-YEAR VIOLIN. Open to seniors. May be taken only with the consent of the instructor. MR. SCHEURER.
- 68-69-70. THIRD-YEAR VOCAL TRAINING. Open to juniors. May be taken only with the consent of the instructor. MISS HULL.
- 71-72-73. FOURTH-YEAR VOCAL TRAINING. Open to seniors. May be taken only with the consent of the instructor. MISS HULL.
- 86-87-88. NORMAL PIANO. Special course offered to students desiring to teach pianoforte as a profession. MISS REEVES.
- 89-90-91. ADVANCED NORMAL PIANO. Practice teaching. MISS REEVES.
- 101-102-103. COMPOSITION-ORCHESTRATION. For those specializing in music. May be taken only with the consent of the instructor. MR. FERGUSON.
- 103-104-105. ANALYSIS. The analysis of musical works as regards their formal construction: subdivisions of themes into phrases, sections, and motives. Symphonies to be presented by the local orchestra are among the compositions used in this course. MR. SCOTT.

- 106-107-108. HISTORY OF MUSIC. Some account of primitive systems and of the early Christian modal and harmonic developments, leading to a general survey of musical literature from Bach to the present time. MR. FERGUSON.
- 109-110-111. BACH AND BEETHOVEN, WAGNER AND BRAHMS. Critical study of selections from master works of the four greatest composers. Biographical readings, topics, and analyses, giving historical and literary background to culminate periods in composition. MR. FERGUSON.
- 112-113-114, 115-116-117. ENSEMBLE-PLAYING. Study and reading of chamber-music literature, embracing compositions in the form of duos, trios, quartets, and other larger combinations for strings and wind instruments both with and without the pianoforte. MR. PEPINSKY.
- 121-122-123. ROMANTIC MOVEMENT. An analytical course covering the romantic movement with illustrations by the instructor. Papers assigned during the year. MR. JOHNSON.
- 124-125-126. ADVANCED HARMONY. Harmony 1-2-3 prerequisite. A course designed to develop more freedom in expression and in musical effect. Especial attention given to modulations. MR. SCOTT.
- 127-128-129. ADVANCED COUNTERPOINT. The fundamentals of double counterpoint and canon in strict and free styles, with application to the fugal and freer contrapuntal forms. MR. FERGUSON.

### PHILOSOPHY

Professors NORMAN WILDE, Head; DAVID F. SWENSON; Assistant Professor GEORGE P. CONGER.

#### *Major Adviser*

Professor Wilde.

#### *Major Sequences*

From 27 to 36 credits in Senior College courses, including Courses 120 or 124, 135 or 151-152-153, 141 or 147.

### COURSES

1. PROBLEMS OF 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 discussed. MR. SWENSON, MR. CONGER.
2. LOGIC. The nature of knowledge, the laws of reasoning, the principles and methods of scientific proof. MR. SWENSON, MR. CONGER.
3. ETHICS. The principles of morals; sketch of the historical development of morality followed by an analysis of its meaning, and of its basis in human nature. MR. WILDE.

10. SCIENCE AND RELIGION. Religious problems as affected by the results of modern science. MR. CONGER.
50. ANCIENT AND MEDIEVAL PHILOSOPHY. An introduction to philosophy through a study of typical world views: Greek, Roman, medieval Christian, and Renaissance. Three hours of lecture, two hours of discussion of texts. The lectures may be elected separately. MR. WILDE.
51. MODERN PHILOSOPHY. Sketch of the development of philosophy from the Renaissance to the present. Three hours of lecture, two hours of discussion of texts. The lectures may be elected separately. MR. WILDE.
55. ESTHETICS. An introduction to the history and theory of esthetics, psychological analysis of beauty, and a discussion of the arts. MR. SWENSON.
- 100-101-102.<sup>1</sup> PHILOSOPHY OF RELIGION. Religion as an interpretation and evaluation of life. Fall quarter, a survey of historical and psychological phenomena of various religions; winter and spring quarters, a critical discussion of esthetic, ethical, and religious attitudes toward life. MR. SWENSON.
104. HISTORY OF ESTHETICS. A survey of the chief esthetic theories of ancient and modern thinkers. (Not given in 1921-22.) MR. SWENSON.
106. PHILOSOPHY OF EDUCATION. A discussion of philosophically formulated ideals of education, with an attempt to reach a positive philosophy of educational values. MR. SWENSON.
- 108-109. HISTORY OF ETHICS. A survey of the chief ideals of conduct and theories of life from Socrates to the present day. Emphasis upon both the historical conditions, and the permanent elements of value in the main ethical standpoints. (Not given in 1921-22.)
120. SCANDINAVIAN PHILOSOPHY. The philosophical thought of the nineteenth century in Scandinavian countries, including a comparative study of Boström and Kierkegaard. (Not given in 1921-22.) MR. SWENSON.
124. POLITICAL AND SOCIAL ETHICS. The fundamental aspects of society and the state, considered from the point of view of ethics. MR. WILDE.
129. MODERN POLITICAL THOUGHT. The state in modern political philosophy; its nature, basis, and authority. Individualism and socialism in the eighteenth and nineteenth centuries. MR. WILDE.
135. THE PHILOSOPHY OF PLATO. The reading and discussion of the principal dialogues with a view to understanding the problem and method of Greek philosophy as illustrated in the writings of Plato. MR. CONGER.
141. METAPHYSICS. A critical study of the fundamental metaphysical concepts, ontological and cosmological, that constitute the framework of reality. MR. SWENSON.

<sup>1</sup> Three quarters of this course form a unit, but may be taken separately if desired.



147. **ADVANCED LOGIC.** Different topics from year to year, including the organization of the sciences, the presuppositions of knowledge, recent mathematical and symbolic logic, and the pragmatic theory of logic. (Not given in 1921-22.)
- 151-152-153. **KANT AND HIS SUCCESSORS.** Modern currents of thought from the idealism of Fichte and Hegel, to the philosophy of evolution, pragmatism, and the new realism. (Not given in 1921-22.)
- 161-162-163. **SEMINAR IN PHILOSOPHY.** Individual investigation in philosophy. Studies in either ancient or modern philosophy and ethics; critical and constructive studies of logic, metaphysics, or ethics. Character of work and general topic for year ascertained by consultation with department. **MR. WILDE.**

### PHYSICAL EDUCATION

#### FOR MEN

Associate Professor **LOUIS J. COOKE**, Director; Assistant Professor **WILLIAM K. FOSTER**; Instructors **EDWIN S. BROWN**, **PERCY C. GLIDDEN**, **CARL B. ROEMER**; Assistants **FRANK GILMAN**, **HARRY GOLDIE**.

The purpose of the department is to provide all men of the University opportunity for exercise in order to maintain and build up their general health. It also provides special training for the correction of physical defects and functional derangements.

A physical examination is required of all new matriculants, and of all others using the department privileges, at the beginning of the year, and as often during their college course as their physical condition may indicate. Students taking the required work in physical education are examined at the close of the year. A study of these records shows a marked improvement in the standard of health of the average student during his college course.

The gymnasium, swimming-pool, and baths are open to all students of the University, who are free to use the apparatus and to pursue a course in physical training under the supervision of the director and his assistants.

Those students, taking the required course in physical education, who can not swim must make a reasonable effort, as determined by the department, to pass the swimming and life-saving requirements, and will be assigned special hours for instruction.

#### COURSES

1. **PERSONAL HYGIENE.** Two hours per week; first six weeks of each quarter. Examination at close of course. **DR. COOKE**, **DR. FOSTER**, **DR. BROWN**.
2. **GYMNASIUM AND SWIMMING.** Two hours a week. Required qualification in swimming, life-saving, bar-vaulting, jumping, sprinting, running, and on heavy apparatus. **DR. FOSTER**, **MR. ROEMER**, **DR. BROWN**, **MR. GLIDDEN**.

3. ADVANCED LEADERS. Three hours a week. DR. FOSTER, MR. ROEMER.
4. CORRECTIVE GYMNASTICS. Three to five hours per week instead of regular gymnasium or military drill in case of physical disability. DR. BROWN.
- 5, 6, 7, 8, 9. INTRAMURAL ATHLETICS. Students who meet all the requirements of Course 2 and show special ability may elect these courses instead of Course 2. DR. FOSTER, MR. ROEMER, MR. GILMAN, MR. GOLDIE.

### PHYSICAL EDUCATION

#### FOR WOMEN

Professor J. ANNA NORRIS, Head; Assistant Professors MAY S. KISSOCK, VALERIA G. LADD, GERTRUDE B. SCHILL, ALICE J. H. TOLG; Instructors GERTRUDE M. BAKER, BEATRICE BERTHOLD, GERTRUDE K. LYON, GRACE M. ROCKWOOD.

This department aims primarily to promote the health of the women students. It gives physical examination and advice to all on entrance; plans systematically to keep in close touch with them during their first two years in college; conducts yearly consultations with, and examines when necessary, all upper-class students; gives courses in hygiene; organizes physical work to meet the varying needs and physical tastes of students; coöperates closely with the Woman's Athletic Association in encouraging and organizing athletic sports; holds regular office hours for the purpose of consultation with all students who desire its advice.

Work in this department is required of all newly entering students (see Courses 1-2-3 and 4), of all sophomores, who are permitted as free a choice among the sophomore courses as their physical condition permits (see "sophomore" courses; students who can not swim must register for Course 22-23 during sophomore year), and of all students permitted, for reasons connected with their physical condition, to carry less than the minimum number of credit hours. Physical examinations or consultations are required annually of all students.

Elective classes are arranged in gymnastics, dancing, swimming, field-hockey, basket-ball, baseball, and other organized games.

For a special four-year professional course designed to prepare graduates for the responsible direction of physical education activities see bulletin of the College of Education. Students desiring to enter the course should consult with the head of this department. They should be without organic disease or serious functional disorder, should have a keen sense of rhythm, and should possess qualities of personality which will win the coöperation of others.

Six credits is the maximum number that can be gained by taking courses in exercise (Courses 34-35-36, 37-38-39, 40-41-42, 43-44-45).

#### COURSES

*Statement of fees.*—Elementary physical training \$2.50 a quarter. All other exercise courses, including swimming, \$2 a quarter. Maximum fee paid by a student in physical education, \$3.50 a quarter.

- 1-2-3. ELEMENTARY PHYSICAL TRAINING. Lighter forms of gymnastics, orthopedic exercise, folk dancing, indoor and outdoor games. Individual health consultations. Shower bath fee, \$2.50 per quarter. MISS KISSOCK, MISS LADD, DR. TOLG, MISS ROCKWOOD.
4. PRELIMINARY HYGIENE. One lecture a week. The most essential aspects of the care of the body. DR. NORRIS.
- 7-8-9. SOPHOMORE PHYSICAL TRAINING. Floor work, apparatus, and games.
- 10-11-12. SOPHOMORE ORTHOPEDIC GYMNASTICS. For those not able to take regular class work.
- 13-14-15. SOPHOMORE INTERPRETIVE DANCING. An art and a phase of physical education designed to develop a sense of beauty and body control through rhythmic movements prompted by the imagination. MISS BAKER.
- 16-17-18. SOPHOMORE ORGANIZED GAMES AND FOLK DANCING. Suitable in strength for C-D girls. Conducted outdoors when weather permits.
- 19-20-21. SOPHOMORE MAJOR SPORTS. Suitable in strength for A-B girls. MISS KISSOCK.
- 22-23. SOPHOMORE ELEMENTARY SWIMMING. For beginners. MISS LYON.
- 28-29. SOPHOMORE ADVANCED SWIMMING. MISS LYON.
32. PERSONAL HYGIENE. Care of the personal health; elements of anatomy and physiology. DR. NORRIS.
33. HYGIENE OF THE FAMILY. Eugenics, prenatal care, maternity, puberty, sex education. DR. NORRIS.
- 34-35-36. INTERMEDIATE PHYSICAL TRAINING. Gymnastics and apparatus work. Written abstracts of prescribed reading. MISS ROCKWOOD.
- 37-38-39. ADVANCED PHYSICAL TRAINING. Gymnastics and apparatus work. Written abstracts of prescribed reading. (Not offered in 1921-22.)
- 40-41-42. INTERPRETIVE DANCING. Similar to 13-14-15. Written abstracts of prescribed reading.<sup>1</sup> MISS BAKER.
- 43-44-45. FOLK DANCING AND ORGANIZED GAMES. Graded games, folk dances, and track for school and playground, two hours. A consideration of nature and function of play and practical conduct of playground, one hour. Written abstracts of prescribed reading.<sup>1</sup> MISS KISSOCK.
- 46-47-48. HOCKEY, BASKET-BALL, AND BASEBALL. Hockey in the autumn, basket-ball in winter, baseball in spring. MISS KISSOCK, MISS ROCKWOOD.
49. GENERAL SWIMMING. For both beginners and advanced swimmers and divers. Shower bath tickets may be bought of the matron. No registration necessary.

<sup>1</sup> If taken for no credit, no reading or written work will be required.

## PHYSICS

Professors HENRY A. ERIKSON, Chairman; WILLIAM F. G. SWANN, JOHN T. TATE, ANTHONY ZELENY; Professorial Lecturer LOUALLEN F. MILLER; Instructor ARCHIE POWER, OSWALD ROGNLEY, JOSEPH VALASEK.

*Major Advisers*

Professors Erikson, Tate, and Zeleny.

*Major Sequence*

Courses 101-103-105; 102-104-106, and Mathematics 50, 51, and 52.

Courses 1, 2, 21, 22, 31, 32, 41, 42 comprise a general course in physics extending through four quarters. Those who intend to teach physics in secondary schools are advised to take Courses 101-103-105 and 102-104-106 in addition to the above general courses. Those who intend to enter the field of industrial research are advised to take all of the intermediate courses in addition to the general course.

## INTRODUCTORY COURSES

1. ELEMENTS OF MECHANICS AND SOUND. Mechanics of solids, fluids, wave motion, and sound. A study of the simpler fundamental principles. First part of a general course 1, 21, 31, 41. Course 2 should be taken in conjunction with this course. Three lectures, one quiz hour a week. MR. ERIKSON.
2. ELEMENTS OF MECHANICS AND SOUND LABORATORY. Measurements in the mechanics of solids, fluids, wave motion, and sound; the laboratory part supplementing Course 1. One two-hour session in the laboratory a week. MR. ERIKSON.
9. ACOUSTICS. A study of the principles of sound. A course designed primarily for the students in the Department of Music. Open also to other students. Three lectures a week. MR. ERIKSON.
21. HEAT. A study of the principles underlying heat phenomena. Course 22 should be taken in conjunction with this course. Three lectures, one quiz hour a week. MR. MILLER.
22. HEAT LABORATORY. The laboratory part supplementing Course 21. One two-hour session in the laboratory a week. MR. MILLER.
31. OPTICS. A study of the principles underlying light phenomena. Course 32 should be taken in conjunction with this course. Three lectures, one quiz hour a week. MR. VALASEK.
32. OPTICS LABORATORY. The laboratory part supplementing Course 31. One two-hour session in the laboratory a week. MR. VALASEK.
41. MAGNETISM AND ELECTRICITY. A study of the principles underlying magnetic and electric phenomena. Course 42 should be taken in conjunction with this course. Three lectures, one quiz hour a week. MR. ZELENY.

42. ELECTRICAL LABORATORY. The laboratory part supplementing Course 41. One two-hour session in the laboratory a week. MR. ZELENY.

#### INTERMEDIATE COURSES

- 101-103-105. THEORETICAL PHYSICS. Intensive analytical survey of fundamental principles of mechanics, sound, heat, light, electricity, and magnetism, designed to supplement the general courses and to prepare students for more specialized graduate courses. Four lectures a week. MR. TATE.
- 102-104-106.<sup>1</sup> EXPERIMENTAL PHYSICS. A comprehensive course extending through the year, designed to familiarize students with fundamental and standard methods of precise measurements as exemplified by representative experiments in mechanics, sound, heat, light, and electricity. MR. TATE.
- 111-113-115. ELEMENTS OF MATHEMATICAL PHYSICS. A study of the fundamental principles and standard methods involved in the mathematical analysis of physical problems. Three lectures a week. MR. TATE.
- 112-114-116. ELEMENTARY PHYSICAL INVESTIGATION. The experimental or theoretical study of physical phenomena the nature or laws of which are not as yet understood. MR. ERIKSON, MR. SWANN, MR. TATE, MR. ZELENY.
121. PYROMETRY AND HEAT. An experimental study of pyrometry, heat quantity, heat transfer, hygrometry, and gas liquefaction. One lecture, two three-hour sessions in the laboratory a week. MR. MILLER.
132. APPLIED OPTICS. Special experimental work in spectrometry, optical instruments, photometry, absorption, polarized light. Two three-hour laboratory periods a week. MR. VALASEK.
142. ELECTRICAL MEASUREMENTS. Devoted mainly to the study of potentiometer methods, capacity, inductance, magnetic flux. Three two-hour laboratory periods a week. MR. ZELENY.
146. ELECTRICAL MEASUREMENTS OF PRECISION. Precision measurements of electromotive force, current, resistance, capacity, inductance, and magnetic flux. Use of apparatus of highest precision. Special problems. Three two-hour laboratory periods a week. MR. ZELENY.
- 145-147-148. RADIOACTIVITY. An analytical study of the theories and methods of investigation supplemented by laboratory technic. MR. ERIKSON.

#### POLITICAL SCIENCE<sup>1</sup>

Professors CEPHAS D. ALLIN, Chairman; JEREMIAH S. YOUNG, ROY G. BLAKEY (Economics), NORMAN WILDE (Philosophy); Associate Professors ROBERT E. CUSHMAN, SOLON J. BUCK (History), ALVIN H.

<sup>1</sup> This course may be begun any quarter and may be taken two years with credit.

HANSEN (Economics); Assistant Professors WILLIAM ANDERSON, HAROLD S. QUIGLEY, QUINCY WRIGHT, LESTER B. SHIPPEE (History), MASON W. TYLER (History).

*Major Advisers*

Professors Allin and Young; Associate Professor Cushman; Assistant Professor Anderson.

*Major Sequences*

The following sequences suggest distinct and specialized lines of work in political science. Other sequences conforming to the general regulations of the college will be arranged by the major advisers to meet the special needs of individual students.

Sequence A. American government. Courses 151; 152 or 157 or 158; 111 or 141; 125 or 127; History 146-147; additional courses from the preceding list and the following to make 33 credits: 145, 154, 155, 161, 181, History 153, and Economics 154, 162, 176, 191-192, and 193.

Sequence B. Public law. Courses 121-122; 151; 152; 155 or 157; 141; additional courses from the preceding list and the following to make 30 credits: 123, 145, 161, 167, 171, and History 146-147.

Sequence C. Comparative government and political theory. Courses 161; 165-166; 181; Economics 169; additional courses from the following list to make 33 credits: 129, 155, 167, 185, Economics 118-119-120, History 107-108, and 109-110, and Sociology 140.

Sequence D. Local government and administration. Courses 111 or 141; 115; 117; 154 or 155; 171; 193; additional courses from the preceding list and the following to make 33 credits: 145, Economics 154, 161, and 191-192, Education 124-125-126, History 144-145 and 153, and Sociology 55.

Sequence E. Diplomatic and consular service. Courses 121-122; 125; Economics 176; additional courses from the following list to make 33 credits: 123, 127, 129, History 113-114-115, 104, 107-108, and 109-110, and Geology 117.

Sequence F. National and state administration. Courses 111 or 141; 151; 157 or 158; 154 or 155; Economics 154; additional courses from the preceding list and the following to make 33 credits: Economics 72, 161, 191-192, and 193, and History 113-114-115, 146-147, and 153.

Prerequisites: at least 10 credits in history and 15 credits in political science. In addition, the student is urged to take History 5-6 (American History), or 9-10 (Economic History), or Economics 3-4 (Principles of Economics). Students from other colleges and those who for any other reason are deficient in prerequisites may be required to make up their deficiencies in Junior College courses.

*Professional courses.*—The attention of those who are preparing themselves for the public service is called to the special training courses outlined on pages 26, 27, and 30 of the bulletin. Further information may be had from the chairman of the department.

<sup>1</sup>The courses in history and economics listed in the political science statement will be credited to the student as political science only with the approval of the chairman of the department and when taken in conjunction with political science courses.

*Bureau for Research in Government.*—This bureau is organized to conduct and direct special investigations into practical politics and administrative problems, national, state, and local. Mr. Anderson will act as director, but all members of the staff will take part in the work of the bureau. Advanced and graduate students are strongly urged to take advantage of its facilities.

#### BEGINNING COURSE

- I. AMERICAN GOVERNMENT. Origin and nature of the American governmental system; organization and actual workings of the national government to-day.

#### INTERMEDIATE COURSES

3. COMPARATIVE EUROPEAN GOVERNMENT. The governments and politics of the great European powers of to-day. MR. QUIGLEY, MR. WRIGHT.
7. STATE AND LOCAL GOVERNMENT. A comparative study of American state governments. The adoption and amendment of constitutions; organization, powers, and methods of the three departments; problems of administrative reorganization. MR. CUSHMAN.
11. MUNICIPAL GOVERNMENT. The growth of cities in the United States. The evolution of the council, mayor, commission, and city-manager forms of government; their relative merits. Popular control. Municipal functions. Departmental organization and civil service. MR. ANDERSON.
15. INTRODUCTION TO POLITICAL SCIENCE. Introductory presentation of the problem of government. The nature of the state, the forms and functions of government, the principles of politics. MR. QUIGLEY.
25. WORLD POLITICS. A study of the foreign policies and international relations of the leading European powers to-day. MR. QUIGLEY, MR. TYLER.
31. POLITICAL PARTIES. The nature and functions of political parties in modern democratic states. Organization and methods of parties; legal control of parties and elections; public opinion as a factor in popular government. (Not offered in 1921-22.)
- 33-34†. ENGLISH LEGAL INSTITUTIONS. Beginnings of legal institutions and ideas among the Teutonic peoples, and the development of courts and procedure in England. Identical with History 33-34†. MR. WHITE.

#### ADVANCED COURSES

- 51-52-53. BUSINESS LAW. Principles governing ordinary business transactions. Contracts—formation, operation, interpretation, breach, and discharge. Agency and service. Negotiable instruments. Business associations—partnerships and private corporations. Property—personal and real. MR. YOUNG.
54. ELEMENTARY LAW. Legal principles governing the family and personal relations; judicial decisions regarding social and economic

- problems; the administration of justice from the standpoint of the citizen.
65. COLONIZATION. The economic and political causes of migration; historical survey of colonization; existing colonial systems; colonial trade in relation to modern commercial and foreign politics; preferential tariffs and imperial federation; imperial politics and organization; colonies and the League of Nations. MR. ALLIN.
- 107-108. EUROPE, 1848-1914. The development of Europe in its various phases—political, social, and economic—from the Revolution of 1848 to the outbreak of the war of 1914. A reading knowledge of French or German will be helpful. Identical with History 107-108. MR. TYLER.
- 109-110. ENGLISH HISTORY, 1815-1920. Assigned readings and lectures. Emphasis placed upon party history, the colonies, foreign relations, the social-democratic movement, and especially British foreign policy preceding the Great War. Identical with History 109-110.
111. GOVERNMENT OF MINNESOTA. The development and present organization of the state government; its relation to the local governments; the growth of the state constitution; present problems and proposed changes. (Not offered in 1921-22.) MR. ANDERSON.
115. MUNICIPAL PROBLEMS. A specialized course in modern legal, administrative, and functional problems of cities. The content of the course will change from year to year, keeping abreast of municipal progress. MR. ANDERSON.
117. MUNICIPAL ENGINEERING. Development of municipal public works. City-planning, transportation, and housing. Principles of public health and sanitation. Public water supplies, sewerage and sewage disposal, refuse collection and disposal, the sanitation of buildings. Identical with Civil Engineering 53.3. MR. BASS.
- 121-122. INTERNATIONAL LAW. Nature, sources, and sanction of international law. The law of peace, war, and neutrality, with especial attention to diplomatic and consular practice. Emphasis upon the application of principles to concrete cases. MR. WRIGHT.
123. INTERNATIONAL ORGANIZATION. Systems of international relations, international administrative organizations, and political guarantees of the past with a detailed study of the League of Nations. MR. WRIGHT.
125. AMERICAN DIPLOMATIC HISTORY. Attention to the principles and policies guiding American diplomacy in its stages of development as well as to the methods pursued and the personalities of American diplomats. MR. WRIGHT.
127. AMERICAN FOREIGN RELATIONS. Such topics as the Monroe Doctrine, freedom of the seas, the "open door," arbitration, and disarmament will be considered with particular reference to the future policy of the United States. MR. WRIGHT.



129. FAR EASTERN POLITICS. The principal factors in the social and political life of Japan and China; their relations with each other and with western powers. MR. QUIGLEY.
141. PROBLEMS IN STATE GOVERNMENT AND CONSTITUTIONAL LAW. A selected group of current problems in state government will be studied intensively in their constitutional and political aspects. Assigned readings and reports. MR. CUSHMAN.
145. LEGISLATIVE POWER AND METHODS. Source and scope of the legislative power; methods used by legislative bodies; current political questions; formulation and defense of legislative bills. (Not offered in 1921-22.) MR. YOUNG.
- 146-147. CONSTITUTIONAL HISTORY OF THE UNITED STATES. A study of the evolution of American constitutional government through legislation, judicial interpretation, administrative rule, and custom. Identical with History 146-147. MR. SHIPPEE.
151. CONSTITUTIONAL LAW: THE AMERICAN FEDERAL SYSTEM. Judicial interpretation of the constitution; power of judicial review; separation of governmental powers; relation of state and national governments; construction of national powers; jurisdiction of courts. MR. CUSHMAN.
152. CONSTITUTIONAL LAW: FUNDAMENTAL RIGHTS AND IMMUNITIES. Privileges and immunities of citizenship; protection of civil and political rights; the obligation of contracts; due process of law and equal protection of the law. MR. CUSHMAN.
153. THE WEST IN AMERICAN POLITICS SINCE 1865. An intensive study of independent parties and radical or progressive political movements. Identical with History 153. MR. BUCK.
154. NATIONAL AND STATE ADMINISTRATION. The principles of American administrative organization and the operation of administrative departments, and of important administrative boards and commissions. (Not offered in 1921-22.) MR. YOUNG.
155. COMPARATIVE ADMINISTRATIVE LAW. Administration as a science; origin and development; analysis of the administrative systems of the United States, England, France, and Germany with special reference to the law of officers, the merit system, and special administrative tribunals. MR. YOUNG.
157. POLICE POWER. Nature of the police power; constitutional aspects of social and economic legislation, including safety, order, morals, and protection against business fraud and oppression; the fundamental rights under the police power. MR. YOUNG.
158. GOVERNMENT AND BUSINESS. Governmental powers; laissez-faire versus regulation; protection against fraud and oppression; restraint of trade and manipulation of prices; protection of debtors; business

- affected by a public interest; qualified property; compulsory benefits; conservation of natural wealth; vested rights; confiscatory legislation; administration of business legislation; reaction of war emergency measures on permanent policy. MR. YOUNG.
161. COMPARATIVE FEDERAL GOVERNMENT. Ancient and modern federal unions, especially the constitutions of the United States, Switzerland, Canada and Australia, the South African Union, and the proposals for British imperial federation. (Not offered in 1921-22.) MR. ALLIN.
- 165-166. GOVERNMENT OF THE BRITISH EMPIRE. Law and custom of the British constitution. MR. ALLIN.
167. BRITISH POLITICS. Parties, party leaders, and policies. The relation of English and imperial politics. MR. ALLIN.
169. THE LABOR AND SOCIALIST MOVEMENT IN EUROPE. A theoretical analysis and historical survey of utopian socialism, Marxian socialism, evolutionary socialism, anarchism, syndicalism, sovietism, guild socialism, state socialism, coöperation and labor parties, especially as found in Germany, France, England, and Russia. Identical with Economics 169. MR. HANSEN.
171. MUNICIPAL CORPORATIONS. The legal basis of municipal government; the relation of the city to the state; home rule. The city as a legal entity; its powers, duties, and liability for torts. MR. ANDERSON.
181. MODERN POLITICAL THOUGHT. Same as Philosophy 129. The state in modern political philosophy, its nature, basis, and authority. Individualism and socialism in the eighteenth and nineteenth centuries. The idea of democracy. MR. WILDE.
185. POLITICAL AND SOCIAL ETHICS. Same as Philosophy 124. The fundamental aspects of society and the state, considered from the point of view of ethics. MR. WILDE.
- 191-192. PUBLIC FINANCE. National government revenues, expenditures, and debts. Includes the principles and various forms of taxation, budgetary legislation and control, war and emergency financing, the shifting and incidence of taxes and fiscal reforms. Identical with Economics 191-192. MR. BLAKEY.
193. STATE AND LOCAL TAXATION. Principles and problems, e.g., state and local taxation of lands, mineral resources, forests, corporations, incomes, inheritances; also studies of classification, separation, local option, exemption, double taxation, evasion, assessment, centralized administration. Identical with Economics 193. MR. BLAKEY.
- GRADUATE COURSES. CONSULT GRADUATE SCHOOL BULLETIN
- 201-202-203. SEMINAR IN PUBLIC LAW. MR. YOUNG and others.
- 211-212-213. SEMINAR IN MODERN GOVERNMENT AND POLITICAL THEORY. MR. ALLIN and others.

221-222-223. SEMINAR IN LOCAL GOVERNMENT AND ADMINISTRATION. MR. ANDERSON and others.

### PSYCHOLOGY

Associate Professors RICHARD M. ELLIOTT, Chairman; WILLIAM S. FOSTER, HERBERT WOODROW; Assistant Professor Z. CLARK DICKINSON, KARL S. LASHLEY; Professorial Lecturer MILDRED W. LORING; Instructors CHARLES BIRD, PAUL T. YOUNG.

#### *Major Advisers*

Associate Professor Elliott; Assistant Professor Fernald.

#### *Major Sequences*

Sequence A. General Psychology. Courses 101-102; 125-126; 108-109; and any two of 114-115, 119-120, 127, 135-136, and 144-145.

Sequence B. Human and Animal Behavior. Courses 119-120; 114-115; 121; 144-145; and either 125-126 or Animal Biology 109-110.

Sequence C. Differential Psychology. Courses 101-102; 125-126; 135-136; either 127 or 144-145; Educational Psychology 134-135.

(Prerequisites for all sequences: Courses 1-2-3, and either 4-5 or 7.)

### COURSES

1-2†-3. GENERAL PSYCHOLOGY. An introductory survey of psychology; its material, fundamental laws, applications, and relations to other sciences. Two lectures, one recitation per week. MR. ELLIOTT and others.

4-5†. INTRODUCTORY LABORATORY PSYCHOLOGY. Simple experiments providing the beginner illustrative material and training in the methods of laboratory psychology. Required for all advanced courses in psychology except 8, 56, and 60. Four laboratory hours per week. MR. FOSTER and others.

7. INTRODUCTORY LABORATORY PSYCHOLOGY. Identical with 4-5 combined. Eight laboratory hours per week. MR. FOSTER and others.

8. APPLICATIONS OF PSYCHOLOGY TO BUSINESS. An introduction to business psychology. Business and pre-business students only. (Not offered 1921-22.)

56. PSYCHOLOGY OF ADVERTISING. Psychological analysis of advertising and selling followed by experimental investigation of the value in advertising of such factors as interest, attention, suggestion, and memory. MR. DICKINSON.

60. EMPLOYMENT PSYCHOLOGY. Psychology as applied to employment problems. Standardization of the personal interview; the principles and development of test methods; personnel classification methods. Independent investigations required of each student. MR. DICKINSON.

- 101-102†. EXPERIMENTAL PSYCHOLOGY. The theory and technic of the leading methods of experimental investigation in human psychology. One lecture, four laboratory hours per week. MR. WOODROW.
- 108-109†. ADVANCED GENERAL PSYCHOLOGY. A systematic presentation of the laws of the normal, adult mind, based upon study of experimental results. Lectures, recitations, and reports.
- 114-115†. HUMAN BEHAVIOR. An analysis from the point of view of the objective school of psychologists. MR. ELLIOTT.
- 119-120†. ANIMAL BEHAVIOR. The development of reaction-systems in animals, with emphasis upon the application of studies of animals to the solution of general problems in physiological psychology. One lecture, six laboratory hours per week. MR. LASHLEY.
121. NEURO-PSYCHOLOGY. Specialization of functions in the nervous system in relation to behavior. Discussion from the standpoint of psychology of current theories of integration and localization." Two lectures, three laboratory hours per week. MR. LASHLEY.
- 125-126†. DIFFERENTIAL PSYCHOLOGY. Important distinguishing characteristics (psychological) of individuals and groups. Emphasis on experimental and statistical methods of discovering differences and of making comparisons. Each student participates in investigation of definite problems and in analysis of results.
127. SOCIAL PSYCHOLOGY. Study of the dependence of familiar forms of social organization and behavior upon the fundamental laws of mental activity. The adjustment of the innate mental equipment of the individual to the norms of social groups. MR. BIRD.
- 135-136†. DYNAMIC PSYCHOLOGY. The constituents of character; their development, their interrelationship, and their rôle in the determination of human affairs. MR. WOODROW.
- 144-145†. ABNORMAL PSYCHOLOGY. A systematic review of psychopathology in relation to normal behavior. MR. LASHLEY.
- GRADUATE COURSES. CONSULT GRADUATE SCHOOL BULLETIN
- 200-201-202†. SEMINAR IN THE HISTORY OF PSYCHOLOGY. (Not offered in 1921-22.)
205. ADVANCED DIFFERENTIAL PSYCHOLOGY.
- 210-211-212. RESEARCH PROBLEMS.
- 215-216-217†. SEMINAR IN PHYSIOLOGICAL PSYCHOLOGY.
- 220-221-222†. JOURNAL CLUB AND SEMINAR IN CONTEMPORARY TRENDS IN PSYCHOLOGY.

## ROMANCE LANGUAGES

Professors EVERETT W. OLMSTED, Head; COLBERT SEARLES, IRVILLE C. LeCOMPTE; Associate Professors RALPH E. HOUSE, RUTH S. PHELPS; Assistant Professors FRANCIS B. BARTON, JULES T. FRELIN, JOSEPH E. Gillet, PEDRO HENRÍQUEZ UREÑA, EUGENE F. PARKER, EDWARD H. SIRICH, GUSTAVE VAN ROOSBROECK; Professorial Lecturers ANTHONY CONSTANS, ANTONIO HERAS; Instructors CHARLES B. DRAKE, MINA GILDERSLEEVE, MARGUERITE GUINOTTE, PAUL C. KING, ANDREW R. MOREHOUSE, GEORGE B. WATTS.

*Major Advisers*

Professors Olmsted, Searles, and LeCompte; Associate Professors House and Phelps; Assistant Professors Barton and Sirich.

*Major Sequences*

Major sequences consist of from 27 to 36 credits in Senior College courses offered by the department. Courses within the sequences must be progressive and the arrangement thereof must have the approval of the department. In special cases certain approved courses of allied departments may be included in these sequences. Specimen approved sequences are posted on the departmental bulletin at 200 Folwell Hall.

*Certificate of aptitude.*—The department grants a certificate of aptitude to those students who have completed in a satisfactory manner certain prescribed courses destined to fit them for teaching French or Spanish in secondary schools. For details, consult bulletin at Room 200 Folwell Hall.

*Courses in French or Spanish conversation.*—May be taken only when accompanied by the corresponding courses in composition. No credit will be given for work done in a course in conversation unless the course in composition is passed also. Courses in composition may be taken separately.

*Prerequisites for teachers' courses.*—In addition to Course 21-22-23 or Course 24-25 (or Spanish equivalent, Course 65-66-67 or Course 68-69) one conversation-composition course and one literary course.

*Admission to advanced courses.*—No student will be allowed to elect courses more advanced than intermediate French or Spanish, who has not received a grade of C or better in the intermediate courses.

*Combined Junior College courses.*—French 21-22-23 or French 80-81-82 may be combined with French 50-51-52 and French 53-54-55 or French 56-57-58 and French 59-60-61 to form five-hour unit courses for Junior College students. In like manner Spanish 65-66-67 or 80-81-82 may be combined with Spanish 50-51-52 and 53-54-55 or 56-57-58 and 59-60-61.

*Freshmen entering with three years of high-school French* will take Course 20. If they take additional work in the department, they will elect Course 24-25. In like manner, students entering with three years high-school Spanish will register for Spanish 20, and if they take additional work in the department, for Spanish 68-69.

*Pre-medical students* may satisfy the language requirement of the Medical School by completing any two quarters of French 8-9-10, or, if

they have completed French 3 or equivalent with an average of C, by passing a special reading examination. Such examinations will be given the first Saturday of the winter and spring quarters, the third day after the Science, Literature, and Arts finals in June and the Friday preceding the opening of the University in September.

#### FRENCH

- 1-2†. BEGINNING FRENCH. Pronunciation, grammar, oral exercises, translation.
- 3-4. INTERMEDIATE FRENCH. First quarter: review of grammar, connected prose composition, reading of representative authors. Second quarter: prose composition, conversation, informational readings on contemporary France.
- 8-9-10. SCIENTIFIC FRENCH. (Pre-medical students.) Readings from general works on scientific subjects.
- 11-12-13†. FRENCH EDUCATION, JOURNALISM, AND COMMERCE. A practical course intended to give a general view of French thought and institutions. (Not offered in 1921-22.)
- 14-15-16†. FRENCH COMMERCIAL CORRESPONDENCE. (Not offered in 1921-22.)
20. ORAL AND WRITTEN FRENCH. Practical French conversation and composition.
- 21-22-23†. SURVEY OF FRENCH LITERATURE. This course will give in outline the history of French literature from 1600 to the present. Representative texts will be read. MR. SEARLES, MISS PHELPS, MR. BARTON.
- 24-25†. SURVEY OF FRENCH LITERATURE. Same as 21-22-23, except that it is a five-hour course extending through two quarters. MR. Lecompte, MR. WATTS.
- 50-51-52†. FRENCH CONVERSATION. MR. FRELIN, MISS GUINOTTE.
- 53-54-55†. FRENCH COMPOSITION. MR. FRELIN, MISS GUINOTTE.
- 56-57-58†. ADVANCED FRENCH CONVERSATION.
- 59-60-61†. ADVANCED FRENCH COMPOSITION.
- 62-63-64†. PRACTICAL FRENCH PHONETICS. Drill in pronunciation. Recitation of passages in prose and verse. Exercises on the phonograph.
- 80-81-82†. FRENCH LITERATURE: NINETEENTH CENTURY. A study of the romantic and realistic movements as manifested in the novel, drama, and poetry. Assigned texts and collateral reading. The course is conducted entirely in French. MR. BARTON, MR. SIRICH.
- 100-101-102†. DICTION FRANÇAISE. Dissertations littéraires par le discours. Leçons sur des textes en prose et en vers. Exercices oraux de diction, de syntaxe et de vocabulaire. (Not offered in 1921-22.) MR. CONSTANS.

- 103-104-105†. FRENCH SYNTAX AND COMPOSITION. Special studies in characteristic problems of French syntax. MR. BARTON.
106. ADVANCED FRENCH PHONETICS. Practical study of the pronunciation in French: the sounds, the stress group, the connected phrase. Oral and phonograph practice in enunciation based upon reading of texts representing various literary types. (Not offered in 1921-22.)
- 115-116-117†. FRENCH LITERATURE: SEVENTEENTH CENTURY. Influence of the literary salons. Development of French prose. Perfection of French dramatic art by Corneille, Racine, and Molière. Reading, discussions, reports based upon collateral reading. MR. SEARLES.
- 118-119-120†. FRENCH LITERATURE: EIGHTEENTH CENTURY. Philosophic movement: Bayle, Fontenelle, Montesquieu, Voltaire, L'Encyclopédie, Rousseau. Literature: poetry, tragedy, comedy, novel. Reading, discussions, reports based upon collateral reading. MR. PARKER.
- 121-122-123†. FRENCH LITERATURE: SIXTEENTH CENTURY. Forerunners of the Renaissance: Marot and L'Ecole Lyonnaise. The Renaissance movement and the Reformation, Rabelais, Calvin and the Pléiade and its successors; Montaigne; the situation at the close of the century. MR. SIRICH. (Not offered in 1921-22.)
- 141-142-143†. REALISTIC NOVEL: NINETEENTH CENTURY. A study of realism with especial reference to the novel. Flaubert, Maupassant, Zola, etc. Alternates with 159-160-161. MR. Lecompte.
- 150-151-152†. FRENCH DRAMATIC LITERATURE. A study of the development of dramatic literature in France from the classical period to the present time. Alternates with 153-154-155. (Not offered in 1921-22.) MR. OLMSTED.
- 153-154-155†. FRENCH LYRIC POETRY. Principles of French prosody. A study of the evolution of French lyric poetry. Alternates with 150-151-152. MR. OLMSTED.
- 156-157-158†. FRENCH CLASSICISM. The development of French classic ideals and doctrines. The humanistic element, the reform of Malherbe, the adoption of the Aristotelian doctrines. French classic writers. Alternates with 162-163-164. (Not offered in 1921-22.) MR. SEARLES.
- 159-160-161†. FRENCH CRITICISM. A study of the masters of French criticism. Alternates with 141-142-143. (Not offered in 1921-22.) MR. Lecompte.
- 162-163-164†. FRENCH LITERARY CRAFTSMANSHIP. A study of the methods followed by modern French authors. Alternates with 156-157-158. (Not offered in 1921-22.) MR. SEARLES.

- 171-172-173†. EXPLICATION DE TEXTES. An analytical and critical study of French texts, in which particular attention is given to style, thought, and diction. The course is conducted in French. (Not offered in 1921-22.) MR. CONSTANS.
- 174-175-176†. LECTURES IN FRENCH. La littérature française moderne, 1880-1920. MR. VAN ROOSBROECK.
- 177-178-179†. ADVANCED LECTURES IN FRENCH. (Not offered in 1921-22.)
- 191-192-193†. RESEARCH METHODS AND MATERIAL. MR. VAN ROOSBROECK.

## ITALIAN

- 1-2†. BEGINNING ITALIAN. Pronunciation, grammar, oral exercises, translation. MISS PHELPS.
80. SURVEY OF ITALIAN LITERATURE: RENAISSANCE PERIOD. Alternates with 81. MISS PHELPS.
81. SURVEY OF ITALIAN LITERATURE: ROMANTIC PERIOD. Alternates with 80. (Not offered in 1921-22.) MISS PHELPS.
- 153-154-155†. ITALIAN LYRICS. A study of the development of lyric poetry in Italy. Reading of representative authors. (Not offered in 1921-22.) MISS PHELPS.
- 159-160-161†. DANTE, PETRARCH, BOCCACCIO. An introduction to their works. The three cantiche of the *Divina Commedia* are read, one each year in rotation, together with a number of the canzoni, and sonnets of Petrarch, and portions of the *Decameron*. MISS PHELPS.
- 162-163-164†. DANTE IN ENGLISH. Lectures: reading and discussion of the *New Life*, and two cantiche of the *Divine Comedy* not read in 159-160-161. Private reading of one other work. MISS PHELPS.

## SPANISH

- 1-2†. BEGINNING SPANISH. Pronunciation, grammar, oral exercises, and translation.
- 3-4. INTERMEDIATE SPANISH. First quarter: review of grammar, connected prose composition, reading of representative authors. Second quarter: conversation, general correspondence, informational readings on South America or Spain.
20. ORAL AND WRITTEN SPANISH. Practical Spanish conversation and composition. MR. DRAKE.
- 50-51-52†. SPANISH CONVERSATION. MR. MOREHOUSE.
- 53-54-55†. SPANISH COMPOSITION. MR. MOREHOUSE.
- 56-57-58†. ADVANCED SPANISH CONVERSATION. MR. HERAS.



- 59-60-61†. ADVANCED SPANISH COMPOSITION. MR. HERAS.
- 62-63-64†. PRACTICAL SPANISH PHONETICS. Drill in pronunciation. Recitation of passages in prose and verse. (Not offered in 1921-22.)
- 65-66-67†. SURVEY OF SPANISH LITERATURE. An outline of the history of Spanish literature from 1500 to the present day, based upon texts and collateral reading. MR. HOUSE.
- 68-69†. SURVEY OF SPANISH LITERATURE. Same as above, except that it is a five-hour course extending through two quarters. MR. DRAKE.
- 70-71-72†. SOUTH AMERICAN LIFE AND INSTITUTIONS. A practical course intended to give a general view of South American ideals and institutions. Lectures and assigned readings. (Not offered in 1921-22.) MR. HENRÍQUEZ.
- 73-74-75†. SPANISH COMMERCIAL CORRESPONDENCE. (Not offered in 1921-22.) MR. HENRÍQUEZ.
- 80-81-82†. SPANISH LITERATURE: NINETEENTH CENTURY. A study of the principal literary movements. Assigned texts and collateral reading. Lectures in Spanish. MR. HERAS.
- 83-84-85†. SPANISH-AMERICAN LITERATURE. An outline of South American literary history. Reading of representative authors. Lectures in Spanish. MR. HENRÍQUEZ.
- 100-101-102†. SPANISH ORAL DICTION. Oral dissertations on assigned subjects. Exercises in diction, syntax, and vocabulary. (Not offered in 1921-22.) MR. HERAS.
- 103-104-105†. SPANISH SYNTAX. Special studies in characteristic problems of Spanish syntax. (Not offered in 1921-22.) MR. HOUSE.
- 115-116-117†. SPANISH LITERATURE: GOLDEN AGE. A study of the principal literary movements from 1550 to 1681 with particular emphasis on the age of Lope de Vega. Assigned texts, collateral reading, lectures in Spanish. (Not offered in 1921-22.) MR. HENRÍQUEZ.
- 141-142-143†. SPANISH NOVEL. The development of Spanish fiction from the picaresque novel to that of the present day. Alternates with 159-160-161. (Not offered in 1921-22.) MR. HOUSE.
- 150-151-152†. SPANISH DRAMATIC LITERATURE. A general survey of Spanish dramatic literature with special attention to the Golden Age. Alternates with 156-157-158. (Not offered in 1921-22.) MR. HOUSE.
- 156-157-158†. SPANISH LITERATURE: SIXTEENTH CENTURY. Intensive reading of texts; and study of literary influences. Alternates with 150-151-152. MR. HOUSE.

- 159-160-161†. CERVANTES. A study of his life and works. Attention will be centered upon *Don Quixote* and the *Novelas Exemplares*. Alternates with 141-142-143. (Not offered in 1921-22.) MR. HENRÍQUEZ.
- 174-175-176†. LECTURES IN SPANISH. Subject to be announced. MR. HENRÍQUEZ.
- 177-178-179†. ADVANCED LECTURES IN SPANISH. (Not offered in 1921-22.) MR. HENRÍQUEZ.
- 194-195-196†. INTRODUCTION TO OLD SPANISH READINGS AND HISTORICAL GRAMMAR. Teachers' course for seniors and graduates. MR. HOUSE.
- GRADUATE COURSES. CONSULT GRADUATE SCHOOL BULLETIN
- 201-202-203. OLD FRENCH PHONOLOGY AND MORPHOLOGY. MR. Lecompte.
- 204-205-206. READINGS IN OLD FRENCH LITERATURE. MR. Lecompte.
- 207-208-209. OLD PROVENÇAL. MR. Lecompte.
- 222-223-224. SEMINAR IN MODERN FRENCH LITERATURE. MR. SEARLES.
- 241-242-243. OLD SPANISH PHILOLOGY. (Not offered in 1921-22.) MR. HOUSE.
- 244-245-246. OLD SPANISH LITERATURE. (Not offered in 1921-22.) MR. HOUSE.
- 250-251-252. SPANISH SEMINAR. MR. OLMSTED.
- 259-260-261. RESEARCH IN ROMANCE LANGUAGES.

## SCANDINAVIAN

Professors GISLE C. J. BOTHNE, Chairman; ANDREW A. STOMBERG.

## COURSES

- 1-2. BEGINNING NORWEGIAN. Grammar, composition, select readings in easy prose and poetry.
3. INTERMEDIATE NORWEGIAN. Grammar, composition, conversation, elementary history of literature, and select works of modern authors.
- 4-5. ADVANCED NORWEGIAN (SURVEY). Prose and poetry. MR. BOTHNE.
- 7-8. BEGINNING SWEDISH. Grammar, composition, conversation, reading of selected prose texts. MR. STOMBERG.
9. INTERMEDIATE SWEDISH. Reading selected works in prose and verse. MR. STOMBERG.
- 10-11. ADVANCED SWEDISH (SURVEY). Brief survey of the history of Swedish literature, reading of Tegner's *Fritiofs Saga*, Runeberg's *Fänrik Ståls Sägner*, and selected texts in Swedish history. MR. STOMBERG.

12. ANCIENT AND MEDIEVAL SCANDINAVIAN HISTORY. The antiquities of Scandinavian formation of states, the Viking expeditions, medieval culture. Knowledge of Scandinavian not required. MR. STOMBERG.
45. SCANDINAVIAN MYTHOLOGY. Lectures, textbook, and illustrated reading. Knowledge of Scandinavian languages not required. MR. STOMBERG.
- 101-102-103. MODERN NORWEGIAN LITERATURE. Norwegian literature from 1814 to the present day. MR. BOTHNE.
- 104-105. MODERN SCANDINAVIAN HISTORY. Religious, political, and economic changes in the north, military enterprises, growth of liberalism, material progress. Knowledge of Scandinavian not required. MR. STOMBERG.
- 107-108-109. MODERN SWEDISH LITERATURE. The Swedish novel. Study of a selected list of Swedish classics. MR. STOMBERG.
110. IBSEN. Lectures, reading, and interpretation. MR. BOTHNE.
- 111-112-113. OLD NORSE (ICELANDIC). Grammar and reading. Gunnlaug's *Saga Ormstungu*. MR. BOTHNE.
114. STRINDBERG. Lectures, reading, and interpretation. MR. STOMBERG.
117. EARLY NORWEGIAN LITERATURE. History of literature. Saga period. Norwegian and Danish folksongs. Holberg. Oplysningstiden. MR. BOTHNE.
- 130-131-132. DANISH LITERATURE OF THE NINETEENTH CENTURY. From Oehlenschläger to the end of the century. (Not offered in 1921-22.) MR. BOTHNE.
- 134-135. THE LANDSMAAL MOVEMENT AND LITERATURE. From Aasen to Garborg. (Not offered in 1921-22.) MR. BOTHNE.
136. BJÖRNSON. A study of his activity as a central figure in modern Norway. MR. BOTHNE.
- GRADUATE COURSES. CONSULT GRADUATE SCHOOL BULLETIN
- 201-202-203. SEMINAR IN HISTORY OF SCANDINAVIAN LANGUAGES, INCLUDING SEMASIOLOGY. MR. BOTHNE.
- 204-205-206. SEMINAR IN OLD NORWEGIAN. The Elder Edda. (Not offered in 1921-22.) MR. BOTHNE.
- 209-210. SEMINAR IN MODERN SWEDISH LANGUAGES AND LITERATURE. MR. STOMBERG.
- 215-216-217. SEMINAR IN MODERN NORWEGIAN LITERATURE. MR. BOTHNE.

## SOCIOLOGY AND SOCIAL WORK

Lecturer FRANK J. BRUNO, Acting Chairman; Professor LUTHER L. BERNARD; Associate Professor MANUEL C. ELMER; Assistant Professors ROSS L. FINNEY, GUSTAV A. LUNDQUIST; Lecturers OTTO W. DAVIS, WILLIAM W. HODSON, ELIZABETH SEEBERG, EDWARD C. WAITE; Instructors LOUIS A. BOETTIGER, CHARLES E. LIVELY; Supervisor of Field Work MILDRED D. MUDGETT.

*Major Advisers*

Professor Bernard; Associate Professor Elmer.

*Major Sequences*

Sequence A. General Sociology. Courses 51, 52, 53, 55 or 60, 110 or 114 or 128 or 134, 100 or 101, 101 or 102, 119 or 130 or 132, 120 or 141, 122 or 123 (for students who have had the equivalent of 122.)

Sequence B. Social theory. Courses 51, 52, 53, 100, 101, 102, 119, 120, 140 or 141.

Sequence C. Rural sociology. Courses 51, 52, 53, 55 or 60, 100, 101 or 102 or 120, 110 or 114, 122, 123 or 119, 130.

Sequence D. Rural social work. Courses 51, 52, 60, 110, 114, 122, 128; Agricultural Education 54 and 161; Political Science 157 or 158; Pathology and Public Health (Medical School) 103.

Sequence E. (Not offered in 1921-22.) Medical social service. Courses 51, 52, 53, 60; Psychology 125-126 or 144-145; Pathology and Public Health (Medical School) 103; Bacteriology 1; Sociology 97-98-99; 133 or 138, 139.

Sequence F. General social service. Courses 51, 52, 53, 55, 56, 57, 60, 61, 100 or 120, 122, 128 or 130 or 132; Political Science 58.

Sequence G. Industrial relations. (To be arranged later.)

Prerequisites: A total of 25 credits from among the following departments: Sociology, Anthropology, Economics, Education, History, Philosophy, Political Science, and Psychology. Students who are deficient in prerequisites may be required to make up their deficiencies in Junior College courses.

## COURSES

1. INTRODUCTION TO SOCIOLOGY. A study of the origin and development of human societies; various agencies which have determined the type of social life; social organization, institutions, and progress; bearing of sociology upon other social sciences and arts. MR. BERNARD MR. ELMER, MR. FINNEY, MR. LUNDQUIST, MR. BOETTIGER, MR. LIVELY.
3. EDUCATIONAL SOCIOLOGY. The school as a community factor; the present peculiar relation of the school to social problems; the function of the school in these relations. MR. FINNEY.

<sup>1</sup> Resigned July 1, 1921.

6. MODERN SOCIAL REFORM MOVEMENTS. A survey of attempts to overcome certain social maladjustments: child labor, the city, bad housing, poverty, degeneracy; movements for public health, industrial democracy, social insurance, protection of infancy and youth, public recreation, etc. MR. ELMER, MR. FINNEY, MR. BOETTIGER, MR. LIVELY.
14. RURAL SOCIOLOGY. The background and evolution of country life; rural conveniences, communication, coöperation; rural social institutions, especially the family, school, church, and social center; rural leadership, surveys, organization, social agencies. MR. BERNARD, MR. LUNDQUIST, MR. LIVELY.
- 45-46. ELEMENTS OF SOCIAL HYGIENE AND COMMUNITY PROTECTIVE WORK. (Not offered in 1921-22.)
51. BACKGROUND OF DEPENDENCY AND DEFECTIVENESS. This course considers the conditions in contemporary industrial societies out of which the social problems of the dependant and defective arise. MR. BRUNO.
52. TREATMENT OF DEPENDENTS AND DEFECTIVES. This course reviews the methods used or advocated for the prevention and alleviation of poverty and defectiveness, with special emphasis upon the method of family case work. MR. BRUNO.
53. TREATMENT OF DELINQUENTS. The causes of crime; nature of the criminal; criminal procedure; methods of treatment (prisons, reformatories, parole, probation); the juvenile offender; juvenile courts; preventive methods. MR. ELMER.
55. HOUSING PROBLEMS. An examination of housing evils and their causes; the various movements for the prevention or improvement of bad housing; town- and city-planning; garden cities. Lectures, readings, field work, and essay. MR. DAVIS.
56. FIELD PRACTICE IN CASE WORK. Designed to give first-hand knowledge of the conditions out of which dependency develops by field work with a social service agency. Designed for those who are taking 51. MRS. MUDGETT.
57. FIELD PRACTICE IN CASE WORK. Designed for students who have taken 56 and aiming to give practice to the methods of treatment outlined in Course 52. MRS. MUDGETT.
60. 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. MR. HODSON.
61. FIELD PRACTICE IN CHILD WELFARE. Designated to meet the individual needs of students taking 60. MRS. MUDGETT.

- 97-98-99. SUPERVISED FIELD-PRACTICE WORK. This is a course in technic open to such students as wish to strengthen their experience in case work. MRS. MUDGETT.
100. SOCIAL PSYCHOLOGY. The social attitudes; their development and modification under social pressures; the interactions of individuals and groups. MR. BERNARD.
101. SOCIAL ORGANIZATION. The organization and structure of social groups; the selection of group types and values; the disorganization and reorganization of institutions; purposive social organization. MR. BERNARD.
102. SOCIAL CONTROL. Nature, purpose, and methods of social control; institutional and non-institutional controls; the evolution of sanctions in social control; the revision of the social controls under the influence of modern science. MR. BERNARD.
103. SOCIOLOGY OF CONFLICT. (Not offered in 1921-22.)
104. STATE CARE OF DEPENDENTS, DEFECTIVES, AND DELINQUENTS IN MINNESOTA. (Not offered in 1921-22.)
110. METHODS OF COMMUNITY ORGANIZATION AND SOCIAL WORK IN SMALL TOWNS AND COUNTRY. Concrete problems and methods are emphasized. MR. BERNARD.
114. RURAL SOCIAL INSTITUTIONS. A detailed study of the problems of organization and efficiency of selected rural institutions, especially religious, educational, civic, and recreational. For advanced students. Lectures, discussion, reports. MR. LUNDQUIST.
119. THE FAMILY. The evolution of the family; its various forms and their relation to other social institutions; the service of the family in social evolution; contemporary problems of the family (standards of living, birth-rate, feminism, etc.). MR. ELMER.
120. SOCIAL PROGRESS. A study of the basis for social progress in human nature; analysis of fundamental social institutions with regard to their contributions to human advance; necessary social readjustments to convert drift into progress. MR. BERNARD.
122. METHODS OF SOCIAL INVESTIGATION. Methods of gathering and presenting community facts; social statistics; social surveys. Lectures, problems, and field work. MR. ELMER.
123. SOCIAL STATISTICS. A study and analysis of social statistics and their bearing upon group life. The course is especially designed to give social workers and public-health officials the training necessary to carry on their work successfully. MR. ELMER.
- 125-126-127. SETTLEMENT AND COMMUNITY CENTER WORK. (Not offered in 1921-22.)

128. CHARITABLE ADMINISTRATION, FINANCE, AND PUBLICITY. A technical study of methods of organizing charitable agencies, of financing them, and of making the public aware of their work. Lectures and practice work. MR. DAVIS.
130. TECHNIC OF FAMILY TREATMENT. An intensive study of social case work as the basis of practical dealing with problems of dependency and defectiveness. Lectures and conferences. MR. BRUNO.
132. JUVENILE COURTS AND PROBATION. Primarily a course in probation practice work, but prefaced by lectures on the social and legal aspects of the juvenile court and probation. (Not offered in 1921-22.)
133. MEDICAL SOCIAL SERVICE. A course open only to students who are properly grounded in case work and who wish to specialize in this field.
134. LEGAL PROTECTION OF THE CHILD. A study of the relation of law to child welfare. A survey of existing children's protective legislation, of its administration and its future development. MR. HODSON.
135. FIELD PRACTICE IN LEGAL PROTECTION OF THE CHILD. Designed to meet the individual needs of students in the course on Legal Protection of the Child. MRS. MUDGETT.
- 138-139. MENTAL CASE WORK. A study of mental abnormality and its treatment through case work. Lectures and clinical instruction. MISS SEEBERG.
140. HISTORY OF SOCIAL THEORY. A rapid survey of the leading social theories from the time of the Greeks, with special reference to the more recent development of sociology. The theories are related to their social backgrounds. MR. BERNARD.
141. CONTEMPORARY SOCIAL THEORY. An intensive study of developments in the social theory of the late nineteenth and the twentieth centuries. MR. BERNARD.
150. SEMINAR. Subject for fall quarter: the literature of social protest. Open to qualified students in either English or sociology. (Not offered in 1921-22.)
151. SEMINAR. Subjects for winter quarter: social aspects of the labor problem. (Not offered in 1921-22.)
152. SEMINAR. Subject for spring quarter: problems of institutional administration and reconstruction. (Not offered in 1921-22.)
- 180-181-182. SEMINAR IN EDUCATIONAL SOCIOLOGY. Problems in the social aspects of educational theory and practice. MR. FINNEY.

Allied courses in other departments: Agricultural Education 173; Anthropology 5, 113, 114; Economics 161, 167; Home Economics 40, 70, 71, 72; Philosophy 124; Political Science 11, 58, 157.

COLLEGE OF SCIENCE, LITERATURE,  
AND THE ARTS

TABULAR STATEMENT AND  
PROGRAM OF COURSES

1921-1922



## EXPLANATIONS

*Course numbering.*—A course is designated by a department name, a number, and a letter. It has the same number in whatever quarter it is offered. The quarter is indicated by the letter (f, fall; w, winter; s, spring; su, summer).

Examples:

1f-2w, a two-quarter course given in the fall and winter.

1w-2s, the same course given in the winter and spring.

3f,w,s, a one-quarter course given each quarter.

(1s)-2f, a two-quarter course completed in the fall of 1921.

1s-(2f), a two-quarter course begun in the spring of 1922.

Junior College courses (primarily for freshmen and sophomores) are numbered from 1 to 49. Senior College courses are numbered as follows: courses primarily for juniors and seniors, from 50 to 99; for juniors, seniors, and graduates, from 100 to 199; for graduates only, from 200 up. This system is not uniformly followed by departments in other colleges than Science, Literature, and the Arts.

*Statement of credits.*—The number of credits stated for two- and three-quarter courses is the number for the entire course, not the number for each quarter.

*Buildings.*—A, Armory; AB, Animal Biology; Adm(F), Administration, University Farm; C, Chemistry (Main Campus); CB, Christian Bible College; D, Dentistry; Ed, Education; En(F), Engineering, University Farm; Farm, University Farm (consult bulletin of the College of Agriculture, Forestry, and Home Economics); F, Folwell; G, Greenhouse; HE, Home Economics, University Farm; Lib, Library; LitTh, Little Theater; MA, Mechanic Arts; ME, Main Engineering; MH, Millard Hall; Mu, Music; P, Pillsbury; Ph, Physics; PP, Plant Pathology, University Farm; Psy, Psychology; WGym, Women's Gymnasium.

## OTHER ABBREVIATIONS AND SYMBOLS

I, II, III, etc.	First hour (8:30 to 9:20), second hour (9:30 to 10:20), third hour (10:30 to 11:20), fourth hour (11:30 to 12:20), fifth hour (1:30 to 2:20), sixth hour (2:30 to 3:20), seventh hour (3:30 to 4:20), eighth hour (4:30 to 5:20). (At the University Farm, first hour, 8:15 to 9:05; second hour, 9:15 to 10:05, etc.)
Ar.	To be arranged or assigned.
cr.	Credits.
Lab.	Laboratory.
Lect.	Lecture.
MTWThFS	Monday, Tuesday, etc.
Rec.	Recitation.

DIRECTORY OF ADMINISTRATIVE AND DEPARTMENTAL  
OFFICES

J. B. JOHNSTON, Dean of the College of Science, Literature, and the Arts .....			119F
J. M. THOMAS, Assistant Dean for the Senior College.....			221F
W. H. BUSSEY, Assistant Dean for the Junior College.....			106F
R. R. SHUMWAY, Assistant Dean for Students' Work.....			119F
Animal Biology.....	308AB	Human Physiology .....	110MH
Anthropology .....	11F	Journalism .....	1F
Astronomy .....	123F	Latin .....	118F
Bacteriology .....	228MH	Mathematics .....	121F
Botany .....	105AB	Military Science and Tac-	
Comparative Philology ...	216F	tics .....	A
Drawing and Descriptive		Music .....	Mu
Geometry .....	208ME	Philosophy .....	323F
Economics .....	113MA	Physical Education for	
Education .....	103E	Men .....	204A
English, Rhetoric, and		Physical Education for	
Public Speaking.....	221F	Women .....	102WGym
Geology and Mineralogy.	108P	Physics .....	20Ph
German .....	211F	Political Science.....	101MA
Greek .....	112F	Psychology .....	112Psy
History .....	216Lib	Romance Languages ....	200F
Home Economics.....	202HE	Scandinavian .....	218F
Human Anatomy.....	204IA	Sociology and Social Work	17F

## ANIMAL BIOLOGY

No.	Title	Credits	Offered to	Prerequisite courses
1-2†	General Zoology .....	10	All	None
5-6-7†	General Zoology (Pre-medical and pre-dental).....	12	Pre-medical and pre-dental students	None
9-10†	Histology .....	10	Soph., jr., sr.	1-2
11	Cytology and technic.....	5	Fr.,soph.,jr.,sr.	1-2
14-15-16†	General Zoology (Agric., For., Home Ec.).....	9	All	None
17-18†	General Physiology.....	10	Soph., jr., sr.	15 credits in an. biol. or 10 cr. in an. biol. and 10 cr. in chem. or physics
23	Principles of Animal Behavior .....	3	Fr.,soph.,jr.,sr.	1-2
37-38-39†	Gen. Entomology.....	9	Soph., jr., sr.	1-2
43	Introduct. Entomology.....	5	Fr.,soph.,jr.,sr.	1-2
44	Animal Parasites.....	3	Fr.,soph.,jr.,sr.	1-2
45	Insects and Disease.....	3	Fr.,soph.,jr.,sr.	1-2
46-47†	Ornithology .....	6	Soph., jr., sr.	1-2
48	General Ecology.....	5	Fr.,soph.,jr.,sr.	1-2
75	Nature Study.....	3	Jr., sr.	1-2 and 10 other cr. in an. biol.
107	Protozoology .....	3	Jr., sr., grad.	1-2 and 5 other cr. in an. biol.
109-110†	General Physiology.....	10	Jr., sr., grad.	20 cr. in an. biol.
117-118-119†	Ecology of Insects.....	9	Jr., sr., grad.	1-2 and 43
124	Advanced Ecology.....	5	Jr., sr., grad.	117-118-119
125-126-127†	Advanced Entomology.....	9	Jr., sr., grad.	1-2; 37-38-39, or 43
130	Biology Aphididae.....	3	Jr., sr., grad.	1-2 and 10 additional cr. in an. biol.
139-140†	Histol. and Development of Insects .....	6	Jr., sr., grad.	1-2 and 37-38 or 43
144-145-146†	Animal Parasites and Parasitism .....	9	Jr., sr., grad.	1-2 and 37-38 or 43
149-150-151†	Blood of Vertebrates.....	9	Sr., grad.	Histology and embryology; reading knowledge of French & German
154-155†	Hematology .....	9	Jr., sr., grad.	Histol., embryol.
181-182†	Embryology .....	6	Jr., sr., grad.	1-2 and 11 or equiv.
183	Genetics and Eugenics.....	3	Jr., sr., grad.	1-2, and 5 other cr. in an. biol. or botany
197-198-199	Problems .....	9 or 18	Sr., grad.	1-2 and special requirements

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

## ANIMAL BIOLOGY

No.	Title	Hour	Day	Building	Instructor
1f-2w†	General Zoology.....				
	Sec. I Lab. III, IV		MWF	101AB	Ar
	(Limit, 150) Lect. III		TThS		
		IV	T	313AB	Ar
	II Lab. V, VI, VII		TTh	101AB	Ar
	(Limit, 150) Lect. V		MWF		
		VI	F	313AB	Ar
	III Lab. V, VI		MWF	101AB	Ar
	(Limit, 150) Lect. V, VI		TTh	313AB	Ar
1w-2s†	General Zoology.....				
	Lab. I, II		MWF	101AB	Ar
	Lect. I		T		
		II	TThS	313AB	Ar
1s-2su or 2w†	General Zoology.....				
	Lab. V, VI, VII		TTh	101AB	Ar
	Lect. V		MWF		
		VI	F	313AB	Ar
5f-6w-7s†	General Zoology.....				
	(Pre-medical) Lab. III, IV		TS	101AB	Ar
	Lect. IV		MWF	313AB	Ar
		(Spring: III, IV	WF		
		IV	MTS)		
5f-6w-7s†	General Zoology.....				
	(Pre-dental) Lab. I, II		TS	101AB	Ar
	Lect. I		MWF	313AB	Ar
9f-10w†	Histology.....	III, IV	MTWFS	201, 211AB	Mr. Downey
11s	Cytology and Technic....	III, IV	MTWFS	201, 211AB	Mr. Nachtrieb
14f-15w-16s†	See College of Agriculture bulletin.....				
17f-18w†	General Physiology.....	V, VI, VII	MW	10AB	Mr. Lund
		V, VI, VII, VIII	F		
23s	Principles of Animal Be- haviour.....	V, VI, VII	TTh	10AB	Mr. Lund
37f-38w-39s†	General Entomology.....	I, II	MWF	208-10AB	Mr. Oestlund
43s	Introd. Entomology.....	I, II	MWThFS	208-10AB	Mr. Oestlund
44f	Animal Parasites.....	V, VI	MWF	208-10AB	Mr. Riley
44s	Animal Parasites.....	V, VI, VII	WF	208-10AB	Mr. Riley
45W	Insects and Disease.....	V, VI, VII	TTh	208-10AB	Mr. Riley
46w-47s†	Ornithology.....	V, VI, VII	TTh	211, 314AB	Mr. Roberts
48s	General Ecology.....	V, VI, VII	MW	208-10AB	Mr. Chapman
		V, VI, VII, VIII	F		
75s	Nature Study.....	V, VI, VII	TTh	213AB	Mr. Sigerfoos
107s	Protozoology.....	I, II	MWF	211, 213AB	Mr. Sigerfoos
109f-110w†	General Physiology.....	V, VI, VII	MW	10AB	Mr. Lund
		V, VI, VII, VIII	F		
117f-118w-119s†	Ecology of Insects.....	V, VI, VII	TTh	208-10AB	Mr. Chapman
124su	Advanced Ecology.....	Ar	Ar	Ar	Ar
125f-126w-127s†	Advanced Entomology....	III, IV	TThS	208-10AB	Mr. Oestlund
130w	Biology Aphididae.....	III, IV	MWF	208-10AB	Mr. Oestlund
139f-140w†	Hist'l and Develop. In- sects.....	II, III, IV	TTh	324Ad(F)	Mr. Riley
144f-145w-146s†	Animal Parasites and Parasitism.....	V, VI, VII	WF	208-10AB	Mr. Riley
149f-150w-151s†	Blood of Vertebrates....	VI, VII	Ar	201, 211AB	Mr. Downey
154w-155s†	Hematology.....	V, VI, VII	TTh	201, 211AB	Mr. Downey
181f-182w†	Embryology.....	V, VI	MWF	201, 211AB	Mr. Nachtrieb
183s	Genetics and Eugenics....	III	MWF	211AB	Mr. Nachtrieb
197f-198w-199s	Problems.....	Ar	Ar	Ar	Ar

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

## GRADUATE COURSES

201-204	Research in Entomology....	Consult the bulletin of the Graduate School
213-216	Research in Biological Oxidations .....	Consult the bulletin of the Graduate School
217-218-219	Research in the Physiology of the Lower Organisms with Special Reference to the Protozoa.....	Consult the bulletin of the Graduate School
225-228	Research on the Gross and Microscopic Anatomy of the Ganoids.....	Consult the bulletin of the Graduate School
229-232	Research in Animal Histology	Consult the bulletin of the Graduate School
233-236	Research in Vertebrate Connective Tissue with Special Reference to the Cellular Elements.....	Consult the bulletin of the Graduate School
237-240	Research in Vertebrate Hematology .....	Consult the bulletin of the Graduate School
245-248	Comparative Neurology.....	Consult the bulletin of the Graduate School
249-252	Research in Neurology.....	Consult the bulletin of the Graduate School
253-254	Dynamics of Protoplasm and Cells .....	Consult the bulletin of the Graduate School

## ENTOMOLOGY AND ECONOMIC ZOOLOGY

## COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

No.	Title	Credits	Offered to	Prerequisite courses
3	Elem. Economic Entomology.	3	Soph., jr., sr.	An. biol. 1-2
4	Economic Vert. Zoology.....	3	Jr., sr.	An. biol. 1-2
8	Fur-Bearing Animals.....	3	Soph., jr., sr.	An. biol. 1-2
12	Forest Zoology .....	3	Jr., sr.	An. biol. 1-2
16	Plant-Pest Control.....	3	Jr., sr.	1 and 2 or 3, or Pl. Path. 1
150	Insecticides and Their Action	3 or 6	Jr., sr.	37-38-39 or Agr. Biochem. 7-8, or the equivalent
197	Introd. to Research.....	5 or more	Sr.	1-2 or 37-38-39 and other work as prescribed by division

ENTOMOLOGY AND ECONOMIC ZOOLOGY

For program, see bulletin of College of Agriculture, Forestry, and Home Economics.

## ANTHROPOLOGY AND AMERICANIZATION TRAINING

No.	Title	Credits	Offered to	Prerequisite courses
1	Introduction to Anthropology	5	3d qu. fr., soph., jr., sr.	None
4	Cultural Anthropology.....	3	Soph., jr., sr.	1
5	General Immigration .....	3	Soph., jr., sr.	1
12	Ethnology .....	3	Soph., jr., sr.	1
57-58-59§	Race Leaders and Programs.	9	Jr., sr.	Three courses
70†	Food Preparation in Relation to Social Work.....	3	Soph., jr., sr.	An. Biol. 1-2
71	Elementary Dietetics for the Social Worker.....	3	Soph., jr., sr.	70, Physiol. 3, or parallel
72	Home-Management Problems	3	Soph., jr., sr.	71, Econ. 7, or parallel
[108	Philippine Peoples .....	3	Jr., sr., grad.	Three courses]
110	Physical Anthropology and Amalgamation .....	3	Jr., sr., grad.	1, and An. Bi. 1-2 or three courses
[112	The American Negro.....	3	Jr., sr., grad.	Three courses]
113	The Older Immigrants.....	3	Jr., sr., grad.	Three courses
114	The Newer Immigrants.....	3	Jr., sr., grad.	Three courses
115	Americanisms and Assimila- tion .....	3	Jr., sr., grad.	Three courses
117	The Immigrant Woman.....	3	Jr., sr., grad.	Three courses
118	Government and the Immi- grant .....	3	Jr., sr., grad.	Three courses incl. 5
123-124§	Problems in Anthropology..	6	Jr., sr., grad.	Three courses
128	Technic of Teaching Adults	3	Jr., sr., grad.	Three courses
129	Methods of Americanization.	3	Jr., sr., grad.	128
130	Organization of Americaniza- tion Work .....	3	Jr., sr., grad.	128
131-132-133§	Supervised Americanization Work .....	9	Jr., sr., grad.	128
136	Americanization Directorship	1	Jr., sr., grad.	130 or parallel
141	Princip. of Adult Elem. Educ. ....	3	Jr., sr., grad.	128
142	Adult Elem. Learning Pro- cess .....	3	Jr., sr., grad.	141
143	Adult Elem. Teaching Pro- cess .....	3	Jr., sr., grad.	142
150-151-152§	Field Problems in American- ization .....	9	Jr., sr., grad.	128
204	Seminar in Anthropology....	3	Grad.	3 courses

[ ] Not offered in 1921-22.

† Does not count as a Senior College course.

§ A student may enter any quarter.

ANTHROPOLOGY AND AMERICANIZATION TRAINING

No.	Title	Hour	Day	Building	Instructor
1f	Introduction to Anthropol.	II	MWThFS	15F	Mr. Jenks
		V	MTWThF	15F	Mr. Grace
1w	Introduction to Anthropol.	V	MTWThF	15F	Mr. Grace
1s	Introduction to Anthropol.	II	MWThFS	15F	Mr. Grace
		V	MTWThF	25F	Mr. Grace
4w	Cultural Anthropology...	II	MWF	25F	Mr. Jenks
5f	General Immigration.....	III	TThS	15F	Mr. Grace
5w	General Immigration.....	III	TThS	15F	Mr. Grace
5s	General Immigration.....	III	TThS	15F	Mr. Grace
12f	Ethnology .....	II	TThS	12F	Miss Speaker
12w	Ethnology .....	III	MWF	25F	Mr. Grace
12s	Ethnology .....	II	TThS	25F	Miss Speaker
57f-58w-59s	Race Leaders & Programs	I	TThS	25F	Miss Speaker
70f	Food Preparation.....	V-VI	MWF	HE	Miss Lindquist
71w	Elementary Dietetics.....	V-VI	MWF	HE	Miss Mumford
72s	Home Management.....	V-VI	MWF	HE	Miss Lindquist
110s	Physical Anthropology....	II	MWF	25F	Mr. Jenks
113f	Older Immigrants.....	III	MWF	15F	Mr. Jenks
114w	Newer Immigrants.....	III	MWF	15F	Mr. Jenks
115s	Americanisms and Assimilation .....	III	MWF	15F	Mr. Jenks
117w	Immigrant Woman.....	II	TThS	25F	Miss Speaker
118f	Government and the Immigrant .....	IV	MWF	Ar	Mr. Grace
123f	Prob. in Anthropology...	Ar	Ar	Ar	Mr. Jenks
124w	Prob. in Anthropology...	Ar	Ar	Ar	Mr. Jenks
128f	Tech. of Teaching Adults	I	MWF	12F	Miss Baughman
128s	Tech. of Teaching Adults	I	MWF	12F	Miss Baughman
129w	Meth. of Americanization.	I	MWF	12F	Mr. Jenks, Miss Baughman
130s	Org. of Americanization.	I	MWF	25F	Mr. Jenks, Miss Speaker, Mr. Grace
131f-132w-133s	Supervised Amer. Work..	VI	T and Ar	12F	Miss Baughman, Miss Speaker, Mr. Grace
136s	Americanization Directorship .....	Ar	Ar	Ar	Mr. Jenks
141f	Principles of Adult Elementary Education....	II	MWF	12F	Miss Baughman
142w	Adult Elementary Learning Process.....	II	MWF	12F	Miss Baughman
143s	Adult Elementary Teaching Process.....	II	MWF	12F	Miss Baughman
150f	Field Problems in Americanization .....	IV	MW	12F	Miss Baughman
151w	Field Problems in Americanization .....	IV	MW	12F	Miss Baughman
152s	Field Problems in Americanization .....	IV	MW	12F	Miss Baughman



## ARCHITECTURE

No.	Title	Credits	Offered to	Prerequisite courses
4-5†-6	Elements of Arch. ....	18	Soph., jr., sr.	Soph. standing
10-11-12†	Freehand Drawing .....	6	Soph., jr., sr.	Soph. standing
15-16-17	Arch. Design, Elem. ....	12	Soph., jr., sr.	4-5-6
21-22-23†	Elements of Construction...	9	Soph., jr., sr.	4-5-6
51-52-53	Freehand Drawing. ....	9	Jr., sr.	10-11-12
55-56-57	Arch. Design, Intermed. ....	18	Jr., sr.	15-16-17
61-62-63	Freehand Drawing. ....	9	Sr.	51-52-53
65-66	Materials of Construction...	4	Sr.	Sr. standing
71-72-73	Arch. Design, Advanced. ....	18	Sr.	55-56-57
81	Business Practice .....	2	Sr.	Sr. standing
82	Landscape Design .....	2	Sr.	Sr. standing
83	Decoration and Allied Arts.	2	Sr.	Sr. standing
85-86-87	Architectural Hist. (Ancient and Renaissance) .....	6	Jr., sr.	4-5-6
100-101-102	Arch. Hist. (Med. & Modern)	6	Sr.	85-86-87
105	Hist. of Sculpt. & Painting..	2	Sr.	Sr. standing
200	Arch. Hist. Research. ....	2	Sec Graduate	School bulletin

## ASTRONOMY

No.	Title	Credits	Offered to	Prerequisite courses
4-5*†	Introduction to Astronomy..	10	3d qu. fr., soph., jr., sr.	Trigonometry
7	Navigation .....	3	Soph., jr., sr.	Trigonometry
11‡	Descriptive Astronomy. ....	5	3d qu. fr., soph., jr., sr.	None
25§*	Stellar Astronomy. ....	3	Soph., jr., sr.	11
51-52-53*	General Astronomy. ....	9	Jr., sr.	Math. 1, 6, 7, or phys. sci. and Math. 6
62	Elements of Practical Astron.	3	Jr., sr.	Astr. 4 or 11 or 51 and Math. 6, 7
101-102-103	Practical Astronomy .....	9 or 18	Jr., sr., grad.	Astr. 4 or 11 or 51 and Math. 50
111-112-113	Celestial Mechanics. ....	9	Sr., grad.	Math. 51
140	Method of Least Squares...	3	Jr., sr., grad.	Math. 51

## BACTERIOLOGY AND IMMUNOLOGY

No.	Title	Credits	Offered to	Prerequisite courses
1	General Bacteriology .....	5	Soph., jr., sr.	Chemistry 10 cr.
101	Special Bacteriology for Medical Students .....	4	Jr., sr.	1
103	Special Bacteriology for Students of Agriculture..	4	Jr., sr.	1
105	Household Bacteriology ....	3	Jr., sr.	1
114	Higher Bacteria .....	3	Jr., sr.	101, or 103
116	Immunity .....	3	Jr., sr.	101, or 103

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

‡ Satisfies the Junior College requirement for science.

§ Does not satisfy the Junior College requirement for science.

\* Courses 4-5, 11-25, and 51-52-53 cover much the same field. No student is advised to take more than one of these sequences.

PROGRAM

ARCHITECTURE

No.	Title	Hour	Day	Building	Instructor
4f-5w-6s	Elements of Architecture.	II	TS	317ME	Mr. Forsythe
		I, II	MWF		Mr. Jones
10f-11w-12s	Freehand Drawing.....	V, VI, VII	MWF		Mr. Hammett
	Sec. 1	I, II	MWF		Mr. Burton
	2	V, VI	MWF		Mr. Johnson

For other courses, see College of Engineering bulletin.

ASTRONOMY

No.	Title	Hour	Day	Building	Instructor
4f-5w	Introduction to Astronomy	I	TWThFS	124F	Mr. Beal
4w-5s	Introduction to Astronomy	VI	MTWThF	124F	Mr. Beal
7f	Navigation .....	VI	MWF	125F	Mr. Leavenworth
11f	Descriptive Astronomy...	III	MTWFS	124F	Mr. Beal
11w	Descriptive Astronomy...	IV	MTWFS	124F	Mr. Leavenworth
11s	Descriptive Astronomy...	III	MTThFS	124F	Mr. Leavenworth
25w	Stellar Astronomy.....	III	TThS	124F	Mr. Beal
25s	Stellar Astronomy.....	IV	MWF	124F	Mr. Leavenworth
5f-52w-53s	General Astronomy.....	II	MWF	124F	Mr. Leavenworth
62f	Elements of Practical Astronomy .....	II	TThS	124F	Mr. Beal
101f-102w-103s	Practical Astronomy.....	V	MWF	124F	Mr. Leavenworth
111f-112w-113s	Celestial Mechanics.....	Ar	Ar	123F	Mr. Beal
140w	Method of Least Squares	IV	MWF	123F	Mr. Leavenworth

BACTERIOLOGY AND IMMUNOLOGY

No.	Title	Hour	Day	Building	Instructor
1f-w-s-su	General Bacteriology.....	V, VI, VII	MWF	MH	Ar
101f-su	Special Bacteriology for Medical Students.....	I, II	MWF	MH	Ar
103w	Special Bacteriology for Students of Agriculture	III, IV	TThS	MH	Ar
105f	Household Bact.....	VI, VII	TTh	MH	Ar
114s	Higher Bacteria.....	VI, VII	TTh	MH	Ar
116w	Immunity .....	VI, VII	TTh	MH	Ar

No.	Title	Credits	Offered to	Prerequisite courses
117	Pathogenic Protozoa .....	3	Jr., sr.	101, or 103
118	Morphology and Taxonomy of Bacteria .....	3	Jr., sr.	101, or 103
119-120	Bacteriological Chemistry ...	4	Jr., sr.	101, or 103, Physi- ology 100-101-102 or Agr. Biochem. 111-112.
150-151	Advanced Bacteriology .....	3	Jr., sr.	See instructor

## BOTANY

No.	Title	Credits	Offered to	Prerequisite courses
1-2†	General Botany.....	10	All	None
7	Taxon. of Flowering Plants.	5	All	2
11	Algae and Fungi.....	5	Soph., jr., sr.	2
15	Anat. of Vasc. Plants.....	5	Soph., jr., sr.	2
51	Histol. Methods .....	3	Jr., sr.	15 cr.
52	Plant Physiology.....	5	Jr., sr.	15 cr.
53	Botany of Econ. Plants.....	5	Jr., sr.	15 cr.
54	Elementary Ecology.....	5	Jr., sr.	15 cr.
55	Algae .....	5	Jr., sr., grad.	15 cr.
62	Bryophytes and Pteridophytes	5	Jr., sr.	15 cr.
63	Gymnosperms & Angiosperms	5	Jr., sr.	7 or 61
107	Bryophytes .....	5	Sr., grad.	7 and 62
108	Pteridophytes .....	5	Sr., grad.	7 and 62
110	Gymnosperms .....	5	Sr., grad.	7 and 63
113-114-115	Advanced Taxonomy .....	9	Jr., sr., grad.	7
118-119†	Cytology .....	6	Jr., sr., grad.	51
[123	Algae: Blue-green.....	3	Jr., sr., grad.	11 or 55]
[124	Algae: Green.....	3	Jr., sr., grad.	11 or 55]
125	Algae: Brown .....	3	Jr., sr., grad.	11 or 55
126	Algae: Red .....	3	Jr., sr., grad.	11 or 55
131	Field Ecology .....	5	Sr., grad.	54
132	Ecological Anatomy .....	5	Sr., grad.	54
133	Forest Geog. of N. A.....	5	Sr., grad.	54
141	Physical Phases of Plant Physiology .....	5	Sr., grad.	52 and gen. org. chem.
142	Plant Metabolism .....	5	Sr., grad.	52 and gen. org. chem.
143	Plant Metabolism & Growth.	5	Sr., grad.	52 and gen. org. chem.
144	Plant Microchemistry.....	5	Sr., grad.	52 and gen. org. chem.

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

[ ] Not offered in 1921-22.

PROGRAM

No.	Title	Hour	Day	Building	Instructor
117s	Pathogenic Protozoa.....	VI, VII			
118f	Morphology and Taxonomy of Bact.....	VI, VII	TTh	MH	Ar
119f-120w	Bacteriological Chemistry.	V, VI, VII	TTh	MH	Ar
150f-151w or 150w-151s	Advanced Bacteriology...	VI, VII	TTh	MH	Ar

BOTANY

No.	Title	Hour	Day	Building	Instructor
1f-2w†	General Botany.....				Mr. Durand in charge
	Sec. I	Lab. I, II	MWF	212-214-220P	
		Quiz I	T	212-214-220P	
		Lect. II	TThS	210P	
	Sec. II	Lab. III, IV	MWF	212-214-220P	
		Quiz IV	T	212-214-220P	
		Lect. III	TThS	210P	
	Sec. III	Lab. V, VI	MWF	212-214-220P	
		Quiz V	Th	210P	
		Lect. V, VI	T	210P	
		VI	Th	210P	
1s-(2f)†	General Botany.....				Mr. Durand in charge
		Lab. I, II	TThS	212-214-220P	
		Quiz I	W	210P	
		Lect. II	MWF	210P	
(1s)-2f†	General Botany.....				Mr. Durand in charge
		Lab. I, II	TThS	212-214-220P	
		Quiz I	W	210P	
		Lect. II	MWF	210P	
7s	Taxonomy of Flow. Plants				Mr. Rosendahl in charge
		Lab. V, VI	MWF	212-214P	
		Quiz VI	Th	210P	
		Lect. V	TTh	210P	
11f	Algae and Fungi.....	I, II	TWThFS	10AB	Mr. Johnson
15w	Anat. of Vascular Plants	III, IV	MTWFS	202AB	Mr. Butters
51f	Histological Methods.....	I, II	MWF	202AB	Mr. Rosendahl,
52f	Element. Plant Physiology	III, IV	MTWFS	G	Mr. Knight
53w	Botany of Econ. Plants..	III, IV	MTWFS	G	Mr. Knight
54s	Elementary Ecology.....	III, IV	MTWFS	G	Mr. Cooper
55s	Algae .....	III, IV	MTWFS	10AB	Miss Tilden
62w	Bryophytes & Pteridophytes	I, II	TWThFS	220P	Mr. Huff
63s	Gymnosperms and Angio-sperms .....	I, II	TWThFS	202AB	Mr. Butters
107w	Bryophytes .....	Ar	Ar	Ar	Mr. Durand
108w	Pteridophytes .....	Ar	Ar	Ar	Mr. Butters
110w	Gymnosperms .....	Ar	Ar	Ar	Mr. Butters
113f-114w-115s	Advanced Taxonomy.....	V, VI	MWF	202AB	Mr. Rosendahl
118w-119s†	Cytology .....	I, II	MWF	202AB	Mr. Rosendahl
125w	Algae: Brown.....	V, VI, VII	TTh	104AB	Miss Tilden
126f	Algae: Red.....	V, VI, VII	TTh	104AB	Miss Tilden
131f	Field Ecology.....	Ar	Ar	Ar	Mr. Cooper
132w	Ecological Anatomy.....	III, IV	MTWFS	G	Mr. Cooper
133s	Forest Geography of North America.....	V-VI	MWF	G	Mr. Cooper
141f	Physical Phases of Plant Physiology .....	I, II	TWThFS	G	Mr. Knight, Mr. Harvey
142w	Plant Metabolism.....	I, II	TWThFS	G	Mr. Knight, Mr. Harvey,
143s	Plant Metabolism and Growth .....	I, II	TWThFS	G	Mr. Farabaugh, Mr. Knight, Mr. Harvey,
144s	Plant Microchemistry....	Ar	Ar	G	Mr. Farabaugh

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

( ) Numbers in parenthesis do not refer to the year 1921-22: See *Course Numbering*, p. 128.

## PLANT PATHOLOGY AND BOTANY

## COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

No.	Title	Credits	Offered to	Prerequisite courses
<i>Introductory Courses</i>				
1	Plant Pathology .....	5	Jr., sr.	Bot. 10 cred.
6	Plant-Pest Control.....	3	Jr., sr.	1, Ent. 3
7-8	Weeds and Grasses.....	6	Soph., jr., sr.	Bot. 10 cred.
9	Weeds and Seed-Testing....	3	Soph., jr., sr.	Bot. 10 cred.
10	Forest Pathology .....	5	Soph., jr., sr.	Bot. 10 cred.
12	Seed Problems.....	3	Jr., sr.	9
14	Plant-Disease Control.....	5	Jr., sr.	1, Ent. 1 or 3
<i>Advanced Courses</i>				
105-106-107	Mycology .....	9	Jr., sr.	Bot. 7, 11 or equiv.
108-109	Methods .....	6	Jr., sr.	1, Bact. 1
110	Principles of Pathology....	3	Jr., sr.	1, Bact. 1
111	Diseases of Field Crops....	3	Jr., sr.	1
112	Diseases of Fruit and Vegetable Crops .....	3	Jr., sr.	1

## CHEMISTRY

## SCHOOL OF CHEMISTRY

*Division of General Inorganic Chemistry*

No.	Title	Credits	Offered to	Prerequisite courses
1-2†-3	Gen. Inorg. Chem.....	12	Pre-dents. and pre-med. only	None
4-5†	Gen. Inorg. Chem.....	8	Pre-dents. and pre-med. only	Entrance cr. in chem.
6-7†-8	Gen. Inorg. Chem. ....	15	Those entering without chem.	None
9-10†	Gen. Inorg. Chem. ....	10	All	Entrance cr. in chem.
11	Qual. Chem. Anal.....	4	Pre-med. and pre-dents. only	3 or 5
12-13†	Qual. Chem. Anal.....	10	All	8 or 10

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

## PLANT PATHOLOGY AND BOTANY

For program, see bulletin of College of Agriculture, Forestry, and Home Economics.

## CHEMISTRY

## SCHOOL OF CHEMISTRY

*Division of General and Inorganic Chemistry*

No.	Title	Hour	Day	Building	Instructor
1f-2w-3sf	Gen. Inorg. Chem. (for pre-med. and pre-dent.)				
	Lect.	V	MWF	225C	Ar
	Lab.	V, VI or VII, VIII	TTh	210C	Ar
4f-5wf	Gen. Inorg. Chem. (for pre-med. and pre-dent.)				
	Lect.	V	MWF	100C	Ar
	Lab.	V, VI or VII, VIII	TTh	210C	Ar
6f-7wf-8s	Gen. Inorg. Chem.....				
	Lect.	II	MWF	225C	Ar
	Lab.	I, II, III	ThS	210C	Ar
9f-10wf	Gen. Inorg. Chem.....				
	Lect.	II	MWF	100C	Ar
	Lab.	I, II, III	ThS	210C	Ar
11f	Qual. Chem. Analysis (for pre-med. and pre-dent.)				
	Lect.	IV	MWF	225C	Miss Cohen
	Lab.	V, VI	MW	210C	Miss Cohen & assts.
11s	Qual. Chem. Analysis (for pre-med. and pre-dent.)				
	Lect.	V	MWF	100C	Mr. Henderson, Mr. Fosse
	Lab.	V, VI or VII, VIII	TTh	210C	
12f-13wf	Qual. Chem. Analysis....				
	Lect.	II	TThS	Ar	Ar
	Lab.	V, VI, VII	MW	Ar	Ar
12s-(13f)†	Qual. Chem. Analysis....				
	Lect.	II	MWF	100C	Mr. Sneed
	Lab.	I, II, III	ThS	210C	Mr. Sneed & assts.
(12s)-13ff	Qual. Chem. Analysis....				
	Lect.	II	TThS	325C	Mr. Sneed
	Lab.	V, VI, VII	MW	210C	Mr. Sneed & assts

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

( ) Numbers in parenthesis do not refer to the year 1921-22: See *Course Numbering*, p. 128

No.	Title	Credits	Offered to	Prerequisite courses
101	Hist. of Chemistry.....	2	Sr., grad.	36
102	Adv. Qual. Chem.....	2 or 3	Jr., sr., grad.	21, 36
[103	Adv. Inorg. Chem.....	2	Jr., sr., grad.	21, 36]
104	Adv. Inorg. Chem.....	3	Jr., sr., grad.	21, 36

*Division of Analytical Chemistry*

No.	Title	Credits	Offered to	Prerequisite courses
20-21	Quant. Anal.....	10	Soph., jr., sr.	12-13
27	Quant. Anal.....	4	Pre-med. only	11
123	Iron and Steel Anal.....	3	Jr., sr., grad.	21
124	Mineral and Ore Anal.....	3	Jr., sr., grad.	21
125	Spec. Prob. in Quant. Anal..	2 or 3	Jr., sr., grad.	21
126	Sanitary Water Anal.....	1 or 2	Jr., sr., grad.	21 or 27

*Division of Organic Chemistry*

No.	Title	Credits	Offered to	Prerequisite courses
31-32†	Elem. Org. Chem.....	8	Pre-medics	11
35-36†	Organic Chemistry.....	10	Jr., sr.	15 cr. in college chem.
130	Inter. Org. Chem.....	3	Jr., sr.	36
131	Organic Analysis.....	3	Jr., sr.	21, 130
133	Reagents in Org. Chem....	2	Jr., sr.	130
137-138‡	Adv. Organic Chem. Lab... Ar	Ar	Jr., sr.	130
139‡	Adv. Organic Chem. Lab.... Ar	Ar	Jr., sr.	138

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

‡ Open only to those who are taking or have taken a lecture course in Advanced Organic Chemistry.

[ ] Not offered in 1921-22.

PROGRAM

No.	Title	Hour	Day	Building	Instructor
101s	History of Chemistry....	Ar	Ar	Ar	Miss Cohen
102w	Adv. Qual. Chem. Anal..	Ar	Ar	Ar	Mr. Sneed
104w	Adv. Inorg. Chem.....	II	TThS	315C	Mr. Sneed
<i>Division of Analytical Chemistry</i>					
No.	Title	Hour	Day	Building	Instructor
20w-21s	Quant. Analysis.....				
	Lect.	V	M	325C	Mr. Geiger
	Rec.	V	F	315C	Mr. Geiger
	Lab.	VI-VIII	MF	310C	Mr. Sidener, Mr. Geiger
		V-VIII	W	310C	Mr. Sidener, Mr. Geiger
27f	Quant. Anal. (for pre-medical students).....				
	Lect.	V	M	325C	Mr. Sidener
	Lab.	VI, VII	M	310C	Mr. Sidener, Mr. Geiger
		V-VIII	WF	310C	Mr. Sidener, Mr. Geiger
123f	Iron and Steel Analysis..				
	Lect.	V	T	315C	Mr. Sidener
	Lab.	VI-VIII	T	310C	Mr. Sidener, Mr. Geiger
		V-VIII	Th	310C	Mr. Sidener, Mr. Geiger
124w	Mineral and Ore Analysis				
	Lect.	V	T	315C	Mr. Sidener
	Lab.	VI-VIII	T	310C	Mr. Sidener, Mr. Geiger
		V-VIII	Th	310C	Mr. Sidener, Mr. Geiger
125s	Spec. Prob. in Quant. Analysis .....				
	Lect.	V	Th	315C	Mr. Sidener
	Lab.	V-VIII	T	310C	Mr. Sidener, Mr. Geiger
	Lab.	VI-VIII	Th	310C	Mr. Sidener, Mr. Geiger
126s	San. Water Analysis.....				
	Lect.	V	T	315C	Mr. Sidener
	Lab.	VI-VII	T	310C	Mr. Sidener, Mr. Geiger
	Lab.	V-VII	Th	310C	Mr. Sidener, Mr. Geiger
<i>Division of Organic Chemistry</i>					
No.	Title	Hour	Day	Building	Instructor
31w-32s†	Elem. Organic Chemistry.				
	Lect.	IV	MWF	100C	Mr. Smith
	Lab.	V-VII	TTh or WF	10C	Mr. Smith, Mr. Lauer
35f-36w†	Organic Chemistry.....				
	Lect.	III	MWF	325C	Mr. Hunter
	Lab.	V-VII	TTh	10C	Mr. Hunter, Mr. Smith, Mr. Lauer
130s	Intermediate Organic Chemistry .....				
	Lect.	III	MWF	325C	Mr. Hunter
	Lab.	Ar	Ar	10C	
131f	Organic Analysis.....				
	Lect.	Ar	Ar	Ar	Mr. Lauer
	Lab.	Ar	Ar	Ar	
133s	Reagents in Organic Chemistry .....				
	Lect.	Ar	Ar	Ar	Mr. Smith
137f,w,s-138f,w,s	Adv. Organic Chemistry				
	Lab. Work.....	Ar	Ar	10C	
139f,w,s	Adv. Organic Chemistry				
	Lab. Work.....	Ar	Ar	10C	

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



<i>Division of Physical Chemistry</i>				
No.	Title	Credits	Offered to	Prerequisite courses
140-141†-142	Physical Chemistry .....	9, 12 or 15	Jr., sr., grad.	2 yrs. col. chem. 1 yr. col. phys.
143-144-145	Thermo-Dynamics and Chem.	9	Sr., grad.	142 and Calculus
[146-147-148	Kinetic Theory & Atomistics	9	Sr., grad.	142 and Cal- culus]
[149	Prin. of Colloidal Chem....	2	Sr., grad.	140-141]
150	Applications of Colloidal Chemistry .....	2	Sr., grad.	149]
[151	Radiochemistry .....	2	Sr., grad.	140-141]
152	Radiochemistry Lab. ....	Ar	Sr., grad.	To accompany 151
153-154-155	Adv. Physical Chem. Lab...	Ar	Sr., grad.	142
156	Applications of Physical Chem. to Organic Chem..	3	Sr., grad.	130 and 142
159	Physical Chem. Seminar....	1	Sr., grad.	See statement of course

## AGRICULTURAL BIOCHEMISTRY

### COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

No.	Title	Credits	Offered to	Prerequisite courses
<i>Introductory Courses</i>				
3	Types of Carbon Compounds	6	Soph., jr., sr.	Chem. 10 cr.
7-8	General Agricultural Bio- chemistry .....	10	Soph., jr., sr.	Chem. 10 cred.
15	Principles of Animal Nutri- tion .....	3	Jr., sr.	7-8
<i>Advanced Courses</i>				
101-102	Agricultural Quantitative Analysis .....	6	Jr., sr., grad.	7-8
103	Dairy Chemistry .....	5	Jr., sr., grad.	7-8
106	Chemical Tech. of Agr. Prod- ucts .....	5	Sr., grad.	101-102
108	Chemistry of Wheat and Wheat Products.....	3	Jr., sr., grad.	7-8
110	Flour Laboratory Methods..	5	Jr., sr., grad.	101-102, or Chem. 131-132, parallel 108
111-112	Phytochemistry .....	6	Sr., grad.	Biol. 10 cred., org. chem.
113-114	Biochemical Laboratory Methods .....	4	Sr., grad.	Quant. anal., paral- lel 111-112
116	Chemistry of "Vitamines" and Deficiency Diseases....	3 or 5	Sr., grad.	111-112, 113-114, or Physiol. 101-102, or 7-8 and 15
118	Laboratory Problems in Bio- chemistry .....	3 or 5	Sr., grad.	111-112, 113-114; or 103 or 110

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

[ ] Not offered in 1921-22.

PROGRAM

<i>Division of Physical Chemistry</i>						
No.	Title	Hour	Day	Building	Instructor	
140f-141w†-142s	Physical Chemistry.....					
	Lect.	IV	MWF	325C	Mr. MacDougall	
	Lab.	V-VII	F	117C	Mr. MacDougall	
	Rec.	IV	S	115C	Ar	
143-144-145	Thermodynamics and Chem. ....	II	TThS	315C	Mr. MacDougall	
150s	App. of Colloidal Chem...	Ar	Ar	Ar	Mr. Reyerson	
152s	Radiochemistry Lab.....	Ar	Ar	C	Mr. Henderson	
153f-154w-155s	Adv. Physical Chem. Lab.	Ar	Ar	C	Mr. MacDougall	
156w	App. of Phys. Chem. to Org. Chem.....	Ar	Ar	C	Mr. Henderson	
159f,w,s	Phys. Chem. Seminar....	Ar	Ar	C	.....	

AGRICULTURAL BIOCHEMISTRY

For program, see bulletin of College of Agriculture, Forestry, and Home Economics.

† The first two quarters must be completed before credit is received for any quarter.

## COMPARATIVE LITERATURE

No.	Title	Credits	Offered to	Prerequisite courses
101-102-103†	Drama .....	9	Jr., sr., grad.	Permission of instructor
105-106-107†	Criticism .....	9	Jr., sr., grad.	Permission of instructor
110	Romantic Movement.....	3	Sr., grad.	Permission of instructor
203	The Arthurian Legend.....	3	See Graduate	School bulletin
206	French and English Literary Criticism .....	3	See Graduate	School bulletin

## COMPARATIVE PHILOLOGY

No.	Title	Credits	Offered to	Prerequisite courses
101-102†	Science of Language.....	4	Jr., sr., grad.	See note
103	Universal Language.....	2	Jr., sr., grad.	See note
105	Life of Words.....	2	Jr., sr., grad.	See note
108	Comparative Phonetics.....	3	Jr., sr., grad.	See note
[109-110-111]†	Hist. of the German Lang..	6	Jr., sr., grad.	See note]
[141-142-143]†	Hist. Gram. of Eng. Lang..	6	Jr., sr., grad.	See note]

NOTE: Prerequisites for all courses: one of the following groups: (1) five years foreign language; four may be in high school and one in college; (2) two years foreign language in college; (3) 4 credits in Old English.

## DRAWING AND DESCRIPTIVE GEOMETRY

No.	Title	Credits	Offered to	Prerequisite courses
41-42-43‡	Technical Drawing.....	6	All	None
44	Lettering .....	1	All	None
45	Alphabets .....	2	Soph., jr., sr.	None
47-48-49	Drawing, Engraving, and Decoration .....	9	Jr., sr.‡	None

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

‡ Student can enter at any quarter.

[ ] Not offered in 1921-22.

§ Not a Senior College course. Not open to sophomores under the rule on p. 20.

PROGRAM

COMPARATIVE LITERATURE

No.	Title	Hour	Day	Building	Instructor
101f-102w-103s†	Drama .....	VII	MWF	113F	Mr. Firkins
105f-106w-107s†	Criticism .....	III	TThS	113F	Mr. Firkins
110w	Romantic Movement.....	II	TThS	113F	Mr. Firkins

COMPARATIVE PHILOLOGY

No.	Title	Hour	Day	Building	Instructor
101f-102w†	Science of Language.....	VI	TTh	205F	Mr. Klaeber
103f	Universal Language.....	IV	TS	205F	Mr. Klaeber
105s	Life of Words.....	VI	TTh	205F	Mr. Klaeber
108f	Comparative Phonetics....	Ar	Ar	Ar	Mr. Kroesch

DRAWING AND DESCRIPTIVE GEOMETRY

No.	Title	Hour	Day	Building	Instructor
41-42-43f,w,s	Technical Drawing .....	I, II	MWF	13ME	Mr. Schuck, Mr. Cederberg
		III, IV	MWF		
		VI, VII	MWF		
44f,w,s	Lettering .....	II	F	205ME	Mr. Kirchner, Mr. Skagerberg
45f,w,s	Alphabets .....	II	TTh	205ME	Mr. Kirchner
47-48-49f,w,s	Drawing, Engraving and Decoration .....	IV	MWF	205ME	Mr. Kirchner

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

PROGRAM

ECONOMICS

No.	Title	Hour	Day	Building	Instructor
1f-2w†	Introduction to Economic History .....				Mr. Gras and others
	Lect.	III	TThS	Ar	
	Sec. 1	I	MW	102MA	
	2	I	MW	109MA	
	3	I	MW	209MA	
(Sections limited to 25 students each)	4	II	MW	6F	
	5	II	MW	321F	
	6	II	MW	303F	
	7	III	MW	Ar	
	8	IV	MW	209MA	
	9	IV	MW	306D	
	10	V	TTh	202MA	
	11	V	TTh	209MA	
	12	V	TTh	25F	
	13	VI	TTh	102MA	
	14	VI	TTh	209MA	
	15	VII	TTh	202MA(f)	
				102MA(w)	
	16	VII	TTh	109MA	
(1s)-2f†	Introd. to Economic History .....				Mr. Smith and others
	Lect.	III	TThS	202MA	
	Sec. 1	I	MW	3F	
(Sections limited to 25 students each)	2	II	MW	202MA	
	3	V	TTh	110F	
	4	VI	TTh	109MA	
1s-(2f)†	Introd. to Economic History .....				Mr. Smith and others
	Lect.	III	TThS	Ar	
	Sec. 1	I	MW	102MA	
	2	I	MW	109MA	
(Sections limited to 25 students each)	3	II	MW	6F	
	4	II	MW	303F	
	5	IV	TS	202MA	
	6	V	TTh	209MA	
	7	VI	TTh	202MA	
	8	VII	TTh	102MA	
*3f-4w†	Principles of Economics..				Mr. Hansen and others
	Lect.	I	M	301F	
	Sec. 1	I	TThFS	102MA	
(Sections limited to 25 students each)	2	IV	MWFS	102MA	
	3	V	MWThF	306D	
	4	VI	MWThF	202MA	
(3s)-4f†	Principles of Economics..				Mr. Kuhlman and others
	Sec. 1	III	MTThFS	Ar	
(Limited to 25 each)	2	IV	MTWFS	308D	
	3	VII	MTWThF	110F	

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

\* (Open to pre-business students only)

( ) Numbers in parenthesis do not refer to the year 1921-22: See *Course Numbering*, p. 128.

## SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
14	Elements of Statistics.....	5	Soph.	3-4
25-26†-27	Principles of Accounting....	8 or 11	Soph., jr., sr.	3-4, or concurrently with 3-4
41	Financial Hist. of U. S.....	3	Soph., jr., sr.	3-4
51-52-53†	Business Law .....		(See Political Science)	
54	Corporation Finance .....	3	Jr., sr.	143-144
59	Life Insurance.....	3	Jr., sr.	3-4
60	Property Insurance.....	3	Jr., sr.	3-4
62	Social Insurance .....	3	Jr., sr.	3-4
65	Colonization .....		(See Political Science)	
72	Econ. of Transportation.....	3	Jr., sr.	3-4
74	Transportation Problems....	3	Jr., sr.	72
85	Principles of Marketing.....	3	Jr., sr.	3-4
90	Economics of Consumption..		(See College of Agriculture bulletin)	
91	Prin. of Organ. & Mngt....	3	Jr., sr.	3-4
103-104†	Value and Distribution.....	6	Jr., sr., grad.	3-4
105	Hist. of Econ. Ideas.....	3	Jr., sr., grad.	103-104

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

PROGRAM

No.	Title	Hour	Day	Building	Instructor	
3w-4sf	Principles of Economics..				Mr. Hansen and others	
	Lect.	II	T	Ar		
	Sec.	I	TThFS	109MA		
		2	I	TThFS	209MA(w), 302D(s)	
		3	II	MWFS	308D	
		4	III	MTFS	308D	
		5	IV	MWFS	308D	
		6	V	MWThF	Ar	
		7	VI	MWThF	Ar	
	8	VII	MWThF	202MA		
3s-(4f)†	Principles of Economics..				Mr. Hansen and others	
	Lect.	III	W	Ar		
	Sec.	I	TThFS	102MA		
		2	II	MWFS	306D	
		3	III	TThFS	202MA	
		4	IV	MWFS	102MA	
(Limited to 25 each)		5	V	MWThF	102MA	
		6	VI	MWThF	Ar	
	14s	Elements of Statistics....				Mr. Mudgett and others
		Lect.	III	MTh	Ar	
		Sec.	I	V-VI	MTh	301MA
			2	VII-VIII	MTh	301MA
		3	V-VI	TF	301MA	
		4	VII-VIII	TF	301MA	
		5	I-II	MTh	301MA	
		6	III-IV	TF	301MA	
		7	I-II	TF	301MA	
	8	III-IV	WS	301MA		
	9	I-II	WS	301MA		
25f-26w†	Principles of Accounting.				Mr. Heilmart and others	
	Sec.	I	MWF	301MA		
		2	I	TThS	301MA	
		3	II	MWF	301MA	
		4	II	TThS	301MA	
		5	III	MWF	301MA	
		6	III	TThS	301MA	
		7	IV	MWF	301MA	
		8	V	MWF	301MA	
		9	V	MWF	209MA	
		10	VI	MWF	209MA	
	11	II	MWF	303MA		
(Limited to 18 each)	Lab.					
	Sec.	I	V, VI	M	303MA	
		2	I-II	T	303MA	
		3	V-VI	W	303MA	
		4	V, VI	Th	303MA	
		5	V-VI	F	303MA	
		6	VI-VII	M	301MA	
		7	VI-VII	T	301MA	
		8	VI, VII	W	301MA	
		9	VI-VII	Th	301MA	
		10	VI-VII	F	301MA	
		11	VII-VIII	T	303MA	
		12	VII, VIII	W	303MA	
	13	VII-VIII	Th	303MA		

(A student must take both lecture and laboratory in order to receive credit for this course.)

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

( ) Numbers in parenthesis do not refer to the year 1921-22: See *Course Numbering*, p. 128.

No.	Title	Credits	Offered to	Prerequisite courses
106	Land Economics.....	5	Sr., grad.	3-4
107‡	Land Tenure.....		(See College of Agriculture bulletin)	
108	Marketing of Farm Products		(See College of Agriculture bulletin)	
112	Business Statistics.....	3	Jr., sr., grad.	14
113	Theory of Statistics.....	3	Jr., sr., grad.	14
[118-119-120†	Econ. Hist of Eur. and U.S., 1750 to the Present..	9	(See History	113-114-115)]
121-122-123†	Econ. Hist. of Eur., 1300-1750 .....	9	(See History	116-117-118)†
143-144†	Money and Banking.....	8	Jr., sr., grad.	3-4
146	Investments .....	3	Jr., sr., grad.	54, 143-144
149	Business Cycles.....	3	Jr., sr., grad.	143-144, 54 or 146
153	The Trust Problem.....	3	Jr., sr., grad.	54 and 91
154	Public Utilities.....	3	Jr., sr., grad.	54
157	Police Power.....	5	(See Political Science)	
158	Government and Business...	3	(See Political Science)	
160	Economic Motives .....	3	Jr., sr., grad.	3-4, Psy. 1-2-3
161	Labor Problems and Trade Unionism .....	3	Jr., sr., grad.	3-4
162	Labor Movement in America	3	Jr., sr., grad.	161
167-168	Industrial Relations.....	6	Jr., sr., grad.	91 and 161
169	Labor and Socialist Movement in Europe.....	3	Jr., sr., grad.	161
176	Commercial Policies .....	3	Jr., sr., grad.	3-4
191-192†	Public Finance .....	6	Jr., sr., grad.	3-4
193	State and Local Taxation....	3	Jr., sr., grad.	191-192

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

‡ Given at University Farm.

[ ] Not offered in 1921-22.

NOTE: For courses primarily for graduates, see the School of Business bulletin.



PROGRAM

No.	Title	Hour	Day	Building	Instructor
		14	III-IV	T	303MA
		15	II-III	Th	303MA
		16	I-II	S	303MA
		17	III-IV	S	303MA
		18	III-IV	F	303MA
25w-26s†	Principles of Accounting.				Mr. Heilman and others
	Lect.				
	Sec. 1	III	MWF	102MA	
	2	I	TThS	107F	
	Lab.				
	Sec. 1	V-VI	T	303MA	
	2	III-IV	W	303MA	
	3	VII-VIII	M	303MA	
(25s)-26ff	Principles of Accounting.				
	Lect.	III	MWF	102MA	
	Lab.	V-VI	T	303MA	
27s	Principles of Accounting.	I	TThS	209MA	
		V	MWF	209MA	
(Required of all students who intend to specialize in accounting.)					
41s	Financial History of the United States .....	I	MWF	202MA	Mr. Blakey
51f-52w-53s†	Business Law.....	See Political Science 51f 52w-53s			
54s	Corporation Finance.....				
	Lect.	III	S	Ar	Mr. Stehman
	Sec. 1	II	TTh	302D	
	2	III	TTh	102MA	
	3	III	MW	202MA	
	4	IV	MW	209MA	
	5	V	TTh	202MA	
	6	VI	TTh	102MA	
59f	Life Insurance.....	III	TThS	102MA	Mr. Mudgett
60s	Property Insurance.....	III	TThS	209MA	Mr. Mudgett
62w	Social Insurance.....	III	TThS	202MA	Mr. Mudgett
65w	Colonization .....	See Political Science 65w			
72f	Econ. of Transportation..	V	MWF	202MA	Mr. Cummings
74s	Transportation Problems..	V	MWF	202MA	Mr. Cummings
85f	Principles of Marketing..				
	Sec. 1	I	TThS	202MA	Mr. Pelz
90w	Economics of Consumption .....	See College of Agriculture bulletin			
91w	Principles of Organization and Management....	I	TThS	202MA	Mr. Pelz
103f-104w†	Value and Distribution...	VI	MWF	102MA	Mr. Garver
105s	History of Econ. Ideas...	VII	MWF	102MA	Mr. Garver
106s‡	Land Economics.....	See College of Agriculture bulletin			
107s	Land Tenure.....	See College of Agriculture bulletin			
108w	Marketing of Farm Products .....	See College of Agriculture bulletin			
112f	Business Statistics.....	II	TThS	202MA	Mr. Mudgett
113w	Theory of Statistics.....	II	TThS	213MA	Mr. Mudgett
121f-122w-123s	Econ. Hist. of Europe, 1300-1750 .....	See History 116-117-118			

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

( ) Numbers in parenthesis do not refer to the year 1921-22; See *Course Numbering*, p. 128.

## EDUCATION

## COLLEGE OF EDUCATION

## DEPARTMENT OF EDUCATIONAL ADMINISTRATION AND SUPERVISION

No.	Title	Credits	Offered to	Prerequisite courses
119	The Elementary School Curriculum .....	3	Sr., grad.	1 or 101-102-103 and 3
124-125-126	Educ. Adminis. ....	9	Sr., grad.	121
164	Prob. of High-School Admin. ....	3	Sr., grad.	1 and 3
167-168	Junior High School.....	4	Sr., grad.	1 and 3
174	State School Finance.....	2	Sr., grad.	10 cr. educ. or Econ. 3-4
180	Junior College.....	2	Sr., grad.	Educ. 1, 3, and 113 or 164

## DEPARTMENT OF HISTORY AND PHILOSOPHY OF EDUCATION

No.	Title	Credits	Offered to	Prerequisite courses
1	Brief Course in Hist. of Edu.	5	Jr., sr. ‡	Psych. 6 credits (1-2-3)
3	Educational Sociology.....	3	Jr., sr. ‡	Psych. 6 credits, or Soc. 1

‡ Does not count as a Senior College course. Not open to sophomores under the rule on p. 20.

PROGRAM

No.	Title	Hour	Day	Building	Instructor
143f-144wf	Money and Banking.....				Mr. Dowrie and others
	Lect.	IV	T	Lit Th	
	Sec. 1	VII	MTW	209MA	
	2	II	MWF	102MA	
	3	III	MWF	202MA	
	4	II	TThS	302D	
	5	III	TThS	209MA	
	6	V	MWF	102MA	
146s	Investments .....	VII	MTW	209MA	Mr. Ebersole
149s	Business Cycles .....	VIII	MTW	209MA	Mr. Ebersole
153w	Trust Problem .....	II	MWF	213MA	
154s	Public Utilities.....	II	MWF	102MA	
157w	Police Power.....	See	Political Science	157w	
158s	Government and Business	See	Political Science	158s	
160s	Economic Motives.....	VI	MWF	202MA	Mr. Dickinson
161f	Labor Problems and Trade Unionism.....				
	Lect.	IV	MW	202MA	Mr. Hansen
	Sec. 1	IV	F	202MA	
	2	IV	F	209MA	
	3	IV	T	102MA	
162w	Labor Movement in America .....	IV	MWF	202MA	Mr. Hansen
167w-168s	Industrial Relations.....	II	TThS	209MA	Mr. Dickinson
169s	Labor and Socialist Move- ment in Europe.....	IV	MWF	202MA	Mr. Hansen
176f	Commercial Policies.....	I	MWF	202MA	Mr. Blakey
191f-192wf	Public Finance.....	III	MWF	209MA	Mr. Blakey
193s	State and Local Taxation	III	MWF	209MA	Mr. Blakey

EDUCATION

EDUCATIONAL ADMINISTRATION AND SUPERVISION

No.	Title	Hour	Day	Building	Instructor
119w	School Curriculum.....	VII	MWF	102Ed	
124f-125w-126s	Educational Administra- tion .....	VIII	MWF	205Ed	Mr. Sies
164w	Prob. of H.S. Admin...	II	TThS	102Ed	Mr. Koos
167f-168w	Junior High School.....	VIII, IX	Th	112	Mr. Koos
174w	Public School Finance...	VI	TTh	102Ed	Mr. Swift
180s	Junior College.....	VIII, IX	Th	102Ed	Mr. Koos

DEPARTMENT OF HISTORY AND PHILOSOPHY OF EDUCATION

No.	Title	Hour	Day	Building	Instructor
1f	Brief Course in History of Education—				
	1	II	MWThFS	102Ed	Miss Alexander
	2	IV	MTWFS	205Ed	Miss Alexander
	3	VI	MTWThF	205Ed	Miss Alexander
1w	Brief Course in History of Education .....	II	MTWThF	205Ed	Miss Alexander
1s	Brief Course in History of Education .....	II	MTWThF	205Ed	Miss Alexander
3f	Educational Sociology....				
	Sec. 1	II	MWF	205Ed	Mr. Finney
	2	III	MWF	205Ed	Mr. Finney
3w,s	Educational Sociology....	III	MWF	205Ed	Mr. Finney

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

No.	Title	Credits	Offered to	Prerequisite courses
48	Pub. Educ. in the U. S. . . . .	3	Jr., sr. ‡	6 cr. in Psych.
101	Foundations of Mod. Educ.	3	Jr., sr.	Psych. 6 credits and 6 cr. in hist.
102	Hist. of Mod. Secondary and Higher Education . . . . .	3	Jr., sr., grad.	Same as for 101
103	Hist. of Mod. Elem. Educ. . . . .	3	Jr., sr., grad.	Same as for 101
129-130	Educational Classics . . . . .	6	Jr., sr., grad.	1 or 101-102-103
131-132	Compar. School Systems . . . . .	6	Jr., sr., grad.	1 or 101-102-103
[146	Hist. and Prin. of Religious Education . . . . .	3	Jr., sr., grad.	10 cr. in educ. or psych. or both]
148T	Public Educ. in the U. S. . . . .	2	Jr., sr., grad.	10 cr. in educ. or psych. or both

## EDUCATIONAL PSYCHOLOGY

## COLLEGE OF EDUCATION

No.	Title	Credits	Offered to	Prerequisite courses
40	Child Training . . . . .	3	Jr., sr.	HE37, Psych. 6 cr.
45	Elem. Educ. Psychology . . . . .	3	Soph., jr., sr.	10 cred. in psych.
106-107-108	Adv. Educ. Psychology . . . . .	9	Jr., sr., grad.	45 or equiv.
111	Educational Diagnosis . . . . .	3	Jr., sr., grad.	45 or equiv.
126-127	Methods in Educ. Research . . . . .	4	Jr., sr., grad.	Permission of instructor
128	Review of Statistical Studies . . . . .	2	Jr., sr., grad.	126-127
134-135-136	Mental Tests and Mental Diagnosis . . . . .	6	Jr., sr., grad.	45 or equiv.
138-139	Experimental Education . . . . .	4	Jr., sr., grad.	45 or equiv.
149-150-151	Psycho-Educational Clinic . . . . .	3 to 9	Jr., sr., grad.	Ed. 134-135 or equiv.
153-154-155	Research Problems . . . . .	Ar	Sr., grad.	Consult instructor
156	Psychol. of Vocational Educ. . . . .	2	Jr., sr., grad.	45 or equiv.

## ENGLISH, RHETORIC, AND PUBLIC SPEAKING

## COURSES IN ENGLISH

No.	Title	Credits	Offered to	Prerequisite courses
A-B-C	Freshman English . . . . .	15	All	None
1-2-3	English Survey . . . . .	9	Soph., jr., sr.	9 cr. in Rhet.
4	Old English . . . . .	4	Soph., jr., sr.	A-B-C or equiv.
6	Chaucer . . . . .	4	Soph., jr., sr.	A-B-C or equiv.
8	Shakespeare . . . . .	4	Soph., jr., sr.	A-B-C or equiv.
27	Hist. of English Language . . . . .	2	Soph., jr., sr.	4
40	Bible as Literature . . . . .	4	Soph., jr., sr.	A-B-C or equiv.
[41	Browning and Tennyson . . . . .	4	Soph., jr., sr.	A-B-C or equiv.]

‡ Does not count as a Senior College course. Not open to sophomores under the rule on p. 20.

[ ] Not offered in 1921-22.

No.	Title	Hour	Day	Building	Instructor
48w	Public Education in the U. S.....	VI	MWF	102Ed	Mr. Swift
48s	Public Education in the U. S..... (Offered at U. Farm)	VI	MWF	Farm	Miss Alexander
101f	Found. of Modern Educ.	VII	MWF	205Ed	Mr. Swift
102w	Hist. of Modern Secondary and Higher Educ..	VII	MWF	205Ed	Mr. Swift
103s	Hist. of Modern Elem. Education .....	VII	MWF	205Ed	Mr. Swift
129w-130s	Educational Classics.....	VI	MWF	205Ed	Mr. Swift, Miss Alexander
131w-132s	Comparative School Systems .....	III	MWF	102Ed	Miss Alexander
148Tf	Advanced Course in Public Educ. in the U.S..	I, II	S	205Ed	Mr. Swift

EDUCATIONAL PSYCHOLOGY

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Building	Instructor
40f	Child-Training .....	See College of Agriculture		bulletin	
45f,s	Elem. Educ. Psychology..	I	MWF	Psy	Miss Dealey
45w	Elem. Educ. Psychology..	IV	MWF	Psy	
106f-107w-108s	Adv. Educ. Psychology...	III	MWF	Psy	
111s	Educational Diagnosis...	II	MWF	Psy	Mr. Van Wageningen
126f-127w	Meth. in Educ. Research.	VIII-IX	T	Psy	Mr. Van Wageningen
128s	Review of Statist. Studies	VIII-IX	T	Psy	Mr. Van Wageningen
134f-135w-136s	Mental Tests and Mental Diagnosis .....	VI-VII	TTh	Psy	Miss Dealey
138w-139s	Experimental Education..	VIII, IX	MW	Psy	Mr. Van Wageningen
149f-150w-151s	Psycho-Educ. Clinic.....	11:30-1:30	MWF	MH	Miss Dealey
153f-154w-155s	Research Problems.....	Ar	Ar	Psy	Mr. Haggerty, Mr. Van Wageningen
156s	Psychol. of Vocational Educ. ....	I, II	S	Psy	Miss Dealey

ENGLISH, RHETORIC, AND PUBLIC SPEAKING

COURSES IN ENGLISH

No.	Title	Hour	Day	Building	Instructor
A-B-C	Freshman English (See Rhetoric)				
1-2-3	English Survey.....				
	Sec. 1	Lect. II	M	Ar	
		Rec.	WF	114F	
	Sec. 2	Lect. VI	T	Ar	
		Rec.	WF	205F	
4w,s	Old English.....	V	MTThF	205F(w) 204F(s)	
6f	Chaucer .....	VII	MWThF	204F	
6w	Chaucer .....	IV	MTWF	205F	
6s	Chaucer .....	II	TWFS	204F	Ar
8f	Shakespeare .....	I	TWFS	204F	Ar
		V	MTThF	204F	Ar
8w	Shakespeare .....	I	TWFS	204F	Ar
		V	MTThF	204F	Ar
8s	Shakespeare .....	I	TWFS	204F	Ar
		IV	MTWF	204F	Ar
27w	History of English Lang.	VIII	TTh	204F	Mr. Klaeber
40f	Bible as Literature.....	III	MWF	301F	Mr. Burton
44f-45w†	American Literature.....	IV	MWF	204F	Mr. Moore

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

No.	Title	Credits	Offered to	Prerequisite courses
44-45†	American Literature.....	6	Soph. jr.	A-B-C or equiv.
51	Spenser .....	3	Jr., sr.	A-B-C or equiv.
53	Seventeenth-Century Lyrists.	4	Jr., sr.	A-B-C or equiv.
58-59†	Nineteenth-Century Prose...	6	Jr., sr.	A-B-C or equiv.
62	Milton .....	4	Jr., sr.	A-B-C or equiv.
64	Bacon .....	3	Jr., sr.	A-B-C or equiv.
66	English Novel .....	4	Jr., sr.	A-B-C or equiv.
[70	Masterpieces of Elizabethan Drama .....	4	Jr., sr.	8]
101	Middle English .....	2	Jr., sr., grad.	4, 6
103	Beowulf .....	3	Jr., sr., grad.	4, and either 6 or 8
105-106†	Eighteenth-Century Poetry..	6	Jr., sr., grad.	Any two of 4, 6 and 8
[107-108†	Eighteenth-Century Prose...	6	Jr., sr., grad.	Any two of 4, 6 and 8]
109-110†	Romantic Poets .....	6	Jr., sr., grad.	Any two of 4, 6 and 8
111-112†	Seventeenth-Century Prose..	6	Sr., grad.	Any two of 4, 6 and 8
123-124-125†	Victorian Novelists.....	9	Jr., sr., grad.	Any two of 4, 6 and 8
129	Modern Drama .....	4	Jr., sr., grad.	8, and either 4 or 6
[131	Formal Satire.....	4	Jr., sr., grad.	Any two of 4, 6 and 8]
[133	Ballads .....	3	Jr., sr., grad.	Any two of 4, 6 and 8]
136	Adv. Shakespeare .....	4	Jr., sr., grad.	8, and either 4 or 6. See note
140	Advanced Chaucer .....	4	Jr., sr., grad.	6, and either 4 or 8. See note
[141-142-143†	Historical Grammar.....	6	Sr., grad.	4, and either 6 or 8]
[145	Medieval Allegory.....	4	Jr., sr., grad.	6, and either 4 or 8]
146-147†	Metrical Romances.....	6	Jr., sr., grad.	6, and either 4 or 8
[150	Victorian Poetry.....	4	Jr., sr., grad.	Any two of 4, 6 and 8]
151	Recent Poetry.....	4	Jr., sr., grad.	Any two of 4, 6 and 8
[152	Pre-Elizabethan Drama.....	4	Jr., sr., grad.	8, and either 4 or 6]
[155	American Novel.....	4	Jr., sr., grad.	Either 8 cred. in any two of 4, 6 and 8, or 4 cr. and 44-45]
160	Medieval Drama.....	4	Jr., sr., grad.	8, and either 4 or 6
201	Old English.....		Consult Graduate School bulletin	
202-203	Old English Poetry.....		Consult Graduate School bulletin	
208	Piers the Plowman.....		Consult Graduate School bulletin	
228-229-230	Seminary in Eighteenth Cen- tury Novel.....		Consult Graduate School bulletin	
234-235-236	Seminary in Middle English Literature .....		Consult Graduate School bulletin	

[ ] Not offered in 1921-22.

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

NOTE: A-B-C, as a prerequisite, has for its equivalent English 1-2-3 and 9 credits in rhetoric.

Note to 136: Open without further prerequisites to students receiving B in English 8.

Note to 140: Open without further prerequisites to students receiving B in English 6.

PROGRAM

No.	Title	Hour	Day	Building	Instructor
51f	Spenser .....	VI	MWF	204F	Ar
53f	Seventeenth-Century Lyristis .....	II	MTWF	205F	Mr. Moore
58w-59s†	Nineteenth-Century Prose	II	TThS	205F	Mr. Beach
62w	Milton .....	VI	MTThF	204F	
64s	Bacon .....	VI	MWF	204F	
66f	English Novel.....	IV	MTWF	9F	Mr. Burton
101f	Middle English.....	V	TTh	212F	Mr. Klaeber
103s	Beowulf .....	V	MWF	205F	Mr. Klaeber
105w-106s†	Eighteenth-Century Poetry	VII	MWF	204F	Mr. Moore
109f-110w†	Romantic Poets.....	III	TThS	204F	Mr. Beach
111w-112s†	Seventeenth-Century Prose .....	III	MWF	204F	Mr. Moore
123f-124w-125s†	Victorian Novelists.....	4 to 6 o'clock	T	205F	Mr. Beach
129f	Modern Drama.....	II	MWThF	301F	Mr. Burton
136s	Advanced Shakespeare....	I	MTThF	205F	
140s	Advanced Chaucer.....	IV	MTWF	205F	
146f-147w†	Metrical Romances.....	VII	MWF	205F	
151s	Recent Poetry.....	III	TWThS	213F	Mr. Beach
160s	Medieval Drama.....	VII	MWThF	205F	

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

## COURSES IN RHETORIC

No.	Title	Credits	Offered to	Prerequisite courses
A-B-C 4-5-6	Freshman English..... Composition for Technical Students .....	15 9	All All	None None
11-12-13	Description, Narration, and Exposition .....	9	Soph., jr., sr.	A-B-C, 1-2-3, or 4-5-6
15-16-17	Exposition and Argument...	9	Soph., jr., sr.	A-B-C, 1-2-3, or 4-5-6
31	Technical Writing.....	3	Soph., jr., sr.	4-5-6
[100-101	Versification .....	6	Jr., sr., grad.	See note]
103-104-105	Studies in Structure and Style .....	9	Jr., sr., grad.	11-12-13, or 15-16- 17
107	Imitative Writing.....	4	Jr., sr., grad.	See note
109-110	Short-Story Writing.....	6	Jr., sr., grad.	See note
111-112-113	Essay-Writing .....	9	Jr., sr., grad.	11-12-13, or 15-16- 17
115-116-117	Dramatic Technique.....	9	Jr., sr., grad.	See note
119-120-121	Seminar in Writing.....	9	Sr., grad.	See note

[ ] Not offered in 1921-22.

NOTES: Course 100-101. Open to those who have taken 11-12-13 or 15-16-17, and who have taken or are taking nine hours in the historical study of English poetry.

Course 107, 109-110. Open to those who have taken 11-12-13 or 15-16-17 and received a grade of A or B in one quarter.

Course 115-116-117. Open to those who have taken 11-12-13 and have taken or are taking English 129.

Course 119-120-121. Open with special permission to seniors and graduates. Prerequisites 11-12-13, and nine additional credits in rhetoric.



PROGRAM

COURSES IN RHETORIC

No.	Title	Hour	Day	Building	Instructor	
(Aw-Bs)-Cf	Freshman English.....	Lect.	III	W	Ar	
		Rec.	II	MTThS		
			V	MTThF		
			VII	MTThF		
Af-Bw-Cs	Freshman English.....	Lect.	II	M	Ar	
		Rec.	I	TThFS		
			II	TThFS	Ar	
		Lect.	IV	T		
		Rec.	III	MWFS	Ar	
			IV	MWFS		
		Lect.	VI	T	Ar	
		Rec.	V	MWThF		
	VI	MWThF				
Aw-Bs.(Cf)	Freshman English.....		VII		(Spring, MTThF)	
		Lect.	III	W	Ar	
		Rec.	II	MTThS		
			V	MTThF		
4f-5w-6s	Composition for Tech. Students .....		VII	MTThF		
			I	MWF	Assigned on registration	
			II	MWF	Assigned on registration	
			VII	MWF	Assigned on registration	
			I	TThS	Assigned on registration	
4w-5s	Composition for Tech. Students .....		II	TThS	Assigned on registration	
			II	TThS	Assigned on registration	
11f-12w-13s	Description, Narration, and Exposition.....		II	MWF	306F	Mr. Ruud
			III	MWF	306F	Mr. Hillhouse
			IV	MWF	306F	
			V	MWF	304F	Miss Chase
			VI	MWF	306F	
			II	TThS	304F	Mr. Hustvedt
			III	TThS	306F	Mrs. Phelan
15f-16w-17s	Exposition and Argument.	II	MWF	304F		
31	Tech. Writing.....	Consult	Engin. School	Bul.		
103f-104w-105s	Studies in Structure and Style .....		VI	MWF	304F	
			VI	MWF	304F	
107f	Imitative Writing .....	IV	MTWF	304F	Mrs. Phelan	
109w-110s	Short-Story Writing.....	IV	MWF	304F	Mrs. Phelan	
111f-112w-113s	Essay-Writing .....	III	MWF	304F	Mr. Sutcliffe	
115f-116w-117s	Dramatic Technique.....	III	TThS	304F	Ar	
119f-120w-121s	Seminar in Writing.....	V, VI	T	304F	Mr. Thomas	

( ) Numbers in parenthesis do not refer to the year 1921-22: See *Course Numbering*, p. 128.

## COURSES IN PUBLIC SPEAKING

No.	Title	Credits	Offered to	Prerequisite courses
11-12-13	Voice and Speech Correction	0	Soph., jr., sr.	See note
41-42-43	Public Speaking.....	9	Soph., jr., sr.	Rhet. A-B-C, 1-2-3, or 4-5-6
45-46	Public Speaking.....	10	Soph., jr., sr.	Rhet. A-B-C, 1-2-3, or 4-5-6
55-56-57	Arg. and Debate.....	9	Jr., sr.	41-42-43 or 45-46
81-82-83	Int. Reading.....	9	Jr., sr.	41-42-43 or 45-46
85-86-87	Adv. Pub. Speaking.....	9	Jr., sr.	41-42-43 or 45-46
91-92-93	Play Production.....	9	Jr., sr.	Eng. 8, Pub. Sp. 81-82-83
97	Adv. Debate.....	3	Jr., sr.	Intercollegiate de- baters and ora- tors

NOTE: Students who show special defects may be assigned to Courses 11-12-13.

## GEOLOGY AND MINERALOGY

No.	Title	Credits	Offered to	Prerequisite courses
1-2†	General Geology .....	10	3rd qu. fr., soph., jr., sr.	Course in chem.
[4	Geology of Minnesota.....	3	Soph., jr., sr.	Geol. 1]
7-8	General Geol. Lab.....	2	3rd qu. fr., soph., jr., sr.	Supports 1-2
11-12‡	Introduction to Geology.....	8	3rd qu. fr., soph., jr., sr.	None
15‡	Minerals and Rocks.....	1	Jr., sr.	1 or 29
19	Elem. of Paleont. ....	5	Soph., jr., sr.	1-2
21-22†	Essent. of Mineralogy.....	6	Soph., jr., sr.	Course in chem.
23-24-25†	Elem. of Mineralogy.....	9	Soph., jr., sr.	Courses in chem.
27‡	Outlines of Mineralogy.....	1	Jr., sr.	None
29‡	General Physiog. ....	5	Soph., jr., sr.	None
[30‡	Principles of Geog. ....	5	Soph., jr., sr.	None; 1 or 29 de- sirable]
34‡	Meteorology .....	5	Soph., jr., sr.	None
37‡	Econ. and Commer. Geog..	5	Soph., jr., sr.	None
51-52†	Econ. Geol. ....	6	Jr., sr.	1-2
57-58-59	Paleontology .....	9	Jr., sr.	1-2
61	Blowpipe Anal. ....	3	Jr., sr.	22 or 25
[65	Crystallography .....	3	Jr., sr.	22]
67	Mineralogy of Chemical Ma- terials .....	3	Jr., sr.	Chem. 21, and in- dustrial chem- istry
85	Field Work in North. Minn.	6	Jr., sr.	2
91-92-93	Index Fossils of N. A.....	9	Jr., sr.	1-2

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

‡ Satisfies the Junior College requirement for science.

§ Does not satisfy the Junior College requirement for science.

¶ Does not count as a Senior College course. Not open to sophomores under the rule on p. 20.

[ ] Not offered in 1921-22.

COURSES IN PUBLIC SPEAKING

No.	Title	Hour	Day	Building	Instructor
11f-12w-13s	Voice and Speech Correction .....	Ar	Ar	Ar	Ar
41f-42w-43s	Public Speaking .....				
	Sec. 1	I	MWF	308F	Ar
	2	II	MWF	308F	Ar
	3	III	TThS	308F	Ar
	4	VI	MWF	308F	Miss Macnaughton
	5	I	TThS	308F	Mr. Lindsley
	6	II	TThS	308F	Mr. Lindsley
45f-46w	Public Speaking.....				
	Sec. 1	V	MTWThF	Ar	Ar
	2	VII	MTWThF	308F	Ar
45s-(46f)	Public Speaking.....				
	Sec. 1	IV	MTWFS	102F	Ar
	2	VII	MTWThF	301F	Ar
(45s)-46f	Public Speaking.....	V	MTWThF	308F	Ar
45w-46s	Public Speaking.....	V	MTWThF	308F	Ar
55f-56w-57s	Arg. and Debate.....	VI	MWF	102F	Mr. Lindsley
81f-82w-83s	Int. Reading.....	IV	MWF	308F	Mr. Rarig
85f-86w-87s	Adv. Public Speaking....	III	MWF	308F	Mr. Rarig
91f-92w-93s	Play Production.....	VII	MWF	212F	Miss Macnaughton
97f,w	Adv. Debate and Oratory.	Ar	Ar	308F	Mr. Lindsley, Mr. Rarig

GEOLOGY AND MINERALOGY

No.	Title	Hour	Day	Building	Instructor
1f-2w†	General Geology.....	I	TWThFS	210P	Mr. Thiel
		III	MTThFS	110P	Mr. Emmons
		VI	MTWThF	110P	Mr. Allison
1w-2s†	General Geology.....	II	MWThFS	210P	Mr. Werner
1s-2w†	General Geology.....	III	MTThFS	110P	Mr. Emmons
7f-8w	General Geology Lab....	Ar	Ar	112P	Mr. Allison
7w-8s	General Geology Lab....	Ar	Ar	112P	Mr. Allison
7s	General Geology Lab....	Ar	Ar	112P	Mr. Allison
11f-12w†	Introduction to Geology..	VII	MTWThF	200aP	Mr. Werner
15s	Minerals and Rocks.....	Ar	Ar	100P	Mr. Gruner
19s	Elements of Paleontology.	I	MTWThF	110P	Mr. Stauffer
21w-22s†	Essentials of Mineralogy.				
	Lect.	IV	MWF	210P	Mr. Broderick
	Lab.	V-VIII	F	100P	Mr. Broderick
	Lab.	III	MWF	100P	Mr. Broderick
23f-24w-25s†	Elements of Mineralogy..	Consult Mines Program		Ar	Mr. Broderick
27s	Outlines of Mineralogy...	Ar	Ar	Ar	Mr. Gruner
29f	General Physiography....	III	MTThFS	210P	
34w	Meteorology .....	III	MTThFS	210P	
37s	Econ. and Com. Geog....	III	MTThFS	210P	
51f-52w†	Economic Geology.....	II	MWF	210P	Mr. Schwartz
57f-58w-59s	Paleontology .....	II, III	TThS	105P	Mr. Stauffer
61f	Blowpipe Analysis.....	Consult Mines Program			Mr. Broderick
67w	Mineralogy of Chemical Materials .....	Consult Chem. Program.			Mr. Grout
85s	Field Work in Northern Minnesota .....				Mr. Gruner, Mr. Thiel
9ff-92w-93s	Index Fossils.....				Mr. Schwartz
	Lect.	II	M	105P	Mr. Stauffer
	Lab.	VI, VII	WF	105P	Mr. Stauffer

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

( ) Numbers in parenthesis do not refer to the year 1921-22: See *Course Numbering*, p. 128.

No.	Title	Credits	Offered to	Prerequisite courses
[101	Princip. of Stratig.....	3	Jr., sr., grad.	24-25]
105	Rock Study.....	3	Jr., sr., grad.	22 or 25
106	Petrography.....	3	Jr., sr., grad.	105
107-108-109	Paleontologic Practice.....	9	Jr., sr., grad.	57-58-59
111	Ore Deposits.....	3	Jr., sr., grad.	2, 105
112	Geology of Petroleum.....	3	Sr., grad.	111
113	Prob. in Ore Deposits.....	3	Sr., grad.	112
114	Geog. of N. A. ....	5	Jr., sr.	34 or 37
[115	Geographic Influences.....	3	Jr., sr.	114]
[116	Geog. of S. A.....	3	Jr., sr., grad.	114]
[117	Resources and Trade.....	3	Jr., sr., grad.	37, 116 or 117]
[118	Geography of Europe.....	3	Jr., sr., grad.	114]
[119	Geography of Asia.....	3	Jr., sr., grad.	116 or 118]
124-125	Structural and Metamorphic Geology.....	6	Sr., grad.	2, 105
131-132-133	Advanced Petrology.....	9	Jr., sr., grad.	106
137	Testing Economic Minerals..	3	Jr., sr., grad.	2, 105
140-141	Applied Petrography.....	6	Jr., sr., grad.	131
144-145	Const. and Inter. of Geologic Maps.....	6	Jr., sr., grad.	2
150	Field Geol. (Black Hills)....	Ar	Jr., sr., grad.	See members of department
151-152-153	Adv. General Geology.....	9	Jr., sr., grad.	2
166-167	Mineralography.....	6	Sr., grad.	111

## GRADUATE COURSES

211	Advanced Paleontology.....	Consult the bulletin of the Grad- uate School
214	Seminar in Ore Deposits....	Consult the bulletin of the Grad- uate School
220	Glacial Geology.....	Consult the bulletin of the Grad- uate School
241	Field Course in Geology....	Consult the bulletin of the Grad- uate School
243-244	Research Course in Geology	Consult the bulletin of the Grad- uate School
246	Pre-Cambrian Geology.....	Consult the bulletin of the Grad- uate School
247	Geology and Exploration of Lake Superior Region.....	Consult the bulletin of the Grad- uate School
251-252	Original Problems.....	Consult the bulletin of the Grad- uate School
253-254	Research Course in Ore De- posits.....	Consult the bulletin of the Grad- uate School
263-264	Research Course in Petrology	Consult the bulletin of the Grad- uate School
289-290	Research Course in Geog- raphy.....	Consult the bulletin of the Grad- uate School

[ ] Not offered in 1921-22.

PROGRAM

No.	Title	Hour	Day	Building	Instructor
105f	Rock Study.....	V, VI	TTh	110P	Mr. Grout
106w	Petrography .....	V, VI	TTh	200P	Mr. Grout
107f-108w-109s	Paleontologic Practice....	VI, VII	MWF	105P	Mr. Stauffer
111f	Ore Deposits.....	I	TThS	110P	Mr. Emmons
112w	Geology of Petroleum....	I	TThS	110P	Mr. Emmons
113s	Prob. in Ore Deposits...	Ar	Ar	104P	Mr. Emmons
114f	Geog. of North America. I	I	TThS	200aP	
124w-125s	Struct. and Met. Geol....	III	MWF	200aP	Mr. Schwartz
131f-132w-133s	Adv. Petrology.....	Ar	Ar	200P	Mr. Grout
137w	Testing Econ. Minerals..				
	Lect.	VIII	W	200P	Mr. Grout
	Lab.	V-VIII	T	200P	Mr. Grout
140w-141s	Applied Petrography.....	Ar	TThS	200P	Mr. Grout
144w-145s	Const. and Int. of Geol.				
	Maps .....	V-VII	TTh	104P	Mr. Allison
150s	Field Geol. (Black Hills)				Mr. Emmons,
					Mr. Schwartz
151f-152w-153s	Adv. General Geology....	IV	MWF	200aP	Mr. Stauffer
166w-167s	Mineralography .....	Ar	Ar	Ar	Mr. Broderick

## GERMAN

No.	Title	Credits	Offered to	Prerequisite courses
1	Beginning, A.....	5	All	None
2	Beginning, B.....	5	All	1 or 1 yr. prep. German
3	Beginning, C.....	5	All	2
4-5-6†	Beginning, Chemists, Miners.	9	Chem., miners	None
7	Intermed., Chemists, Miners.	3	Chem., miners	6 or 1 yr. prep. German
10	Rapid Reading .....	5	All	3 or 2 yrs. prep. German
11	Adv. Rapid Reading.....	5	All	10 or 3 yrs. prep. German
14	19th Century Prose.....	5	All	11 or 4 yrs. prep. German
15	Narrative Prose for Pre-medics .....	4	Pre-med.	2 yrs. prep. Germ.
25-26†	Elementary Scientific .....	6	Chem., miners	7
27	Narrative Prose for Chemists	3	Chemists	2 yrs. prep. Germ.
28-29†	Adv. Chemical German.....	6	Chem., miners	15
31-32†	Medical German .....	6	Pre-medics	10 or 15
40	Commercial German .....	5	All	10
50-51-52†	Composition .....	3	Jr., sr.	11 or 14 or 4 yrs. prep. German
53-54-55†	Conversation .....	3	Jr., sr.	11 or 14 or 4 yrs. prep. German
56-57-58†	Essay-Writing .....	6	Jr., sr.	52
63	Modern Drama .....	3	Jr., sr.	11 or 14

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

PROGRAM

GERMAN

No.	Title	Hour	Day	Building	Instructor
1f	Beginning A.....	I	TWThFS	207F	Ar
		II	MWThFS	207F	Ar
		IV	MTWFS	207F	Ar
		VI	MTWThF	207F	Ar
1w	Beginning A.....	I	TWThFS	209½F	Ar
		V	MTWThF	209½F	Ar
		VI	MTWThF	209½F	Ar
1s	Beginning A.....	II	MWThFS	209½F	Ar
		V	MTWThF	207F	Ar
		VI	MWThFS	209F	Ar
2f	Beginning B.....	II	MWThFS	209F	Ar
		VI	MTWThF	209½F	Ar
		I	TWThFS	207F	Ar
		II	MWThFS	207F	Ar
2w	Beginning B.....	IV	MTWFS	207F	Ar
		VI	MTWThF	207F	Ar
		I	TWThFS	209½F	Ar
		II	MWThFS	207F	Ar
2s	Beginning B.....	V	TWThFS	209½F	Ar
		VI	MTWThF	209½F	Ar
		I	TWThFS	209½F	Ar
3f	Beginning C.....	IV	MTWThF	209F	Ar
		V	MTWFS	209F	Ar
		VI	MTWThF	209F	Ar
3w	Beginning C.....	II	MWThFS	209F	Ar
		VI	MTWThF	209½F	Ar
		I	TWThFS	207F	Ar
3s	Beginning C.....	II	MWThFS	207F	Ar
		IV	MTWFS	207F	Ar
		VI	MTWThF	207F	Ar
		III	MTWF	209F	Ar
4f-5w-6s†	Begin. for Chemists.....	III	MTWF	207F	Ar
7f	Chemists Intermediate....	III	MTWF	207F	Ar
		III	TThS	212F	
10f	Rapid Reading.....	II	MWThFS	212F	
		IV	MTWFS	209½F	
		VI	MTWThF	212F	Ar
10w	Rapid Reading.....	IV	MTWFS	209F	
		V	MTWThF	207F	Ar
		II	MWThFS	209F	
10s	Rapid Reading.....	VI	MTWThF	209½F	Ar
		II	MWThFS	209½F	Ar
11f	Adv. Rapid Reading.....	II	MWThFS	212F	
11w	Adv. Rapid Reading.....	II	MWThFS	212F	
		VI	MTWThF	212F	
11s	Adv. Rapid Reading.....	IV	MTWFS	209F	
14s	19th-Century Prose.....	II	MTThFS	212F	
15f	Narrative Prose for Pre-Medics .....	I	MTWTh	209F	
		III	TThS	212F	
25w-26s†	Elementary Scientific.....	III	MTWTh	209F	
27f	Narrative Prose for Chemists .....	III	MWF	209½F	
		III	MWF	209½F	Ar
28w-29s†	Adv. Chem. German.....	III	MWF	209½F	
(31s)-32f†	Medical German.....	I	MWF	209½F	
31f-32w†	Medical German.....	I	MWF	212F	
31w-32s†	Medical German.....	I	MWF	209F	
31s-(32f)†	Medical German.....	I	TThS	209F	Ar
		I	MWF	212F	
40w	Commercial German.....	V	MTWThF	302D	
50f-51w-52s†	Composition .....	III	W	227F	Mr. Laughlin
53f-54w-55s†	Conversation .....	IV	TS	101F	Mr. Laughlin
56f-57w-58s†	Essay-Writing .....	IV	TS	212F	Mr. Burkhard
63f	Modern Drama.....	IV	MWF	212F	Mr. Davies
63s	Modern Drama.....	II	MWF	125F	Mr. Downs

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

( ) Numbers in parenthesis do not refer to the year 1921-22: See *Course Numbering*, p. 128.

No.	Title	Credits	Offered to	Prerequisite courses
64	Classic Drama .....	3	Jr., sr.	14 or 63
65	Survey through Reformation.	3	Jr., sr.	3 cr. above 50
66	Survey 18th Century.....	3	Jr., sr.	3 cr. above 50
67	Survey 19th Century.....	3	Jr., sr.	3 cr. above 50
72	Drama since 1880 (Sudermann) .....	3	Jr., sr.	9 cr. above 50
73	Drama since 1880 (Hauptmann) .....	3	Jr., sr.	9 cr. above 50
74	German Poets.....	3	Jr., sr.	63 or 64
77	Faust, Part I.....	3	Jr., sr.	6 cr. above 50
100-101-102†	Middle High German.....	9	Sr., grad.	9 cr. above 50
107	Historical German Grammar	3	Sr., grad.	9 cr. above 50
108	Comparative Phonetics .....	3	Sr., grad.	9 Sr. Col. cr. in mod. lang.
[109-110-111]†	Hist. of German Language..	9	Sr., grad.	9 cr. above 50]
[150-151-152	Novelle .....	3	Sr., grad.	9 cr. above 50]
153-154-155†	Aspects; Hebbel, Ludwig, Anzengruber .....	9	Sr., grad.	9 cr. above 50
160-161-162†	Lyric Poetry .....	9	Sr., grad.	9 cr. above 50
225-226-227†	Literary Problems .....	9	Grad., sr. with major in Ger.	Major in German

NOTE: Courses numbered 50 to 100 are open without petition to sophomores who have the prerequisites and who satisfy the requirements given on page 20.

## GREEK

No.	Title	Credits	Offered to	Prerequisite courses
1-2†-3	Beginning Greek .....	15	All	None
4-5-6	History and Epic Poetry....	10 or 15	All	1-2-3
7	Everyday Greek.....	3	Soph., jr., sr.	1 yr. of language
51	Philosophy .....	3	Jr., sr.	4-5, or 4-6, or 5-6
52	Oratory .....	3	Jr., sr.	4-5, or 4-6, or 5-6
53	Dramatic Poetry .....	3	Jr., sr.	51, or 52
105	Lyric Poetry.....	3	Sr., grad.	51 & 53, or 52 & 53
106‡	Advanced Drama.....	3	Sr., grad.	53 or 105
107‡	Advanced Prose .....	3	Sr., grad.	51-52, or 51-53, or 52-53
108‡	Advanced Epic Poetry.....	3	Sr., grad.	105 or 106
109‡	New Testament .....	3	Jr., sr., grad.	51 and 52

*Courses for which no knowledge of Greek is required*

42‡	Sculpture .....	2	Jr., sr.	None
43‡	Drama .....	2	Jr., sr.	None
44‡	Literature and Life.....	2	Jr., sr.	None
45‡	Mythology .....	2	Jr., sr.	None

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

‡ Courses 106 and 107 are offered alternately.

§ Courses 108 and 109 are offered alternately.

¶ Does not count as a Senior College course. Not open to sophomores under the rule on p. 20.

[ ] Not offered in 1921-22.



PROGRAM

No.	Title	Hour	Day	Building	Instructor
64w	Classic Drama.....	IV	MWF	212F	Mr. Davies
65s	Survey through Reform..	III	TThS	209½F	Mr. Kroesch
66f	18th-Century Survey.....	III	TThS	209½F	Mr. Burkhard
67w	19th-Century Survey.....	III	TThS	209½F	Mr. Burkhard
72w	Drama since 1880 (Sudermann) .....	IV	MWF	209½F	Mr. Schlenker
73s	Drama since 1880 (Hauptmann) .....	IV	MWF	209½F	Mr. Schlenker
74s	German Poets.....	IV	MWF	212F	Mr. Davies
77f	Faust I.....	IV	MWF	102F	Mr. Schlenker
100f-101w-102s†	Middle High German....	V	MWF	212F	Mr. Kroesch
107f	Historical German Grammar .....	Ar	Ar	Ar	Mr. Kroesch
108w	Comp. Phonetics.....	Ar	Ar	Ar	Mr. Kroesch
153f-154w-155s†	Aspects, Hebbel, Ludwig, Anzengruber .....	V, VI, VII	Th	209F	Mr. Burkhard
160f-161w-162s†	Lyric Poetry.....	V, VI, VII	F	209F	Mr. Davies
225f-226w-227s†	Lit. Problems.....	V, VI, VII	W	209F	Mr. Schlenker

GREEK

No.	Title	Hour	Day	Building	Instructor
1f-2w†-3s	Beginning Greek.....	IV	MTWFS	114F	Mr. Savage, Miss Strong
4f-5w-6s	History and Epic Poetry.	III	MTThFS	115F	Mr. Savage, Miss Strong
7f,w	Every-day Greek.....	VII	MWF	114F	Mr. Savage
51f	Philosophy .....	Ar	Ar	114F	Mr. Savage
52w	Oratory .....	Ar	Ar	114F	Mr. Savage
53s	Dramatic Poetry .....	Ar	Ar	114F	Mr. Savage
105f	Lyric Poetry.....	Ar	Ar	112F	Mr. Savage
106w	Advanced Drama.....	Ar	Ar	112F	Mr. Savage
107w	Advanced Prose.....	Ar	Ar	112F	Mr. Savage
108s	Advanced Epic Poetry....	Ar	Ar	112F	Mr. Savage
109s	New Testament .....	Ar	Ar	112F	Mr. Savage
<i>Courses for which no knowledge of Greek is required</i>					
42s	Greek Sculpture.....	VI	TTh	114F	Mr. Savage
43f	Greek Drama.....	VI	TTh	114F	Mr. Savage
44w	Greek Literature and Life	VI	TTh	114F	Mr. Savage
44s	Greek Literature and Life	I	WF	114F	Mr. Savage
45f	Greek Mythology.....	I	MW	114F	Mr. Savage
45w	Greek Mythology.....	I	WF	114F	Mr. Savage

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

## HISTORY

No.	Title	Credits	Offered to	Prerequisite courses
1-2†	Modern World .....	10	All	None
3-4†	England, 1066 to Present....	10	All	None
5-6†	American Hist.....	10	3rd qu. fr., soph., jr., sr.	None (for fr., 10 credits)
9-10†	Introd. to Econ. Hist.....	10	3rd qu. fr., soph., jr., sr.	10 cr.
11-12-13†	Medieval History .....	10	3rd. qu. fr., soph., jr., sr.	10 cr.

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

PROGRAM

HISTORY

No.	Title	Hour	Day	Building	Instructor
1f-2w†	Modern World .....				
	Lect.	II	MWS	Lit Th	Mr. Ford, Mr. Krey, Mr. Tyler
	Sec. 1	II	TTh	306D	
	2	II	TTh	308D	
	3	III	TTh	6F	
	4	III	TTh	3F	
	5	V	TTh	107F	
	6	V	TTh	113F	
	7	VI	TTh	5F	
	8	VI	TTh	107F	
	9	VII	TTh	111Lib	
	10	VII	TTh	112Lib	
1w-2s†	Modern World .....				
	Lect.	III	TThS	Lit Th	Mr. Tyler
	Sec. 1	I	MW	3F	
	2	II	MW	3F	
	3	II	MW	305F	
	4	III	MW	Ar	
	5	V	MW	Ar	
3f-4w†	England, 1066 to Present				
	Lect.	VI	MWF	Lit Th	Mr. White
	Sec. 1	I	TTh	112Lib	
	2	V	TTh	114F	
	3	IV	TS	302D	
	4	IV	TS	113F	
	5	VI	TTh	306F	
	6	VI	TTh	101F	
3s-(4w)†	England, 1066 to Present				
	Lect.	III	MWF	306D	Mr. White
	Sec. 1	V	TTh	112Lib	
	2	IV	TS	112Lib	
	3	IV	TS	113F	
	4	VI	TTh	112Lib	
	5	VI	TTh	113F	
5f-6w†	American History.....				
	Lect.	VI	MWF	301F	Mr. Alvord, Mr. Shippee
	Sec. 1	VI	TTh	Ar	
	2	II	TS	Ar	
	3	IV	TS	306F	
	4	III	TS	112Lib	
(5s)-6f†	American History.....	III	MTThFS	306D	Mr. Shippee
5s-(6f)†	American History.....	III	MWF	301F	Mr. Alvord
	Sec. 1	III	TS	306D	
	2	IV	TS	306F	
	3	VI	TTh	111Lib	
9f-10w†	Introd. to Econ. Hist....				
	Lect.	III	TThS	Ar	Mr. Gras, Mr. Mudgett, Mr. Dickin- son
11f-12w-13s†	Medieval History.....	III	MWF	112Lib	Mr. Krey
			MTWF(s)		

Sections. See Economics 1-2, Economics program.

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

( ) Numbers in parenthesis do not refer to the year 1921-22; See Course Numbering, p. 128.

No.	Title	Credits	Offered to	Prerequisite courses
25	World Politics .....	5	3rd qu. fr., soph., jr., sr.	10 cr. and Pol. Sci. I
33-34† 101-102	Eng. Leg. Institutions..... French Revolution: Napole- onic Era.....	5 6	Soph., jr., sr. Jr., sr., grad.	Hist. 3-4 15 cr. hist. or 20 cr. soc. sci. incl. 10 in hist.
103	Near East: Old Orient.....	3	Jr., sr., grad.	20 cr. soc. sci. or 15 hist.
104	Near East: Modern.....	5	Jr., sr., grad.	20 cr. soc. sci. or 15 hist.
105‡	History of Rome.....	5	Jr., sr., grad.	20 cr. soc. sci. or 15 hist.
107-108	Europe, 1848-1914 .....	8	Jr., sr., grad.	20 cr. soc. sci. or 15 hist.
109-110	English Hist., 1815-1920.....	6	Jr., sr., grad.	20 cr. soc. sci. or 15 hist.
111	Eur. Background and Amer. Immigration .....	4	Jr., sr., grad.	20 cr. soc. sci. or 15 hist.
112	American Immigration .....	4	Jr., sr., grad.	20 cr. soc. sci. or 15 hist.
[113-114-115†	Econ. Hist. of Eur. and U.S.	9	Jr., sr., grad.	20 cr. hist., econ., or both]
116-117-118†	Econ. Hist. of Eur., 1300- 1750 .....	9	Jr., sr., grad.	20 cr. hist., econ., or both
119	Renaiss. and Reform. ....	5	Jr., sr., grad.	20 cr.
120	Medieval Civilization.....	5	Jr., sr., grad.	20 cr.
121-122†	Eng. Background of Amer. Col. ....	6	Jr., sr., grad.	20 cr. hist. or pol. sci.
125	Amer. Diplom. Hist. ....	4	Jr., sr., grad.	20 cr., incl. Hist. 5-6 or 10 cr. in pol. sci.
127	Amer. For. Rel. ....	4	Jr., sr., grad.	20 cr., incl. Hist. 5-6 or 10 cr. in pol. sci.
133	Political Hist.: Greece.....	5	Jr., sr., grad.	20 cr. or major in Greek or Latin
134	Ancient Civil.: Greece.....	3	Jr., sr., grad.	20 cr. incl. 133, or equiv., or major in Greek or Latin and con- sent of instruc- tor
135	Ancient Civiliz.: Rome.....	3	Jr., sr., grad.	20 cr. incl. 105, or equiv., or major in Greek or Latin and con- sent of instruc- tor
140	Rec. Amer. Hist.....	5	Jr., sr., grad.	20 cr. soc. sci. incl. 5-6
141	West in Amer. Hist. to 1815	3	Jr., sr., grad.	20 cr. soc. sci. or 15 cr. hist. incl. 5-6†

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

‡ Not open to students who took 135 in 1920-21, except by consent of instructor.

[ ] Not offered in 1921-22.

PROGRAM

No.	Title	Hour	Day	Building	Instructor
25f	World Politics.....	V	MTWThF	112Lib	Mr. Tyler, Mr. Quigley
33w-34s†	Eng. Legal Institutions..	II	MW(w) MWF(s)	112Lib	Mr. White
101f-102w†	French Revolution: Na- poleonic Era.....	I	MWF	112Lib	Mr. Ford
103f	Near East: Old Orient...	VII	MWF	111Lib	Mr. Davis
104w	Near East: Modern.....	III	MTThFS	111Lib	Mr. Davis
105s	History of Rome.....	III	MTThFS	111Lib	Mr. Davis
107f-108w	Europe, 1848-1914.....	VI	MTThF	111Lib	Mr. Tyler
109f-110w	English History, 1815-1920	IV	MWF	111Lib	Mr. Tyler
111w	European Background and American Immigration..	V	TWThF	111Lib	Mr. Stephenson
112s	American Immigration...	V	TWThF	111Lib	Mr. Stephenson
116f-117w-118s†	Econ. Hist. Europe, 1300- 1750 .....	II	TThS	111Lib	Mr. Gras
119s	Renaissance and Reform.	IV	MTWFS	111Lib	Mr. Krey
120f	Medieval Civilization.....	IV	MTWFS	112Lib	Mr. Krey
121w-122s†	English Background of American Colonization..	II	TThS	112Lib	Mr. White
125w	American Diplomatic Hist.	III	MTWF	213MA	Mr. Wright
127s	American Foreign Rela- tions .....	III	MWFS	213MA	Mr. Wright
133f	Pol. Hist.: Greece.....	III	MTThFS	111Lib	Mr. Davis
134w	Ancient Civilization: Greece .....	VII	MWF	111Lib	Mr. Davis
135s	Ancient Civilization: Rome .....	VII	MWF	111Lib	Mr. Davis
140s	Recent American History.	I	TWThFS	111Lib	Mr. Shippec
141f	West in Amer. Hist. to 1815 .....	VII	MWF	112Lib	Mr. Buck

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

No.	Title	Credits	Offered to	Prerequisite courses
142	West in Amer. Hist., 1815-1865 .....	3	Jr., sr., grad.	20 cr. soc. sci. or 15 cr. hist. incl. 5-6†
144-145†	Hist. of Minn.....	6	Jr., sr., grad.	20 cr. soc. sci. incl. hist. 5-6, or consent of instr.]
146-147†	Constitutional Hist. of U. S.	6	Jr., sr., grad.	15 cr. hist. or 10 cr. hist. and 10 cr. soc. sci. incl. pol. sci. I
148-149-150†	British Empire in 18th Cent.	9	Jr., sr., grad.	20 cr. soc. sci., incl. 10 in hist.
153	Topics, West since 1865....	5	Sr., grad.	20 cr. incl. 5-6
154	Topics, Minnesota.....	5	Sr., grad.	20 cr. incl. 5-6]
155	United States, 1850-1865....	5	Sr., grad.	20 cr. incl. 5-6
156	U. S.: Reconstruction.....	5	Sr., grad.	20 cr. incl. 5-6]
157-158	Topics, 19th Century.....	10	Sr., grad.	20 cr. incl. 107-108 or 101-102
160	Topics, American Colonial...	5	Sr., grad.	20 cr., incl. 5-6† or 148-149-150†
162	Begin. of Parliament.....	5	Sr., grad.	20 cr., knowledge of high-school Latin
164	Studies in Crusades.....	5	Sr., grad.	20 cr., knowledge of high-school Latin
166	Topics, Hist. of Immig.....	5	Sr., grad.	20 cr., consent of instructor
169	Econ. Hist. U.S. since Civil War .....	5	Sr., grad.	20 cr. hist. or econ.]
183	Stuart Period .....	5	Sr., grad.	20 cr., incl. 3-4]
201-202-203	Bibliography and criticism..	9	Grad.	See Grad. bulletin
205-206-207	Seminar, econ. history.....	9	Grad.	See Grad. bulletin
208-209-210	Seminar, Amer. History.....	9	Grad.	See Grad. bulletin

## HOME ECONOMICS

## COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

NOTE: Only courses with 15 credits prerequisite will count as Senior College courses.

No.	Title	Credits	Offered to	Prerequisite courses
<i>Junior College Courses</i>				
3	Textiles .....	5	All	None
11	Garment-Making .....	3	All	None
13	Dressmaking .....	5	Soph., jr., sr.	3, 11, 51
21	Foods and Cookery.....	5	Soph., jr., sr.	Chem. 5 cr. physiol. 3 parallel
22	Food Economics .....	5	Soph., jr., sr.	21
37	Home Care of the Sick....	3	Jr., sr.	Chem. 5 cr., and bact.

† The entire course must be completed before credit is received for any quarter.  
 [ ] Not offered in 1927-22.

PROGRAM

175

No.	Title	Hour	Day	Building	Instructor
142w	West in Amer. Hist. 1815-1866 .....	VII	MWF	112Lib	Mr. Shippee
146w-147s†	Const. Hist. of U. S....	IV	MWF	112Lib	Mr. Shippee
148f-149w-150s†	British Empire in the 18th Century .....	II	MWF.	218aLib	Mr. Alvord
153s	Topics, West since 1865..	VI-VII	WF	218aLib	Mr. Buck
155f	U. S., 1850-1865.....	VI-VII	WF	218aLib	Mr. Shippee
157w-158s	Topics, 19th Century....	VI-VII	TTh	218aLib	Mr. Ford, Mr. Tyler
160w	Topics, American Colonial	VII-VIII	MW	218aLib	Mr. Alvord
162f	Begin. of Parliament....	VII-VIII	TTh	218aLib	Mr. White
164w	Studies in Crusades.....	VII-VIII	TTh	Ar	Mr. Krey
166f	Topics, Hist. of Immigra.	VI-VII	TTh	Ar	Mr. Stephenson

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

HOME ECONOMICS

For program, see bulletin of College of Agriculture, Forestry, and Home Economics.

No.	Title	Credits	Offered to	Prerequisite courses
51	Drawing and Design.....	3	All	None
52	Art Hist. and Appreciation..	3	Jr., sr.	51
53	Advanced Design .....	4	Jr., sr.	51
70	Food Preparation in Relation to Social Work.....	3	Soph., jr., sr.	An. Biol. 1-2, chem. 10 cr. ad- vised
<i>Senior College Courses</i>				
17	Adv. Clothing Construction.	3	Jr., sr.	13, 52, 53
34	Home Management: Opera- tion and Maintenance, Lect.	3	Jr., sr.	21, Economics 3-4
40	Child-Training .....	3	Jr., sr.	37, Psychol. 1-2
71	Elementary Dietetics for the Social Workers .....	3	Soph., jr., sr.	70, Physiol. 3 or parallel
72	Home-Management Problems	3	Soph., jr., sr.	71, Econ. 7 or parallel
123	Clothing Economics .....	2	Jr., sr.	13, or Econ. 7

## HUMAN ANATOMY

Students in this college may elect courses in human anatomy (see Medical School program) only by arrangement with the head of the Department of Anatomy.

## HUMAN PHYSIOLOGY

### MEDICAL SCHOOL

For other courses in Human Physiology, consult the bulletin of the Medical School.

No.	Title	Credits	Offered to	Prerequisite courses
4	Human Physiology.....	5	All	Biol. and chem. (h.s. or col.)
56	Physiologic Chemistry.....	4 or 5	Jr., sr.	Biol. and Chem.
57-58	Human Physiology.....	8	Jr., sr.	Biol. and Chem.
100-101	Physiologic Chemistry.....	12	Jr., sr.	Org. chem., physics, an. biol.
103	Physiology of Muscles, etc..	8	Jr., sr.	An. biol. org. chem. and physics
104	Physiology of Nerv. System, etc. ....	8	Jr., sr.	Same as 103

## JOURNALISM

No.	Title	Credits	Offered to	Prerequisite courses
13-14-15†	Reporting .....	9	Soph., jr., sr.	One year rhet.
51-52†	Editing .....	6	Jr., sr.	13-14-15
55	Special Feature Stories.....	3	Jr., sr.	13-14-15
61	Editorial-Writing .....	3	Sr.	Econ. 3-4, Pol. Sci. 1, Hist. 1-2, Soc. 1
65	Newspaper Problems .....	3	Sr.	51-52 or 55
67	Pract. Newspaper Work.....	1, 2, or 3	Sr.	51-52 or 55

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



HUMAN ANATOMY

Students in this college may elect courses in human anatomy (see Medical School program) only by arrangement with the head of the Department of Anatomy.

HUMAN PHYSIOLOGY

COLLEGE OF MEDICINE

No.	Title	Hour	Day	Building	Instructor
4f-w-s	Human Physiology.....	I, II, III	Th	315MH	Miss Greisheimer, et al.
56s	Physiologic Chemistry....	I	MTWFS	310MH	Mr. Pettibone, et al.
		V, VI, VII	W		
57w-58s	Human Physiology.....	I	TThS	301MH	Mr. Lyon, et al.
		V, VI, VII	W		
100f-101w	Physiologic Chemistry....	I, II, III	TThS	310MH	Mr. McClendon, Mr. Pettibone, Mr. Kingsbury
		IV	MWF		
103f	Physiology of Muscles, etc.	IV, V, VI, VII	MWF	301MH	Mr. Scott, et al.
104w	Physiol. of Nerv. Sys., etc.	IV, V, VI, VII	MWF	301MH	Mr. Scott, et al.

JOURNALISM

No.	Title	Hour	Day	Building	Instructor
13f-14w-15s†	Reporting .....	I	MWF	2F	Mr. Barlow
51f-52w†	Editing .....	V-VI	MW	2F	Mr. Barlow
		V	F		
55s	Special Feature Stories...	V	MWF	2F	Mr. Barlow
61f	Editorial-Writing .....	II	MWF	2F	Mr. Barlow
65w	Newspaper Problems.....	II	MWF	2F	Mr. Barlow
67s	Practical Newspaper Work	Ar	Ar	2F	Mr. Barlow

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

## LATIN

*Junior College Courses*

No.	Title	Credits	Offered to	Prerequisite courses
1-2†	Beginning Latin .....	10	All	None
3	Caesar .....	5	All	1-2, or 1 yr. Latin
11	Selections .....	5	All	1-2, 3, or 2 or 3 yrs. Latin
12	Selections: Survey.....	5	All	1-2, 3, or 2 or 3 yrs. Latin
13	Ovid .....	5	All	1-2, 3, or 2 or 3 yrs. Latin
21	Livy .....	5	All	Any 2 of 11, 12, 13, or 4 yrs. Latin
22	Plautus and Terence.....	5	All	Any 2 of 11, 12, 13, or 4 yrs. Latin
23	Horace .....	5	All	Any 2 of 11, 12, 13, or 4 yrs. Latin

*Students entering second quarter.* Students with two or three years of Latin may elect 12w. Students with four years of Latin may elect 22w.

*Students entering third quarter.* Students with two or three years of Latin may elect 13s. Students with four years of Latin may elect 23s.

*Senior College Courses*

51	Pliny's Letters .....	3	Jr., sr.	Any 2 of 21, 22, 23, or equiv.
52	Apuleius, Short Stories.....	3	Jr., sr.	Any 2 of 21, 22, 23, or equiv.
53	Suetonius, Selected Lives....	3	Jr., sr.	Any 2 of 21, 22, 23, or equiv.
[61	Roman Literature and Life..	3	Jr., sr	Any 2 of 21, 22, 23, or equiv.]
121	Advanced Virgil.....	3	Jr., sr., grad.	Any 2 of 51, 52, 53, or equiv.
[122	Cicero's Letters.....	3	Jr., sr., grad.	Any 2 of 51, 52, 53, or equiv.]
[123	Medieval Latin.....	3	Jr., sr., grad.	Any 2 of 51, 52, 53, or equiv.]
[131	Juvenal .....	3	Jr., sr., grad.	Any 2 of 51, 52, 53, or equiv.]
132	Seneca's Epistles .....	3	Jr., sr., grad.	Any 2 of 51, 52, 53, or equiv.
133	Petronius and Vulgar Latin.	3	Jr., sr., grad.	Any 2 of 51, 52, 53, or equiv.
[201-202-203	Grad. Sem. Anns. of Tacitus	3]		
211-212-213	Grad. Sem.: Lucretius.....	3		

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

[ ] Not offered in 1921-22.

NOTE: Courses 51, 52, and 53 are open without petition to sophomores who have the prerequisites and who satisfy the requirements given on page 20.

PROGRAM

LATIN

*Junior College Courses*

No.	Title	Hour	Day	Building	Instructor
1f-2w†	Beginning Latin.....	IV	MTWFS	109F	Mr. Cram
3s	Caesar .....	IV	MTWFS	109F	Mr. Cram
11f	Selections .....	III	MTThFS	109F	Mr. Cram
12w	Selections: Survey.....	III	MTThFS	109F	Mr. Cram
13s	Ovid .....	III	MTThFS	109F	Mr. Cram
21f	Livy .....	IV	MTWFS	107F	Mr. Pike
22w	Plautus and Terence.....	IV	MTWFS	107F	Mr. Pike
23s	Horace .....	IV	MTWFS	107F	Mr. Pike

*Senior College Courses*

51f	Pliny's Letters .....	I	MWF	107F	Mr. Pike
52w	Apuleius, Short Stories... I	I	MWF	107F	Mr. Pike
53s	Suetonius, Selected Lives. I	I	MWF	107F	Mr. Pike
121f	Advanced Virgil.....	II	MWF	107F	Mr. Pike
132w	Seneca's Letters.....	II	MWF	107F	Mr. Pike
133s	Petronius and Vulgar Latin .....	II	MWF	107F	Mr. Pike
211-212-213	Grad. Seminar: Lucretius	Ar	Ar	108F	Mr. Pike

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

## MATHEMATICS

*Junior College Courses*

No.	Title	Credits	Offered to	Prerequisite courses
1	Higher Algebra .....	5	All	1 yr. elem. alg.
6¶	Trigonometry .....	5	All	1, or prep. high. alg.
7¶	College Algebra.....	5	All	6
8¶	Commerce Algebra.....	5	Pre-bus. stu.	1, or prep. high. alg.
16	Solid Geometry .....	5	All	6 and 7
20	Mathematics of Investment..	5	All	8, or 6 and 7
30	Analytical Geometry .....	5	All	6 and 7

*Senior College Courses*

50	Calculus I.....	5	Jr., sr.	30
51	Calculus II.....	5	Jr., sr.	50
52	Calculus III.....	5	Jr., sr.	51
62-63	Theory of Equations.....	6	Jr., sr.	50
70	History of Elem. Math.....	3	Jr., sr.	30
71	Solid Analytic Geom.....	3	Jr., sr.	50
[80-81-82	Mechanics .....	9	Jr., sr.	50 and 51§]
102-103-104	Adv. Analytic and Synthetic Geom. ....	9	Jr., sr., grad.	50
106-107-108	Adv. Calc. and Differential Equations .....	9	Jr., sr., grad.	52
140‡	Method of Least Squares...	3	Jr., sr., grad.	51

NOTE: Courses 50, 51, and 52 are open without petition to sophomores who have the prerequisites and who satisfy the requirements given on page 20.

Courses in Functions of a Real Variable, Modern Higher Algebra, Projective Geometry, Differential Geometry, and the Mathematics of Small Vibrations, listed in the Graduate School bulletin, are open to properly qualified juniors and seniors. For more information consult the chairman of the Department of Mathematics.

The department offers the following courses primarily for graduate students: Theory of Functions of a Complex Variable, Theory of Numbers, Galois Theory of Equations and Calculus of Variations.

For Graduate Courses consult Graduate School bulletin.

¶ Courses 6 and 8 involve some duplication of material, and no student may take both without special permission. No student may receive credit for both of courses 7 and 8. Pre-business students who elect mathematics to meet the requirement of 10 credits in mathematics or laboratory science, should take courses 1 and 8 if they have not had high-school higher algebra, and courses 8 and 20 if they have had high-school higher algebra.

§ Course 80-81-82 may be taken simultaneously with Course 50-51.

‡ Identical with Astronomy 140.

[ ] Not offered in 1921-22.

MATHEMATICS

No.	Title	Hour	Day	Building	Instructor
1f	Higher Algebra.....				
	Sec. 1	II	MWThFS	104F	Ar
	2	IV	MTWFS	104F	Ar
	3	V	MTWThF	104F	Ar
	4	VII	MTWThF	104F	Ar
1w	Higher Algebra.....				
	Sec. 1	V	MTWThF	105F	Ar
	2	VII	MTWThF	105F	Ar
1s	Higher Algebra.....				
	Sec. 1	III	MTThFS	105F	Ar
	2	VI	MTWThF	104F	Ar
6f	Trigonometry .....				
	Sec. 1	I	TWThFS	102F	Ar
	2	II	MWThFS	105F	Ar
	3	VI	MTWThF	104F	Ar
	4	VII	MTWThF	105F	Ar
6w	Trigonometry .....				
	Sec. 1	I	TWThFS	104F	Ar
	2	II	MWThFS	104F	Ar
	3	IV	MTWFS	104F	Ar
	4	V	MTWThF	104F	Ar
	5	VII	MTWThF	104F	Ar
6s	Trigonometry .....				
	Sec. 1	I	TWThFS	105F	Ar
	2	V	MTWThF	105F	Ar
	3	VII	MTWThF	105F	Ar
7f	College Algebra.....	IV	MTWFS	105F	Mr. Brink
7w	College Algebra.....				
	Sec. 1	I	TWThFS	102F	Ar
	2	VI	MTWThF	104F	Ar
7s	College Algebra.....				
	Sec. 1	II	MWThFS	104F	Ar
	2	IV	MTWFS	104F	Ar
8f	Commerce Algebra.....	I	TWThFS	105F	Ar
8w	Commerce Algebra.....	II	MWThFS	101F	Ar
16s	Solid Geometry.....	V	MTWThF	102F	Ar
20w	Mathematics of Invest- ment .....	I	TWThFS	105F	Mr. Hart
20s	Mathematics of Invest- ment .....	II	MWThFS	101F	Mr. Hart
30f	Analytical Geometry....	III	MTThFS	104F	Miss Gibbens
30w	Analytical Geometry....	IV	MTWFS	105F	Mr. Brink
30s	Analytical Geometry....	I	TWThFS	102F	Ar
50f	Calculus I .....	III	MTThFS	102F	Mr. Hart
50w	Calculus I .....	III	MTThFS	104F	Miss Gibbens
50s	Calculus I .....	IV	TWThFS	105F	Mr. Brink
51w	Calculus II .....	III	MTThFS	102F	Mr. Hart
51s	Calculus II .....	III	MTThFS	104F	Miss Gibbens
52f	Calculus III .....	III	MTThFS	101F	Mr. Underhill
52s	Calculus III .....	III	MTThFS	102F	Mr. Hart
62w-63s	Theory of Equations....	VI	MWF	101F	Mr. Hart
70s	History of Elem. Mathe- matics .....	I	MWF	101F	Mr. Shumway
71f	Solid Analytic Geometry..	VI	MWF	101F	Mr. Hart
102f-103w-104s	Adv. Anal. & Synthetic Geometry .....	II	MWF	102F	Mr. Bussey
106f-107w-108s	Adv. Calculus and Diff. Equations .....	III	MWF	125F	Mr. Jackson
140	Method of Least Squares	See	Astronomy		

## MILITARY SCIENCE AND TACTICS

No.	Title	Credits	Offered to	Prerequisite courses
1-2-3	First-Year Basic Course....	None	Fr.	None
4-5-6	Second-Year Basic Course	None	Soph.	1-2-3
51-52-53	First-Year Advanced Course		Jr.	4-5-6†
54-55-56	Second-Year Advanced Courses .....		Sr.	51-52-53

NOTE: The University allows three credits per quarter for advanced R.O.T.C. work, with a maximum of eighteen credits for the two years' work. The number of credits which can be counted toward the B.A. degree is six. See page 28.

## MUSIC

Courses in Music are not open to freshmen and sophomores except those working for a major in music.

No.	Title	Credits	Offered to	Prerequisite courses
1-2-3	Harmony .....	9	Fr. music	None
4-5-6	Counterpoint .....	6	Soph. music	1-2-3
7-8-9	Ear-Training .....	See note	Soph. music	1-2-3
10-11-12	First-Year Organ .....	6 or 12	Fr. music	
13-14-15	Second-Year Organ .....	6 or 12	Soph. music	10-11-12
16-17-18	First-Year Piano .....	6 or 12	Fr. music	
19-20-21	Second-Year Piano .....	6 or 12	Soph. music	16-17-18
22-23-24	First-Year Violin .....	6 or 12	Fr. music	
25-26-27	Second-Year Violin .....	6 or 12	Soph. music	22-23-24
28-29-30	First-Year Voice .....	6 or 12	Fr. music	
31-32-33	Second-Year Voice .....	6 or 12	Soph. music	28-29-30
34-35-36	First-Year Other Orchestral Instruments .....	6 or 12	Fr. music	
37-38-39	Second-Year Other Orchestral Instruments .....	6 or 12	Soph. music	37-38-39
40-41-42	Orchestra .....	3	Jr., sr.	
43-44-45	Choir .....	3	Jr., sr.	
46-47-48	Appreciation .....	3	Jr., sr.	
50-51-52	Third-Year Organ .....	6 or 12	Jr.	13-14-15
53-54-55	Fourth-Year Organ .....	6 or 12	Sr.	50-51-52
56-57-58	Third-Year Piano .....	6 or 12	Jr.	19-20-21
59-60-61	Fourth-Year Piano .....	6 or 12	Sr.	56-57-58
62-63-64	Third-Year Violin .....	6 or 12	Jr.	25-26-27
65-66-67	Fourth-Year Violin .....	6 or 12	Sr.	62-63-64
68-69-70	Third-Year Voice .....	6 or 12	Jr.	31-32-33
71-72-73	Fourth-Year Voice .....	6 or 12	Sr.	68-69-70
74-75-76	Third-Year Other Orchestral Instruments .....	6 or 12	Jr.	37-38-39
77-78-79	Fourth-Year Other Orchestral Instruments .....	6 or 12	Sr.	74-75-76
86-87-88	Normal Piano .....	6	Jr.	2 yrs. piano
89-90-91	Adv. Normal Piano .....	6	Sr.	86-87-88
100-101-102	Composition-Orchestration ..	9	Jr., sr.	1-2-3, 4-5-6
103-104-105	Analysis .....	3	Jr., sr.	1-2-3, 4-5-6
106-107-108	History of Music .....	9	Jr., sr.	1-2-3, 4-5-6
109-110-111	Bach-Beethoven .....	9	Sr.	106-107-108
112-113-114	Ensemble .....	3	Jr.	
115-116-117	Adv. Ensemble .....	3	Sr.	112-113-114
121-122-123	Romantic Movement .....	6	Jr., sr.	106-107-108
124-125-126	Adv. Harmony .....	6	Jr.	4-5-6
127-128-129	Adv. Counterpoint .....	6	Sr.	4-5-6

† Must be legally eligible for enrolment in Reserve Officers' Training Corps. Consult P. M. S. T.

NOTE: Course 7-8-9 carries 3 credits for freshmen; none for sophomores.

MILITARY SCIENCE AND TACTICS

No.	Title	Hour	Day	Building	Instructor
1f-2w	First-Year Basic Course..	II	MWF	A	Ar
		IV	MWF	A	Ar
		V	MWF	A	Ar
		VI	MWF	A	Ar
		VIII	MWF	A	Ar
3s	First-Year Basic Course..	VI-VIII	T or W	A	Ar
4f-5w	Second-Year Basic Course	I	MWF	A	Ar
		III	MWF	A	Ar
		VII	MWF	A	Ar
		VI-VIII	T or W	A	Ar
6s	Second-Year Basic Course	VI-VIII	T or W	A	Ar
51-52-53	First-Year Adv. Course..	Ar	Ar	Ar	Ar
54-55-56	Second-Year Adv. Course	Ar	Ar	Ar	Ar

MUSIC

No.	Title	Hour	Day	Building	Instructor
1f-2w-3s†	Harmony .....	II	MWF	Mu	Ar
		V	MWF	Mu	Ar
4f-5w-6s†	Counterpoint .....	III	TTh	Mu	Ar
7f-8w-9s	Ear-Training .....	V	T	Mu	Ar
10f-11w-12s	First-Year Organ.....	Ar	Ar	Mu	Ar
13f-14w-15s	Second-Year Organ.....	Ar	Ar	Mu	Ar
16f-17w-18s	First-Year Piano.....	Ar	Ar	Mu	Ar
19f-20w-21s	Second-Year Piano.....	Ar	Ar	Mu	Ar
22f-23w-24s	First-Year Violin.....	Ar	Ar	Mu	Ar
25f-26w-27s	Second-Year Violin.....	Ar	Ar	Mu	Ar
28f-29w-30s	First-Year Vocal Training	Ar	Ar	Mu	Ar
31f-32w-33s	Second-Year Vocal Training .....	Ar	Ar	Mu	Ar
34f-35w-36s	First-Year of Other Orchestral Instruments...	Ar	Ar	Mu	Ar
37f-38w-39s	Second-Year of Other Orchestral Instruments...	Ar	Ar	Mu	Ar
40f-41w-42s	Orchestra .....	VIII	TF	Armory	Ar
43f-44w-45s	University Choir.....	VIII	M	Mu	Ar
46f-47w-48s	Appreciation of Music...	V	M	Mu	Ar
50f-51w-52s	Third-Year Organ.....	Ar	Ar	Mu	Ar
53f-54w-55s	Fourth-Year Organ.....	Ar	Ar	Mu	Ar
56f-57w-58s	Third-Year Piano.....	Ar	Ar	Mu	Ar
59f-60w-61s	Fourth-Year Piano.....	Ar	Ar	Mu	Ar
62f-63w-64s	Third-Year Violin.....	Ar	Ar	Mu	Ar
65f-66w-67s	Fourth-Year Violin.....	Ar	Ar	Mu	Ar
68f-69w-70s	Third-Year Vocal Training .....	Ar	Ar	Mu	Ar
71f-72w-73s	Fourth-Year Vocal Training .....	Ar	Ar	Mu	Ar
74f-75w-76s	Third Year of Other Orchestral Instruments...	Ar	Ar	Mu	Ar
77f-78w-79s	Fourth Year of Other Orchestral Instruments...	Ar	Ar	Mu	Ar
86f-87w-88s	Normal Piano.....	VI	MWF	Mu	Ar
89f-90w-91s	Adv. Normal Piano.....	VII	MWF	Mu	Ar
100f-101w-102s	Composition-Orchestration .....	Ar	Ar	Mu	Ar
103f-104w-105s	Analysis .....	IV	W	Mu	Ar
106f-107w-108s	History of Music.....	II	MWF	Mu	Ar
109f-110w-111s	Bach and Beethoven.....	V, VI	TTh	Mu	Ar
112f-113w-114s	Ensemble .....	Ar	Ar	Mu	Ar
115f-116w-117s	Advanced Ensemble.....	Ar	Ar	Mu	Ar
121f-122w-123s	Romantic Movement.....	VI	MWF	Mu	Ar
124f-125w-126s	Advanced Harmony.....	Ar	Ar	Mu	Ar
127f-128w-129s	Advanced Counterpoint..	Ar	Ar	Mu	Ar

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

## PHILOSOPHY

Nine credits in psychology will be accepted as prerequisites in philosophy, except where "cr. in phil." are required.

No.	Title	Credits	Offered to	Prerequisite courses
1	Problems of Philosophy.....	5	Soph., jr., sr.	None
2	Logic .....	5	3rd qu. fr., soph., jr., sr.	None
3	Ethics .....	5	Soph., jr., sr.	None
10	Science and Religion.....	2	Soph., jr., sr.	10 cr. in phil. or a science
50	Ancient and Medieval Phi- losophy .....	5 or 3	Soph., jr., sr.	10 cr.; or 15 cr. phil. and soc. sci.
51	Modern Philosophy.....	5 or 3	Soph., jr., sr.	10 credits; or 15 cr. phil. and soc. sci.
55	Esthetics .....	3	Jr., sr.	10 credits
100-101-102	Philosophy of Religion.....	9	Jr., sr., grad.	10 credits
[104	History of Esthetics.....	3	Jr., sr., grad.	10 credits]
106	Philosophy of Education....	3	Sr., grad.	10 cr. in phil. or educ.
[108-109	History of Ethics.....	6	Jr., sr., grad.	20 cr. in soc. sci. or 10 in phil.]
[120	Scandinavian Philosophy.....	3	Jr., sr., grad.	10 credits]
124	Political and Social Ethics...	5	Jr., sr., grad.	20 cr. in soc. sci. or 10 in phil.
129	Modern Political Thought...	3	Jr., sr., grad.	20 cr. in soc. sci. or 10 in phil.
135	Philosophy of Plato.....	4	Jr., sr., grad.	10 credits
141	Metaphysics .....	3	Jr., sr., grad.	10 cr. in phil., including 2
[147	Advanced Logic .....	3	Jr., sr., grad.	10 cr. in phil., including 2]
[151-152-153	Kant and His Successors....	6	Sr., grad.	15 cr. in phil.]
161-162-163	Seminar in Philosophy.....	9	Sr., grad.	20 cr. in phil.

## PHYSICAL EDUCATION

## FOR MEN

No.	Title	Credits	Offered to	Prerequisite courses
1	Personal Hygiene.....	None	Fr.	None
2	Gymnasium and Swimming..	None	Fr.	None
3	Advanced Leaders.....	2	Soph., jr., sr.	Instructor's per- mission
4	Corrective Gymnastics .....	None	All	None
5	Wrestling .....	None	All	Instructor's per- mission
6	Intermediate Swimming.....	None	All	Instructor's per- mission
7	Advanced Swimming.....	None	All	Instructor's per- mission
8	Boxing .....	None	Fr.	Instructor's per- mission
9	Intramural Athletics.....	None	All	None

[ ] Not offered in 1921-22.



PHILOSOPHY

No.	Title	Hour	Day	Building	Instructor
1f	Problems of Philosophy..	VI	MTWThF	322F	Mr. Conger
1w	Problems of Philosophy..	III	MTThFS	321F	Mr. Swenson
1s	Problems of Philosophy..	V	MTWThF	322F	Mr. Conger
2f	Logic .....	III	MTThFS	321F	Mr. Swenson
		IV	MTWFS	321F	Mr. Conger
2w	Logic .....	VI	MTWThF	322F	Mr. Conger
		IV	MTWFS	321F	Mr. Conger
2s	Logic .....	III	MTThFS	5F	Mr. Swenson
		IV	MTWFS	321F	Mr. Conger
3f	Ethics .....	IV	MTWFS	322F	Mr. Wilde
3s	Ethics .....	I	TWThFS	322F	Mr. Wilde
10s	Science and Religion....	VI	TTh	301F	Mr. Conger
50w	Ancient and Medieval Phil. ....	IV	MTWFS	322F	Mr. Wilde
51s	Modern Philosophy.....	IV	MTWFS	322F	Mr. Wilde
55s	Esthetics .....	II	MWF	322F	Mr. Swenson
100f-101w-102s	Philosophy of Religion....	II	TThS	322F	Mr. Swenson
106w	Philosophy of Education..	II	MWF	322F	Mr. Swenson
124f	Political and Social Ethics	I	TWThFS	322F	Mr. Wilde
129w	Modern Political Thought	I	TThS	322F	Mr. Wilde
135s	Plato .....	VII	TTh	316F	Mr. Conger
141f	Metaphysics .....	Ar	Ar	316F	Mr. Swenson
161f-162w-163s	Seminar .....	Ar	Ar	316F	Mr. Wilde

PHYSICAL EDUCATION

FOR MEN

No.	Title	Hour	Day	Building	Instructor
1	Personal Hygiene and				
2	Gymnasium and Swimming.....				
	Sec. 1	II	TTh	A	Dr. Cooke, Mr. Roemer, Mr. Glidden
	2	III	TTh	A	Dr. Cooke, Mr. Roemer, Mr. Glidden
	3	V	TTh	A	Dr. Brown, Mr. Roemer, Mr. Glidden
	4	VI	TTh	A	Dr. Brown, Mr. Roemer, Mr. Glidden
	5	VII	TTh	A	Dr. Foster, Mr. Roemer, Mr. Glidden
3‡	Advanced Leaders.....	Ar	TThS	A	Dr. Foster, Mr. Roemer
4‡	Corrective Gymnastics .....	Ar	Ar	A	Dr. Brown
5‡	Wrestling .....	Ar	Ar	A	Mr. Gilman
6‡	Intermediate Swimming .....	Ar	Ar	A	Mr. Glidden
7‡	Advanced Swimming .....	Ar	Ar	A	Dr. Foster, Mr. Glidden
8‡	Boxing .....	Ar	Ar	A	Mr. Goldie
9‡	Intramural Athletics.....	Ar	Ar	A	Dr. Foster, Mr. Roemer

‡ No student may register for Courses 3 to 9 inclusive except with the consent of the department. The full course must be completed before credit is allowed.

## PHYSICAL EDUCATION

## FOR WOMEN

No.	Title	Credits	Offered to	Prerequisite courses
1-2-3†	Elem. Phys. Training.....	0	Required of all new students	None
4	Preliminary Hygiene.....	0	Required of all new students	None
7-8-9†	Sophomore Physical Training	0	Soph.	1-2-3
10-11-12	Soph. Orthopedic Gymnastics	0	Soph.	1-2-3
13-14-15	Soph. Interpretive Dancing..	0	Soph.	1-2-3
16-17-18§	Soph. Organized Games and Folk-Dancing .....	0	Soph.	1-2-3
19-20-21§	Sophomore Major Sports....	0	Soph.	1-2-3
22-23	Sophomore Elementary Swimming .....	0	Soph.	1-2-3
28-29	Sophomore Advanced Swimming .....	0	Soph.	1-2-3, Swimming test
32	Personal Hygiene.....	3	Soph., jr., sr.	An. Biol. 1-2
33	Hygiene of the Family.....	3	Jr., sr.	An. Biol. 1-2
34-35-36†‡	Intermed. Physical Training.	3	Jr., sr.	6 qtrs. of phys. tr. Permission of director
[37-38-39†	Advanced Physical Training.	3	Sr.	10-11-12; 37-38-39. Permission of director]
40-41-42†	Interpretive Dancing.....	3	Jr., sr.	6 qtrs. of phys. tr.
43-44-45§	Folk-Dancing and Organized Games .....	3	Jr., sr.	6 qtrs. of phys. tr.
46-47-48†	Hockey, Basket-Ball and Baseball. No registration necessary .....	0	Fr., jr., sr.	Permission of director
49	General Swimming. No registration necessary .....	0	All	None

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

‡ The third quarter of this course is open to students who have not had the first two quarters.

§ Students may enter any quarter.

[ ] Not offered in 1921-22.

## PHYSICAL EDUCATION

## FOR WOMEN

No.	Title	Hour	Day	Building	Instructor
1f-2w-3s†	Elem. Physical Train....	IV	MWF	3,151,153WGm	Ar
		V	MWF	3,151,153WGm	Ar
		VI	MWF	3,151,153WGm	Ar
		VII	MWF	3,151,153WGm	Ar
4f	Preliminary Hygiene....	III	TThS	3,151,153WGm	Ar
		I	M	201WGm	Dr. Norris
		II	T	201WGm	Dr. Norris
		IV	T	201WGm	Dr. Norris
		VII	T	201WGm	Dr. Norris
		III	W	201WGm	Dr. Norris
		IV	TS	3,153WGm	
7f-8w-9s†	Sophomore Physical Train.	V	TTh	3,153WGm	
10f-11w-12s	Soph. Orth. Gymnastics..	IV	TS	3,153WGm	
13f-14w-15s	Soph. Interpretive Dancing .....	V	TTh	3,153WGm	
		VII	TTh	151WGm	Miss Baker
16f-17w-18s‡	Soph. Org. Games and Folk Dancing.....	VIII	TTh	151WGm	Miss Baker
		III	MF	151WGm	Ar
19f-20w-21s‡	Soph. Major Sports.....	VIII	MW	151WGm	Ar
22f-23w-22s*	Soph. Elem. Swimming..	IV	MW	51WGm	Ar
		VI	MW	51WGm	Ar
		II	TTh	51WGm	Ar
		III	MTh	51WGm	Ar
		III	TF	51WGm	Ar
		IV	TS	51WGm	Ar
		VI	TTh	51WGm	Ar
		VII	TTh	51WGm	Ar
		VII	MW	51WGm	Ar
		III	WS	51WGm	Ar
32w	Personal Hygiene.....	III	TThS	201WGm	Ar
33s	Hygiene of the Family..	II	MWF	201WGm	Dr. Norris
34f-35w-36s†‡	Intermed. Phys. Train...	VI	TTh	153WGm	Ar
40f-41w-42s	Interpretive Dancing....	IV	TS	151WGm	Miss Baker
43f-44w-45s§	Folk-Dancing and Organized Games.....	V	TThF	151WGm	Miss Kissock

*Courses for which no registration is required*

46f-47w-48s†	Hockey, Basket-Ball, Baseball .....	VIII	TTh	151WGm	Ar
49f,w,s	General Swimming.....	VIII	MTWTh	51WGm	No instr.

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

‡ The third quarter is open to students who have not taken the preceding quarters.

§ The second or third quarter of this course is open to students who have not had the first two quarters.

\* No student may register for more than two quarters of swimming without permission.

## PHYSICS

*Introductory Courses*

No.	Title	Credits	Offered to	Prerequisite courses
1	Elem. of Mechanics and Sound..	3	All	Math. 6, or equiv.
2	Elem. of Mechanics Lab.....	1	All	1 or reg. in 1
9	Acoustics .....	3	All	None
21	Heat .....	3	All	1
22	Heat Laboratory.....	1	All	2, 21 or reg. in 21
31	Optics .....	3	All	1
32	Optics Laboratory.....	1	All	2, 31 or reg. in 31
41	Magnetism and Electricity.....	3	All	1
42	Electrical Laboratory.....	1	All	2, 41 or reg. in 41

For equivalent courses see bulletin of the College of Engineering and Architecture.

PHYSICS

No.	Title	Hour	Day	Building	Instructor
1f,w	Elem. of Mechanics and Sound .....				
	Lect.	VII	MWF	30Ph	Mr. Erikson
	Quiz	VIII	W	100C	Mr. Erikson
1s	Elem. of Mechanics and Sound .....				
	Lect.	III	TThS	30Ph	Mr. Erikson
	Quiz	VIII	W	100C	Mr. Erikson
2f,w,s	Elem. of Mech. Lab. ....				
	Sec. 1	V-VI	T	16Ph	Mr. Erikson & Assts.
	2	VII-VIII	T	16Ph	Mr. Erikson & Assts.
	3	V-VI	Th	16Ph	Mr. Erikson & Assts.
	4	VII-VIII	Th	16Ph	Mr. Erikson & Assts.
9s	Acoustics .....	Ar	Ar	30Ph	Mr. Erikson
21f,w	Heat .....				
	Lect.	III	TThS	30Ph	Mr. Miller
	Quiz	VIII	W	100C	Mr. Miller
(For schedule of hours for 21w, see Engineering program.)					
22f,w	Heat Laboratory .....				
	Sec. 1	V-VI	M	23Ph	Mr. Miller & Assts.
	2	VII-VIII	M	23Ph	Mr. Miller & Assts.
	3	V-VI	T	23Ph	Mr. Miller & Assts.
	4	VII-VIII	T	23Ph	Mr. Miller & Assts.
(For schedule of hours for 22w, see Engineering program.)					
31f,s	Optics .....				
	Lect.	I	TThS	30Ph	Mr. Valasek
	Quiz	VIII	W	100C	Mr. Valasek
32f,s	Optics Laboratory .....				
	Sec. 1	V-VI	Th	23Ph	Mr. Valasek
	2	VII-VIII	Th	23Ph	Mr. Valasek
	3	V-VI	F	23Ph	Mr. Valasek
	4	VII-VIII	F	23Ph	Mr. Valasek
41w,s	Magnetism and Electricity				
	Lect.	III	TThS	30Ph	Mr. Zeleny
	Quiz	VIII	W	100C	Mr. Zeleny
(For schedule of hours for 41s, see Engineering program.)					
42w,s	Electrical Lab. ....				
	Sec. 1	V-VI	T	31Ph	Mr. Zeleny & Assts.
	2	VII-VIII	T	31Ph	Mr. Zeleny & Assts.
	3	V-VI	Th	31Ph	Mr. Zeleny & Assts.
	4	VII-VIII	Th	31Ph	Mr. Zeleny & Assts.
	5	V-VI	W	31Ph	Mr. Zeleny & Assts.
	6	VII-VIII	W	31Ph	Mr. Zeleny & Assts.
(For schedule of hours for 42s, see Engineering program.)					

## Intermediate Courses

101-103-105	Theoretical Physics.....	4	Jr., sr., grad.	12 cr. in phys.; Math. 51
102-104-106	Experimental Physics.....	3	Jr., sr., grad.	12 cr. in physics; Math. 51
111-113-115	Elem. of Math. Physics.....	3	Jr., sr., grad.	105, Math. 51
112-114-116	Elem. Phys. Investigation...	3	Jr., sr., grad.	106, Math. 51
121	Pyrometry and Heat.....	3	Jr., sr., grad.	21 and 22
132	Applied Optics.....	3	Jr., sr., grad.	31 and 32
142	Electrical Measurements.....	3	Jr., sr., grad.	41 and 42
146	Elec. Measure of Precision.	3	Jr., sr., grad.	142
145-147-148	Radioactivity .....	3	Jr., sr., grad.	106

## POLITICAL SCIENCE

No.	Title	Credits	Offered to	Prerequisite courses
1	American Government.....	5	Soph., jr., sr., and fr. with 10 cr. in history	None
3	Comparative European Govt.	5	Soph., jr., sr.	1
7	State Government.....	5	Soph., jr., sr.	1
11	Municipal Government.....	5	Soph., jr., sr.	1
15	Introd. to Pol. Sci.....	5	Soph., jr., sr.	1
25	World Politics .....	5	Soph., jr., sr.	1, and 10 cr. in history
[31	Political Parties .....	5	Soph., jr., sr.	1]
33-34†	English Leg. Inst.....	5	Soph., jr., sr.	History 3-4
51-52-53	Business Law .....	9	Jr., sr.	10 cr. in pol. sci. or 10 cr. in econ. or 5 cr. in each 10 cr. in pol. sci. or 5 cr. in pol. sci. & 5 in sociol.]
[58	Elementary Law.....	5	Jr., sr.	15 cr. soc. sci. or 10 cr. in pol. sci.
65	Colonization .....	3	Jr., sr.	See History statement
107-108	Europe, 1848-1914.....			See History statement]
[109-110	English Hist. 1815-1920.....			
[111	Government of Minnesota...	3	Jr., sr., grad.	1, and 7 or 11 or 31]
115	Municipal Problems .....	3	Jr., sr., grad.	11, or 15 cr.
117	Municipal Engineering.....			See Civil Engineering 53-38
121-122	International Law.....	8	Jr., sr., grad.	20 cr. in soc. sci. incl. 10 cr. in pol. sci., or Hist. 107-108
123	International Organization..	4	Jr., sr., grad.	121-122
125	American Diplomatic Hist...	4	Jr., sr., grad.	20 cr. in soc. sci. incl. 10 cr. in pol. sci. or Hist. 5-6
127	American Foreign Relations.	4	Jr., sr., grad.	121-122, or 125, or 15 cr. in pol. sci., incl. 25 and one Sen. Col. course

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

[ ] Not offered in 1921-22.

193. STATE AND LOCAL TAXATION. Principles and problems, e.g., state and local taxation of lands, mineral resources, forests, corporation, incomes, inheritances: also studies of classification, separation, local option, exemption, double taxation, evasion, assessment, centralized administration. MR. BLAKEY.

## EDUCATIONAL ADMINISTRATION AND SUPERVISION

## COLLEGE OF EDUCATION

Professor FLETCHER H. SWIFT; Instructor JEAN H. ALEXANDER.

## COURSES

5. PUBLIC EDUCATION IN THE UNITED STATES. A brief survey of the factors determining the problem of public education in America, followed by a brief account of the development and organization of typical state school systems. Not open to those who have credit in History and Philosophy of Education I. MR. SWIFT, MISS ALEXANDER.
119. THE ELEMENTARY-SCHOOL CURRICULUM. Principles underlying organization of subject-matter for courses in elementary school, including a critical examination of curricula, syllabi, and school texts in the light of their function in the teaching and administration of the curriculum.

## EDUCATIONAL PSYCHOLOGY

## COLLEGE OF EDUCATION

Assistant Professors HERMIONE L. DEALEY, MARVIN J. VAN WAGENEN.

## COURSES

45. ELEMENTARY EDUCATIONAL PSYCHOLOGY. A survey of fundamental facts of human behavior involved in educational activities. Open to seniors, juniors, and qualified students in third quarter of sophomore year upon advice of Dean Haggerty. MISS DEALEY.
- 106-107-108. ADVANCED EDUCATIONAL PSYCHOLOGY. Advanced work in genetic psychology, origin and nature of human organism, development and control of instincts. Methods of measuring rate of learning; typical learning experiments. Group and individual differences, their relations to educational practice. MR. VAN WAGENEN.
- III. EDUCATIONAL DIAGNOSIS. Typical educational problems involving educational scales and standard tests. Nature of tests, methods of use, analysis of results obtained, and programs of remedial educational procedure, based on the results of the tests. MR. VAN WAGENEN.

## ENTOMOLOGY AND ECONOMIC ZOOLOGY

Professors WILLIAM A. RILEY, ARTHUR G. RUGGLES, FREDERIC L. WASHBURN; Associate Professor WILLIAM MOORE; Assistant Professors ROYAL N. CHAPMAN, HARRY H. KNIGHT, OSCAR W. OESTLUND; Instructor SAMUEL A. GRAHAM.

*General statement.*—Courses in this department are closely correlated with those offered by the Department of Animal Biology of the College of Science, Literature, and the Arts. Courses 37-38-39, 44, 117-118-119, 125-126-127, 130, 139-140, 144-145-146, and 197 of this division are also offered under these numbers by the Department of Animal Biology.

1. INTRODUCTORY ENTOMOLOGY. See Course 37-38-39 or An. Biol. 16.
2. ECONOMIC ENTOMOLOGY. The life histories, habits, and methods of control of the insect pests of orchard, field, and garden. Laboratory work in the determination of the more important forms. MR. RUGGLES.
3. ELEMENTARY ECONOMIC ENTOMOLOGY. A brief course dealing with the characteristics and habits of insect pests and beneficial insects and methods of control. MR. RUGGLES.
4. ECONOMIC VERTEBRATE ZOOLOGY. Relations of birds and wild animals to agriculture. Lectures, laboratory, and field work. Identification and studies of Minnesota birds and wild animals affecting the horticulturist and agriculturist, methods of combating injurious and conserving useful forms. MR. WASHBURN.
5. ELEMENTARY FOREST ENTOMOLOGY. A study of the life histories and methods of controlling insects affecting shade and forest trees. MR. GRAHAM.
6. INSECTS OF FOREST PRODUCTS. Treating life history, habits, and control of insects attacking dead or freshly felled wood, and forest products. MR. GRAHAM.
8. VARIETIES AND HABITS OF FUR-BEARING ANIMALS. Deals with North American fur-bearers with special reference to their adaptability to domestication and commercial fur farming. MR. WASHBURN.
12. FOREST ZOOLOGY. Forest animals. Relation of birds and of various four-footed animals to forest protection. Habits, range, usefulness; the manner of protecting the important large and small game, fish, and birds; fish culture. Lectures and laboratory work. MR. WASHBURN.
20. HOME ECONOMIC ENTOMOLOGY. Designed for home economics students. Insects as related to public health problems, insects of the household and those attacking foods will be discussed. The principles of control of insect pests of plants will be considered. MR. RILEY, MR. RUGGLES.



- 37-38-39. GENERAL ENTOMOLOGY. A more extended course than 1, leading up to discussion of the principles of taxonomy and their application to the classification of insects. Textbook, lectures, quizzes, and laboratory. MR. OESTLUND.
44. INTRODUCTORY COURSE IN ANIMAL PARASITES AND PARASITISM. Lectures and laboratory work. A consideration of the origin and biological significance of parasitism, and of the structure, life history, and economic relations of representative animal parasites. Methods of control and prevention will be emphasized. MR. RILEY.
- 117-118-119. GENERAL ECOLOGY OF INSECTS. General ecology with special reference to the insects of Minnesota. Frequent field trips. Lectures, laboratory, and field work. MR. CHAPMAN.
- 125-126-127. ADVANCED GENERAL ENTOMOLOGY. Advanced work in the lines of morphology and classification of insects with lectures on the history of entomology. Lectures and laboratory. MR. OESTLUND.
130. BIOLOGY AND TAXONOMY OF THE APHIDIDAE. Intensive study of the natural history, bibliography, and classification of the Aphididae. Additional work is offered in Course 197. MR. OESTLUND.
- 139-140. HISTOLOGY AND DEVELOPMENT OF INSECTS. Lectures and laboratory work on the histology, embryonic, and postembryonic development of insects. Individual work along these lines is available to properly qualified students in Course 197. MR. RILEY.
- 144-145-146. ANIMAL PARASITES AND PARASITISM. Lectures and laboratory work. Origin and biological significance of parasitism; structure, life history, and economic relations of representative parasites. Second term devoted primarily to the relation of insects to diseases of man and animal. MR. RILEY.
150. INSECTICIDES AND THEIR ACTION. A study of the chemical composition, the physical properties, and the physiological action of standard, of little-known, and of new insecticides. MR. MOORE.
197. INTRODUCTION TO RESEARCH. Preparation for investigational work in lines of entomology, parasitology, or economic zoology. Advanced laboratory, field, and library work; training in preparation of bibliographies and manuscripts; special problems. Summer work should be planned when possible. MR. KNIGHT, MR. OESTLUND, Systematic Entomology; MR. RUGGLES, General Economic Entomology; MR. CHAPMAN, Insect Ecology; MR. MOORE, Insecticides; MR. RILEY, Parasitology, Insect Morphology; MR. WASHBURN, Economic Vertebrate Zoology.

## FARM ENGINEERING

Professor WILLIAM BOSS; Associate Professors HARRY B. ROE, EARL A. STEWART, MARK J. THOMPSON; Assistant Professors GUY R. B. ELLIOTT, JAMES B. TORRANCE, ARTHUR G. TYLER, HALL B. WHITE; Instructors J. GRANT DENT, MAURICE G. JACOBSON, ALLEN D. JOHNSTON.

## COURSES

3. MECHANICAL DRAWING. Materials, instruments, and their uses. The conventions, lettering, scale reading, kinds of drawings, practice in cabinet projection and drawing building plans. MR. JACOBSON.
4. BLACKSMITHING. The management of forge and fire in bending, shaping, and welding iron. MR. JOHNSTON.
5. CARPENTRY. The use and care of carpentry tools. The construction of farm equipment such as hayracks, self-feeders, etc. Building construction. Painting and wood-finishing. MR. WHITE.
7. FARM STRUCTURES. The planning, designing, and location of farm buildings including specifications and estimates of cost. MR. WHITE.
3. FARM ENGINEERING. A general course of farm engineering. Lectures on farm mechanics, drainage, water supply, heating, sanitation, buildings, roads, power machinery, and land-clearing. MR. BOSS.
11. APPLIED MATHEMATICS. Rules of practical mathematics with special attention to formulas and problems directly related to agricultural and forestry work; e. g. areas, volumes, percentages, proportions, variations, investments, cost problems, etc. \_\_\_\_\_
13. FARM MOTORS I. Theory, operation, care, and repair of gasoline engines. MR. TORRANCE.
14. FARM MOTORS II. Instruction and practice in the care, adjustment, and operation of the farm tractor. MR. TORRANCE.
15. MECHANICAL LABORATORY. Exercises in harness repair, knots and rope splicing, belt lacing, soldering, babbiting, pipe fitting, drilling, and work with cold metals. MR. DENT.
17. ADVANCED BLACKSMITHING. Bending, shaping, welding, and tempering of steel. MR. JOHNSTON.
18. SURVEYING. Plain surveying as applied to forestry. Mensuration, leveling, elements of topography, and mapping. MR. ROE.
23. GENERAL PHYSICS. An introductory course in the elements of physics for those who have not had physics in high school. The study of mechanics, heat, light, and electricity with laboratory work. MR. STEWART, MR. TYLER.

## DESCRIPTION OF COURSES

24. AGRICULTURAL PHYSICS I. An applied course involving lecture and laboratory work in mechanics and heat. Special emphasis given to farm power, hydraulics, heating, ventilation, and meteorology. MR. STEWART.
25. AGRICULTURAL PHYSICS II. A practical lecture, recitation, and laboratory course on electricity and light, involving a study of electric generating plants, batteries, motors, lighting systems and a study of light and radiant energy as applied to farm problems. MR. STEWART.
28. LAND-CLEARING. A study of land-clearing methods, explosives, and machinery. Farm development in cut-over timber districts. MR. THOMPSON.
31. FARM SURVEYING AND DRAINAGE. Elementary principles and practice including farm mensuration, simple leveling, topography, grade determination, field technic of drainage construction and lecture on drainage in relation to farm development. MR. ROE, MR. ELLIOTT.
34. HOUSEHOLD MECHANICS AND HEAT. Lectures, recitations, and laboratory work on household appliances and methods of operation, such as water supply, plumbing, sewage disposal, washing, cooking, refrigeration, heating, and ventilation. MR. STEWART.
35. HOUSEHOLD ELECTRICITY AND LIGHT. A course with laboratory work on the fundamental principles of electricity and the use of electrical appliances in the home, with a special study of light, color, and lighting. MR. STEWART.
101. ADVANCED DRAINAGE. Special drainage problems including surface and subsurface run-off, studies in peat-land drainage, shape and regulation of water table in relation to root growth, etc. MR. ROE.

## FORESTRY

Professors EDWARD G. CHEYNEY, JOHN H. ALLISON; Instructor GILBERT H. WIGGIN.

### COURSES

- I. GENERAL FORESTRY. A brief history of the development of forestry in Europe and America; its bearing on the forestry problems of the United States; description of the forests of the United States. Lectures and collateral reading. MR. CHEYNEY.
20. GRAZING. History of grazing in the west. Kinds of stock used. Forage plants. Regulations and methods of handling stock. Range management and protection. Lectures, recitations, and reading. MR. ALLISON.
26. TREE CROPS. The part trees play in the successful development of the farm. The relation of the forests to agriculture and animal husbandry. The farm and the timber supply. MR. CHEYNEY.

27. GROVES AND WINDBREAKS. Trees and their relation to the farm. Planning and planting farm windbreaks and shelterbelts. Utilization and marketing of farm, grove, or woodlot products. MR. WIGGIN.

### GEOLOGY AND MINERALOGY

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Professor WILLIAM H. EMMONS; Instructors IRA S. ALLISON, JOHN W. GRUNER, GEORGE M. SCHWARTZ, GEORGE A. THIEL, W. COURTNEY WERNER.

#### COURSES

- 1-2. GENERAL GEOLOGY. A synoptical treatment of materials of the earth and of geologic processes. Physiographic, dynamic, structural, and historical geology. Lectures, laboratory work, field excursions, and conferences outside of class hours. MR. EMMONS, MR. ALLISON, MR. THIEL.
- 7-8. LABORATORY WORK. Open only to students taking Course 1-2. Supplements Course 1-2 with study of rocks and ores, topographic and geologic maps, and reference reading. MR. ALLISON.
- 11-12. GENERAL GEOLOGY. A synoptical treatment of materials of the earth and of geologic processes. Physiographic, dynamic, structural, and historical geology. Lectures, laboratory work, field excursions, and conferences outside of class hours. MR. WERNER.
- 21-22. ESSENTIALS OF MINERALOGY. The crystal systems; morphological, physical, and chemical character of minerals; occurrence, genesis, and uses of minerals; classification and description of common minerals. Determinative work in laboratory, blowpipe analysis, sight identification. MR. GRUNER.
29. GENERAL PHYSIOGRAPHY. Principles of earth sculpture; physiographic changes in progress, and agencies causing them; hydrography and oceanography; planetary relations; climatology; field excursions.
34. METEOROLOGY. The properties and phenomena of the atmosphere, including composition, temperature, pressure, and circulation; the work of the weather bureau; the major climatic divisions of the earth and their climates. —————
37. ECONOMIC AND COMMERCIAL GEOGRAPHY. A study of the geographic factors influencing production and trade. Natural resources in their relation to commerce and industry and the major trade routes will be emphasized. —————
- 51-52. ECONOMIC GEOLOGY. The mineral resources of the United States. The origin, occurrence, distribution, and uses of the more important minerals and mineral fuels of economic value. Lectures and field excursions. MR. SCHWARTZ.

## GERMAN

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Professor CARL SCHLENKER; Assistant Professor JAMES DAVIES; Instructors LYNWOOD DOWNS, COWDEN LAUGHLIN.

1. BEGINNING A. Pronunciation, conversation, grammar, and composition; selected readings in easy prose and verse. \_\_\_\_\_
2. BEGINNING B. Continuation of Course I. \_\_\_\_\_
3. BEGINNING C. Selected texts from modern writers. \_\_\_\_\_
10. RAPID READING. Modern narrative prose. \_\_\_\_\_
11. ADVANCED RAPID READING. Continuation of Course 10. Representative works of the eighteenth and nineteenth centuries. \_\_\_\_\_
14. NINETEENTH-CENTURY PROSE. Narrative readings from modern novelists. \_\_\_\_\_
- 28-29. ADVANCED CHEMICAL GERMAN. Selections from more difficult works on chemistry. \_\_\_\_\_
- 31-32. MEDICAL GERMAN. Readings from general works on physiology, anatomy, and bacteriology. \_\_\_\_\_
40. COMMERCIAL GERMAN. Vocabulary of commerce, business forms; reading of texts on economics. \_\_\_\_\_
- 50-51-52. COMPOSITION. Aims to develop grammatical correctness. Translations from English selections. Essay-writing on assigned subjects. MR. LAUGHLIN.
- 53-54-55. CONVERSATION. Aims to develop ease and correctness of oral expression. Organized on the laboratory plan—one hour credit with two hours of recitation and one hour of outside reading. MR. LAUGHLIN.
63. MODERN DRAMA. Plays of modern dramatists; Hauptmann, Sudermann, Fulda, and others. MR. DAVIES, MR. DOWNS.
64. CLASSIC DRAMA. Plays of Lessing, Goethe, and Schiller. MR. DAVIES, MR. DOWNS.
74. GERMAN POETS. Survey of German poetic literature. MR. DAVIES, MR. DOWNS.

## HISTORY AND PHILOSOPHY OF EDUCATION

## COLLEGE OF EDUCATION

Professor FLETCHER H. SWIFT; Instructor JEAN H. ALEXANDER.

## COURSES

1. A BRIEF COURSE IN THE HISTORY OF EDUCATION. Current school problems and educational theories in the light of their history. Emphasis

upon secondary education and those aspects of education of most immediate concern to high-school teachers. Not open to those who have credit in Educational Administration 5. MR. SWIFT, MISS ALEXANDER.

101-102-103. FOUNDATIONS OF MODERN EDUCATION. Interpretative historical study of elements in modern education derived from Hebrews, Greeks, Romans, Middle Ages, etc. Emphasis upon secondary and higher education, origin and results of monopoly of cultural conception of education and cultural studies. MR. SWIFT.

### HOME ECONOMICS

Professor MILDRED WEIGLEY; Instructor ALICE M. CHILD.

#### COURSE

24. CAMP COOKERY. Designed to give prospective foresters, engineers, and others a knowledge of the simpler cookery processes, and of such adaptations as are practicable in the several types of out-of-doors camps. (Given in alternate years. Offered in 1921-22.) MISS CHILD.

### HORTICULTURE

Professor WILLIAM H. ALDERMAN; Associate Professors WILFRID G. BRIERLEY, LEROY CADY, MAXWELL J. DORSEY; Assistant Professor WILLIAM T. TAPLEY; Instructor FRED A. KRANTZ; Assistant JOHN W. BUSHNELL; Extension Specialist ROGER S. MACKINTOSH.

#### COURSES

6. FRUIT-GROWING. The fundamental principles of fruit-growing. Sites, soils, nursery stock, planting and planting plans, tillage, fertilization, cover crops, pollination, frost avoidance, pruning, and thinning. Lectures, recitations, references, and laboratory work. MR. ALDERMAN.
21. SMALL-FRUIT CULTURE. A study of the cultural practices for each of the small fruits. Brief consideration is given to their botanical relationships and the history of the commercial development. Lectures, problems, and survey of literature. MR. BRIERLEY.
32. VEGETABLE-GROWING. Fundamentals of vegetable-growing applied to commercial and home gardens, scope of vegetable-gardening and place in agriculture. Capital required, locations, soil, equipment, marketing, storage, systems of production. Cultural methods for the various crops. MR. TAPLEY, MR. BUSHNELL,
33. VEGETABLE-FORCING. Commercial growing of vegetables in the greenhouse; types, construction, and management of forcing structures, soils, fertilization, soil sterilization, relation of industry to out-door vegetable-farming, crop production and marketing. MR. TAPLEY.

50. FLORICULTURE. Designed to give the student a working knowledge of the culture and uses of common house plants, annuals, perennials, and greenhouse plants. Lectures, reference-reading, and laboratory. MR. CADY.
56. PROPAGATION AND NURSERY PRACTICE. Methods of propagating plants by seed, cuttings, layers, and grafting. Practical work in management of nursery stock, bulbs, and plants. Lectures, reference-reading, and field trips. MR. CADY.
71. LANDSCAPE-GARDENING. The practice and principles of landscape-gardening as applied to the home and community. Lectures and field trips to parks and private grounds. MR. CADY.
91. ADVANCED GENERAL HORTICULTURE. For students in agricultural education. Continuation of Course 90 with emphasis given to more advanced problems in orchard and garden management, judging and exhibiting, management of school gardens, ornamental planting of home and school grounds. MR. ALDERMAN, MR. CADY, MR. TAPLEY.
93. JUDGING HORTICULTURAL CROPS. The principles and practice of judging and exhibiting fruits, vegetables, and flowers. MR. ALDERMAN, MR. BRIERLEY, MR. CADY, MR. TAPLEY.
107. ORCHARD MANAGEMENT. A detailed study of the various operations in orchards and berry fields. Operating costs and profits. Lectures, laboratory, and individual problems. MR. BRIERLEY.
109. PRINCIPLES OF GENETICS. Lectures and laboratory work designed to familiarize the student with the underlying principles of breeding, heredity, variation, biometry, and evolution are emphasized. Same as Agronomy 131. MR. DORSEY, MR. HAYES.
110. HORTICULTURAL CROP-BREEDING. Applied genetics are emphasized. The method of breeding each of the important horticultural crops with special attention to experiment station investigations and to the methods used by plant breeders. MR. DORSEY.
111. SYSTEMATIC POMOLOGY. A study of fruit varieties. Classification, description, identification, and elements of judging. Lectures, laboratory, and a survey of the literature. MR. ALDERMAN, MR. BRIERLEY.
131. ADVANCED VEGETABLE PRODUCTION. A study of the business of vegetable-gardening, special problems, variety improvement, production of seed, investigation and research, reviews and reports on recent literature. MR. TAPLEY.
132. SYSTEMATIC OLERICULTURE. The origin, botany, varieties, and types of the different vegetables, their characteristics and adaptation to different cultural and market conditions, identification and classification studies, judging and exhibiting. MR. TAPLEY.

133. **COMMERCIAL TRUCK-GROWING.** Truck-growing centers of the United States, cultural methods, special machinery and equipment, market methods, shipping points. Adaptation of the truck crops to Minnesota, commercial production for canneries, handling and shipping. MR. TAPLEY.
135. **POTATO PRODUCTION.** A study of the origin, botany, regional distribution, economic importance, group classification, standardization of varieties according to soil, climate, and markets. Identification, exhibiting, judging, cultural methods, seed selection and certification, marketing and utilization. MR. KRANTZ.
151. **ADVANCED FLORICULTURE.** Lectures, assigned readings, laboratory, and special problems dealing with the culture, botany, and history of florists' plants and methods of greenhouse management. MR. CADY.
- 191-192. **SPECIAL PROBLEMS.** A study of problems based upon the work given in the preceding courses. MR. ALDERMAN.
- 193-194-195. **HORTICULTURAL SEMINAR.** Reports and discussions of problems and investigational work. Horticultural staff.

#### MILITARY SCIENCE AND TACTICS

Professor GIRARD STURTEVANT, Colonel, Infantry, Chairman; Assistant Professors BEN W. FEILD, Major, Infantry; LAURENCE T. WALKER, Major, Coast Artillery Corps; LEE R. WATROUS, JR., Major, Coast Artillery Corps; HARRY C. INGLES, Major, Signal Corps; EDWARD G. SHERBURNE, Major, Infantry; EDGAR B. MOOMAU, 1st Lieutenant, Infantry; HAL M. ROSE, 1st Lieutenant, Cavalry; Instructors: ALFRED BRANDT, Master Sergeant, Infantry; HARRY E. STRIDER, Master Sergeant, Signal Corps; JOSEPH HAVLICEK, Regimental Commissary Sergeant, Retired; JOSEPH LEES, 1st Sergeant, Retired; JOHN McWILLIAMS, 1st Sergeant, Retired; WILLIAM R. FINKE, 1st Sergeant, Coast Artillery Corps; WILLIAM L. HOGAN, 1st Sergeant, Coast Artillery Corps; AUBREY R. DUNKUM, 1st Sergeant, Coast Artillery Corps; KENNA B. CALDWELL, Sergeant, Coast Artillery Corps; HENRY W. BROWN, Sergeant, Coast Artillery Corps; CLARENCE G. LANGE, Sergeant, Field Artillery; EDMUND T. McCANN, Sergeant, Infantry; FRED LILLIE, Sergeant, Infantry; PRESTICE B. RHODES, Sergeant, Infantry; CLARENCE C. SHELTON, Sergeant, Infantry; HERMAN SMITH, Sergeant, Infantry; CASPER M. HECKEMEYER, Sergeant, Infantry.

#### COURSES

- 1-2-3. **FIRST-YEAR BASIC COURSE R.O.T.C.** Practical instruction in schools of the soldier, company, and battalion; signals, ceremonies, first aid.
- 4-5-6. **SECOND-YEAR BASIC COURSE R.O.T.C.** Practical and theoretical instruction in schools of the company and battalion; advance and rear guard drill; practical and theoretical instruction in guard duty. Gallery practice. Ceremonies. Infantry, coast artillery, and signal corps.



51-52-53. FIRST-YEAR ADVANCED COURSE R.O.T.C.

54-55-56. SECOND-YEAR ADVANCED COURSE R.O.T.C.

## MUSIC

### COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Professor CARLYLE M. SCOTT; Instructors ABE PEPINSKY, GERTRUDE REEVES, KARL SCHEURER.

*General statement.*—Credit is offered to seniors and juniors in the College of Agriculture, Forestry, and Home Economics, who may wish to elect work in the Department of Music. Nine credits may be obtained.

### COURSES

22-23-24. VIOLIN. Candidate must be able to play the first ten of Kreutzer's forty etudes, and the easier Handel and Mozart sonatas. MR. PEPINSKY, MR. SCHEURER.

40-41-42. ORCHESTRA. MR. PEPINSKY.

43-44-45. CHOIR. MR. SCOTT.

46-47-48. APPRECIATION OF MUSIC. A non-technical course. MISS REEVES.

## PHYSICAL EDUCATION

### FOR MEN

Director LOUIS J. COOKE; Assistant Director WILLIAM K. FOSTER; Instructors EDWIN S. BROWN, PERCY C. GLIDDEN, CARL B. ROEMER; Assistants FRANK GILMAN, HARRY GOLDIE.

*General statement.*—The purpose of the department is to provide all men of the University opportunity for exercise in order to maintain and build up their general health. It also provides special training for the correction of physical defects and functional derangements.

A physical examination is required of all new matriculants, and of all others using the department privileges, at the beginning of the year, and as often during their college course as their physical condition may indicate. Students taking the required work in physical education are examined at the close of the year. A study of these records shows a marked improvement in the standard of health of the average student during his college course.

The gymnasium, swimming-pool, and baths are open to all students of the University, who are free to use the apparatus and to pursue a course in physical training under the supervision of the director and his assistants.

Those students taking the required course in physical education, who can not swim must make a reasonable effort, as determined by the department, to pass the swimming and life-saving requirements, and will be assigned special hours for instruction.

## COURSES

1. PERSONAL HYGIENE. Two hours per week; first six weeks of each quarter. Examination at close of course. DR. COOKE, DR. BROWN, MR. FOSTER.
- 2-3-4. GYMNASIUM AND SWIMMING. Two hours a week for the winter quarter. Required qualifications in swimming, life-saving, bar-vaulting, jumping, sprinting, running, and on heavy apparatus. MR. FOSTER, MR. GLIDDEN, MR. ROEMER.
- 5-6-7. ADVANCED LEADERS. Three hours a week. MR. FOSTER.
- 8-9-10. CORRECTIVE GYMNASIUMS. Three to six hours a week instead of regular gymnasium or military drill in case of physical disability. DR. BROWN.
- 11-12. WRESTLING. Three times per week. Students admitted by special assignment. \_\_\_\_\_
- 13-14-15. INTERMEDIATE SWIMMING. Life-saving, efficiency swimming, and fancy diving. Instruction is given in rescuing and restoring the apparently drowned and other useful swimming accomplishments. MR. GLIDDEN.
- 16-17-18. ADVANCED SWIMMING. Life-saving, efficiency swimming, and fancy diving. Instruction is given in rescuing and restoring the apparently drowned and other useful swimming accomplishments. MR. GLIDDEN.
- 19-20. BOXING. By special arrangement a few students may be accommodated in this class which meets twice per week. MR. GOLDIE.
- 21-22-23. INTRAMURAL ATHLETICS. Competitive games in the various athletic leagues in football, basket-ball, hockey, track, and field events, baseball, tennis, swimming, handball, bowling, etc. MR. FOSTER.

## PHYSICS

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Professors HENRY A. ERIKSON, ANTHONY ZELNY; Professorial Lecturer LOUALLEN F. MILLER; Instructor JOSEPH VALASEK.

## COURSES

1. ELEMENTS OF MECHANICS AND SOUND. Mechanics of solids, fluids, wave motion, and sound. A study of the simpler fundamental principles. First part of a general course 1, 21, 31, 41. Course 2 should be taken in conjunction with this course. MR. ERIKSON.
2. ELEMENTS OF MECHANICS LABORATORY. Measurements in the mechanics of solids, fluids, and wave motion; the laboratory part supplementing Course 1. MR. ERIKSON.

9. ACOUSTICS. A study of the fundamental principles of sound. A course designed primarily for the students in the Department of Music. Open also to other students. MR. ERIKSON.
21. HEAT. A study of the principles underlying heat phenomena. Course 22 should be taken in conjunction with this course. MR. MILLER.
22. HEAT LABORATORY. The laboratory part supplementing Course 21. MR. MILLER.
31. OPTICS. A study of the principles underlying light phenomena. Course 32 should be taken in conjunction with this course. MR. VALASEK.
32. OPTICS LABORATORY. The laboratory part supplementing Course 31. MR. VALASEK.
41. MAGNETISM AND ELECTRICITY. A study of the principles underlying magnetic and electric phenomena. Course 42 should be taken in conjunction with this course. MR. ZELENY.
42. MAGNETISM AND ELECTRICITY. The laboratory part supplementing Course 41. MR. ZELENY.

#### PLANT PATHOLOGY AND BOTANY

Professors EDWARD M. FREEMAN, ELVIN C. STAKMAN; Instructors HENRY D. BARKER, LOUISE DOSDALL, ALVIN H. LARSON, JULIAN G. LEACH, JAMES L. SEAL; Extension Specialist RAYMOND C. ROSE.

#### COURSES

1. PLANT PATHOLOGY. Elementary study of plant diseases due to fungi, bacteria, and slime molds; life histories and preventive methods. Lectures, laboratory, and reference. Not open to those who have completed 10. MR. STAKMAN, MR. LEACH, MR. SEAL.
7. WEEDS AND GRASSES. Agricultural and applied botanical study of weeds and grasses with special reference to agricultural importance. MR. LARSON.
9. WEEDS AND SEED-TESTING. Detailed study of seed-testing methods and seed legislation. Weed and crop seeds and weed plants studied with special reference to identification. MR. LARSON.
10. FOREST PATHOLOGY. Elementary study of plant diseases due to fungi, bacteria, and slime molds; life histories and preventive methods. Lectures, laboratory, and reference. Not open to those who have completed 1. MR. STAKMAN, MR. LEACH, MR. SEAL.
12. SEED PROBLEMS. Special seed problems are assigned. Advanced work in seed-testing methods. MR. LARSON.

14. PLANT-DISEASE CONTROL. A detailed study of methods of controlling diseases of plants of parasitic origin. Spray materials and spray machinery. Practical applications. MR. BARKER.

#### ADVANCED COURSES

- 105-106-107. MYCOLOGY. A general study of the morphology, taxonomy, and biology of fungi. Lectures, laboratory, greenhouse, and field work. MR. FREEMAN, MR. STAKMAN, MISS DOSDALL.
- 108-109. METHODS. Plant pathological methods including mycological and bacteriological technic. Laboratory, lecture, and greenhouse work. Special problems. MR. STAKMAN, MR. LEACH.
110. PRINCIPLES OF PATHOLOGY. Comparative biology of plant pathogens; pathological plant anatomy; parasitism, biologic specialization, resistance, and immunity. Will be given in close coöperation with Agricultural Biochemistry Division and divisions offering work in plant-breeding. MR. STAKMAN, MR. BARKER.
111. DISEASES OF FIELD CROPS. Detailed study of diseases of cereal and forage crops, including symptomology, etiology, and practical methods of control. Laboratory, lecture, and field work. MR. STAKMAN, MR. BARKER.
112. DISEASES OF FRUIT AND VEGETABLE CROPS. Special study of diseases of fruit and vegetable crops, especially those important in Minnesota. Laboratory, lecture, and greenhouse work. —————

#### POLITICAL SCIENCE

##### COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Professor CEPHAS D. ALLIN; Associate Professor ROBERT E. CUSHMAN.

#### COURSES

1. AMERICAN GOVERNMENT. Organization and actual workings of the national government; nature and origin of the American governmental system.
7. STATE AND LOCAL GOVERNMENT. Comparison of American state governments, especially Minnesota; relation of states to the United States and to local units of government; recent experiments such as initiative and referendum, the recall and primaries; social and economic legislation. MR. CUSHMAN.

#### POULTRY HUSBANDRY ANIMAL INDUSTRY GROUP

Professor ARTHUR C. SMITH; Extension Specialists NORTON E. CHAPMAN, ANNABEL CAMPBELL.

## COURSES

1. **POULTRY.** The poultry industry; best methods of care and management of fowls, turkeys, ducks, and geese and the most important breeds of same. MR. SMITH.
2. **POULTRY-JUDGING.** The history, standard requirements, and common defects of the leading commercial, standard breeds and varieties and determination and standard values by the score-card and comparison methods. MR. SMITH.
4. **INCUBATING AND BROODING.** 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. MR. SMITH.
5. **ADVANCED POULTRY-JUDGING.** Practice in close selection for standard values of all different color patterns and principal types; mating to produce high standard quality. MR. SMITH.

## PSYCHOLOGY

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Associate Professors RICHARD M. ELLIOTT, WILLIAM S. FOSTER, HERBERT WOODROW; Assistant Professors MABEL R. FERNALD, KARL S. LASHLEY; Instructor CHARLES BIRD.

## COURSES

- 1-2-3. **GENERAL PSYCHOLOGY.** An introductory survey of psychology; its material, fundamental laws, applications, and relations to other sciences. MR. ELLIOTT.
- 4-5. **INTRODUCTORY LABORATORY PSYCHOLOGY.** Simple experiments providing the beginner illustrative material and training in the methods of laboratory psychology. MR. FOSTER.
7. **INTRODUCTORY LABORATORY PSYCHOLOGY.** Same as Course 4-5. MR. FOSTER.
- 101-102. **EXPERIMENTAL PSYCHOLOGY.** The theory and technic of the leading methods of experimental investigation in human psychology. One lecture, four laboratory hours per week. MR. WOODROW.
- 108-109. **ADVANCED GENERAL PSYCHOLOGY.** A systematic presentation of the laws of the normal adult mind, based upon study of experimental results. Lectures, recitations, and reports. \_\_\_\_\_
- 114-115. **HUMAN BEHAVIOR.** An analysis from the point of view of the objective school of psychologists. MR. ELLIOTT.
- 119-120. **ANIMAL BEHAVIOR.** The development of reaction-systems in animals, with emphasis upon the application of studies of animals to the solution of general problems in physiological psychology. MR. LASHLEY.

121. **NEURO-PSYCHOLOGY.** Specialization of functions in the nervous system in relation to behavior. Discussion from the standpoint of psychology of current theories of integration and localization. MR. LASHLEY.
- 125-126. **DIFFERENTIAL PSYCHOLOGY.** Important distinguishing characteristics (psychological) of individuals and of groups. Emphasis on experimental and statistical methods of discovering differences and of making comparisons. Each student participates in investigation of definite problems and in analysis of results. MISS FERNALD.
127. **SOCIAL PSYCHOLOGY.** A study of the dependence of familiar forms of social organization and behavior upon the fundamental laws of mental activity. The adjustment of the innate mental equipment of the individual to the norms of social groups. MR. BIRD.
- 135-136. **DYNAMIC PSYCHOLOGY.** The constituents of character; their development, their interrelationship, and their rôle in the determination of human affairs. MR. WOODROW.
- 144-145. **ABNORMAL PSYCHOLOGY.** A systematic review of psychopathology in relation to normal behavior. MR. LASHLEY.

#### RURAL PUBLICATIONS AND JOURNALISM

Professor WILLIAM P. KIRKWOOD; Extension Specialist EDWIN C. TORREY.

*General statement.*—The aim of this division is to give practical training in agricultural journalism and in agricultural publicity and bulletin-writing.

#### COURSES

- 10-11-12. **AGRICULTURAL JOURNALISM.** Gathering and writing agricultural news and writing articles for the agricultural press and other class papers; farm-paper editing. Lectures and practical work. MR. KIRKWOOD.
19. **AGRICULTURAL PUBLICITY.** Mediums and methods through which information may be brought to attention of communities and people of the open country. MR. KIRKWOOD.

#### RHETORIC

Assistant Professors ROBERT C. LANSING, HARRY J. BURTIS; Instructors MINNIE M. CLAUSEN, JESSIE W. JENKINS, RUTH MOHL,<sup>1</sup>

*General statement.*—Rhetoric credits will not be granted officially until the close of the second quarter of the senior year.

Any instructor who finds that a student is deficient in English will submit the name of the student together with the evidence to the chairman of the Students' Work Committee. If the evidence warrants, the committee will send the student to the Section of Rhetoric for such additional work in English as is needed. This work the student must take, without credit, to validate his freshman and sophomore rhetoric credits.

<sup>1</sup> Leave of absence, 1921-22.

Students whose work in the rhetoric courses shows at any time an inadequate knowledge of the conventions of English will be required to drop the course and enter a class in elementary rhetoric. These students will be required to complete three additional credit hours in rhetoric.

## COURSES

1. RHETORIC I. Note-taking, gathering and organizing material, oral and written exposition, paragraph structure, supplementary reading. MR. LANSING, MISS CLAUSEN, MISS JENKINS.
2. RHETORIC II. Sentence structure, diction, exposition, supplementary reading. MR. LANSING, MISS CLAUSEN, MISS JENKINS.
3. RHETORIC III. Description, narration, supplementary reading. MR. LANSING, MISS CLAUSEN, MISS JENKINS.
4. ELEMENTARY RHETORIC. Elementary grammatical and rhetorical principles. MISS JENKINS.
11. ARGUMENTATION. Gathering evidence, reasoning, briefing, formal and informal argument, persuasion, debating. MR. LANSING, MR. BURTIS.
22. PUBLIC SPEAKING. A practical course in fundamentals of speech-making. Rules of order and practice in conducting assemblies included. MR. BURTIS.
24. ADVANCED PUBLIC SPEAKING. A course in preparing and delivering occasional addresses and informal lectures. MR. BURTIS.
31. SURVEY OF ENGLISH LITERATURE I. Survey of English literature of the sixteenth, seventeenth, and eighteenth centuries. MR. LANSING.
32. SURVEY OF ENGLISH LITERATURE II. Survey of English literature of the nineteenth century. MR. LANSING.

## ROMANCE LANGUAGES

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Professors EVERETT W. OLMSTED, COLBERT SEARLES; Associate Professors RALPH E. HOUSE, RUTH S. PHELPS; Assistant Professors FRANCIS B. BARTON, JULES T. FRELIN; Professorial Lecturer ANTONIO HERAS; Instructors CHARLES B. DRAKE, MARGUERITE GUINOTTE.

## COURSES

*French*

- 1-2. BEGINNING FRENCH. Pronunciation, grammar, oral exercises, translation. \_\_\_\_\_
- 3-4. INTERMEDIATE FRENCH. Review of grammar, connected prose composition, conversation, and reading of representative authors. \_\_\_\_\_

## COURSES IN AGRICULTURE

20. ORAL AND WRITTEN FRENCH. Practical French conversation and composition. \_\_\_\_\_
- 21-22-23. SURVEY OF FRENCH LITERATURE. This course will outline the history of French literature from 1600 to present day, and is prerequisite for the courses devoted to special periods. Representative texts will be read. MR. BARTON, MR. SEARLES, MISS PHELPS.
- 50-51-52. ELEMENTARY FRENCH CONVERSATION. A small amount of outside preparation will be required. MR. FRELIN, MISS GUINOTTE.
- 53-54-55. ELEMENTARY FRENCH COMPOSITION. MR. FRELIN, MISS GUINOTTE.

*Spanish*

- 2-2. BEGINNING SPANISH. Pronunciation, grammar, oral exercises, and translation.
- 3-4. INTERMEDIATE SPANISH. Review of grammar, conversation, connected prose composition, and reading of representative authors.
23. ORAL AND WRITTEN SPANISH. Practical Spanish conversation and composition. MR. DRAKE.
- 50-51-52. SPANISH CONVERSATION. A small amount of outside preparation will be required. MR. HERAS.
- 53-54-55. SPANISH COMPOSITION. MR. HERAS.
- 65-66-67. SURVEY OF SPANISH LITERATURE. An outline of the history of Spanish literature from 1500 to the present day, based upon texts and collateral reading. Prerequisite for courses devoted to special periods. MR. HOUSE.

## SOCIOLOGY AND SOCIAL WORK

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

Professors LUTHER L. BERNARD, Acting Chairman; FRANK J. BRUNO; Associate Professor MANUEL C. ELMER; Assistant Professors ROSS L. FINNEY, GUSTAV A. LUNDQUIST; Instructors LOUIS A. BOETTIGER, CHARLES E. LIVELY.

## COURSES

- INTRODUCTION TO SOCIOLOGY. A study of the origin and development of human societies; various agencies which have determined the type of social life; social organization, institutions, and progress; bearing of sociology upon other social sciences and arts. MR. BERNARD, MR. ELMER, MR. FINNEY, MR. LUNDQUIST, MR. BOETTIGER, MR. LIVELY.
6. MODERN SOCIAL REFORM MOVEMENTS. A survey of attempts to overcome certain social maladjustments: child labor, the city, bad housing, poverty, degeneracy; movements for public health, industrial democracy, social insurance, protection of infancy and youth, public recreation, etc. MR. ELMER, MR. FINNEY, MR. BOETTIGER, MR. LIVELY.



14. RURAL SOCIOLOGY. The background and evolution of country life; rural conveniences, communication, coöperation; rural social institutions, especially the family, school, church, and social center; rural leadership, surveys, organization, social agencies. MR. BERNARD, MR. LUNDQUIST, MR. LIVELY.
114. RURAL SOCIAL INSTITUTIONS. A detailed study of the problems of organization and efficiency of selected rural institutions, especially religion, educational, civic, and recreational. Lectures, discussion, reports. MR. LUNDQUIST.

## SOILS

Professor FREDERICK J. ALWAY; Assistant Professor CLAYTON O. ROST;  
Instructor PAUL R. McMILLER; Extension Specialist GEORGE H. NESOM.

## COURSES

4. SOILS. Origin, formation, composition, and classification of soils; physical properties, moisture relations; principles of tillage. Lectures, laboratory and field work. MR. ROST.
5. SOIL FERTILITY. Principles of soil fertility; soil organisms; use of lime, commercial fertilizers, stable manure, and green manures in relation to crop production. Lectures and laboratory work. MR. ALWAY, MR. ROST.
101. CHEMICAL ANALYSIS OF SOILS. A laboratory course on the chemical examination of soils, including both fusion and extraction methods for mineral nutrients. MR. ROST.
102. SPECIAL PROBLEMS IN SOILS. Individual laboratory or field work upon some special soil problem in soil physics, soil chemistry, or soil management. Arrangement must be made in advance. MR. ALWAY.
104. SOIL-SURVEYING. Field practice in surveying soils and the preparation of soil maps. MR. McMILLER.
105. MINNESOTA SOILS. Detailed study of the soils of Minnesota. Origin, formation, and classification; physical and chemical characteristics; moisture relations; response to manures, fertilizers, and soil amendments; naturally unproductive types and their reclamation. Lectures and laboratory. MR. ALWAY.
106. PEAT SOILS. Formation, chemical composition, physical properties, classification, and reclamation. Lectures, laboratory, and greenhouse work. MR. ALWAY.
107. FERTILIZERS AND MANURES. Sources, composition, and uses of the various fertilizers, manures, and soil amendments. Lectures and laboratory work. MR. ROST.

108. PHYSICAL PROPERTIES OF SOILS. A laboratory course on the determination of physical constants of soils, including mechanical composition, moisture equivalent, and hygroscopic coefficient. MR. McMILLER.

### VETERINARY MEDICINE

#### ANIMAL INDUSTRY GROUP

Professors CLIFFORD P. FITCH, WILLARD L. BOYD, MYRON H. REYNOLDS;  
Assistant Professor HOWARD C. H. KERNKAMP; Instructors WILLIAM  
A. BILLINGS, EARL A. HEWITT.

#### COURSES

2. ANATOMY OF DOMESTIC ANIMALS. Anatomy of the common farm animals with special reference to bones, muscles, and viscera. Lectures and demonstrations. MR. KERNKAMP.
- 3-4. COMPARATIVE PHYSIOLOGY. A recitation and lecture course in physiology with special reference to the physiology of domesticated animals. Special emphasis is given to digestion and metabolism. MR. HEWITT.
6. PHYSIOLOGY AND HYGIENE OF BREEDING. Anatomy and physiology of reproduction. Embryology, obstetrics, sterility, hygiene, and common diseases of breeding animals. MR. BOYD.
8. VETERINARY STUDIES. Study of causes, prevention, treatment of common diseases; simple surgical operations; lameness and unsoundness; common medicines. Planned especially for students taking only one quarter veterinary work. Not open to those who have completed 12-13. MR. REYNOLDS.
12. INFECTIOUS DISEASES. Etiology, morbid anatomy, symptomatology, diagnosis, prevention, and the basis of treatment of the common infectious diseases of animals. Special instruction will be given in preparation and use of vaccines, bacterins, serums, and anti-toxins. Those who have completed Course 8 can obtain only half credit for this course. MR. FITCH, MR. BILLINGS.
13. NON-INFECTIOUS DISEASES. General principles of diagnosis, causes, morbid anatomy, symptomatology, prevention, and the basis of treatment of the non-infectious diseases of animals. Those who have completed Course 8 can obtain only half credit for this course. MR. BOYD.
- 101-102. ADVANCED ANATOMY OF DOMESTIC ANIMALS. Advanced study of the structures involved in the type, conformation, and nutrition of the common farm animals. Dissection of farm animals, including a study of the osseous, muscular, and other principal anatomical structures. Limited to nine students. MR. KERNKAMP.
- 103-104. ADVANCED COMPARATIVE PHYSIOLOGY. An advanced course in physiology of the domestic animals, including laboratory work with special emphasis on animal nutrition. MR. HEWITT.

**COLLEGE OF AGRICULTURE, FORESTRY, AND  
HOME ECONOMICS  
TABULAR STATEMENT AND  
PROGRAM OF COURSES  
1921-1922**

TABULAR STATEMENT AND PROGRAM OF COURSES  
CLASS HOUR SCHEDULE

	University Farm	Minneapolis Campus
I Hr	7:45- 8:35	8:00- 8:50
II Hr	8:45- 9:35	9:00- 9:50
III Hr	9:45-10:35	10:00-10:50
IV Hr	10:45-11:35	11:00-11:50
V Hr	1:00- 1:50	1:00- 1:50
VI Hr	2:00- 2:50	2:00- 2:50
VII Hr	3:00- 3:50	3:00- 3:50
VIII Hr	4:00- 4:50	4:00- 4:50

Convocation—Thursdays, IV Hour, University Armory

*Final examinations.*—Final examinations will be given during the last four days of the quarter. A detailed schedule will be published in the *Official Daily Bulletin*.

CLASS SCHEDULE

*Other schools and colleges.*—For programs of classes given in other schools and colleges of the University, not listed below, send to the registrar, University of Minnesota, Minneapolis.

*Abbreviations.*—The following abbreviations are used to indicate names of buildings, those marked with an asterisk (\*) are located on the Minneapolis campus; all others are at University Farm.

A, *Armory	Hr, Horticulture
AB, *Animal Biology	IA, *Institute of Anatomy
Ad, Administration	MA, *Mechanic Arts
BB, Beef Barn	ME, *Main Engineering
C, *Chemistry	MH, *Millard Hall
CB, *Christian Bible School	MS, Meat Shop
Ch, Agricultural Chemistry	Mu, *Music
DB, Dairy Barn	P, *Pillsbury Hall
DH, Dairy Hall	Ph, *Physics
DiH, Dining Hall	PHP, *Public Health and Pathology
Ed, *Education	PP, Plant Pathology
En, Agricultural Engineering	Psy, *Psychology
FH, Farm House	SS, Soil Survey
F, *Folwell Hall	St, Stock Pavilion
G, *Greenhouse	Ve, Veterinary
Gy, Gymnasium	WGm, *Woman's Gymnasium
HE, Home Economics	

*Explanation of course numbers.*—All undergraduate courses are numbered from 1 to 100. All courses open to undergraduates and graduates are numbered from 100 to 200. The letters f (fall), w (winter), and su (summer), indicate the quarters in which the course is offered. For example: 5f,w,s indicates that Course 5 is a one-quarter course given in the fall and repeated in the winter and again in the spring; 10f-11w-12s indicates that Course 10-11-12 is a three-quarter course running through three quarters; 25f,w-26w,s indicates a two-quarter course given in the fall and winter quarters and repeated in the winter and spring quarters.

PROGRAM, 1921-22  
AGRICULTURAL BIOCHEMISTRY

No.	Title	Credits	Offered to	Prerequisite courses
2	Quantitative Methods.....	5	Jr., sr.	Chem. 10 cred.
3	Types of Carbon Compounds	6	Soph., jr., sr.	Chem. 10 cred.
7-8	General Agricultural Biochemistry .....	10	Soph., jr., sr.	Chem. 10 cred.
15	Principles of Animal Nutrition .....	3	Jr., sr.	7-8
101-102	Agricultural Quantitative Analysis .....	6	Jr., sr.	7-8
103	Dairy Chemistry.....	5	Jr., sr.	7-8
106	Chemical Technology of Agricultural Products.....	5	Sr.	101-102
108	Chemistry of Wheat and Wheat Products.....	3	Jr., sr.	7-8
110	Flour Laboratory Methods..	5	Jr., sr.	101-102, or Chem. 131-132, parallel 108
111-112	Phytochemistry .....	6	Sr.	Biol. 9 cred., org. chem.
113-114	Biochemical Laboratory Methods .....	4	Sr.	Quant. anal., parallel 111-112
116	Chemistry of "Vitamines" and Deficiency Diseases...	3 or 5	Sr.	111-112, 113-114, or Physiol. 101-102, or 7-8 and 15
118	Laboratory Problems in Biochemistry .....	3 or 5	Sr.	111-112, 113-114; or 103 or 110

AGRICULTURAL ECONOMICS

See Economics page 93.

AGRICULTURAL EDUCATION  
COLLEGE OF EDUCATION

No.	Title	Credits	Offered to	Prerequisite courses
11	Principles of Vocational Education .....	3	Jr., sr. ‡	None
21	Vocational Education.....	3	Jr., sr. ‡	None
41	Apprentice Teaching.....	2	Jr., sr. ‡ ††	17, 131

‡ Offered only to those preparing to teach.

†† Students are admitted to this course only when approved by the Division of Agricultural Education.

## AGRICULTURAL BIOCHEMISTRY

No.	Title	Hour	Day	Room	Instructor
2w	Quantitative Methods.....	V, VI, VII, VIII	MWF	7Ch	Mr. Willaman
3f,w†	Types of Carbon Compounds I		MTWThFS	201Ch	Mr. Anderson
7f-8w	General Agricultural Bio-chemistry .....				
	Lect.	II	TThS	201Ch	Mr. Anderson
	Lab.	V, VI, VII	MW	203Ch	Mr. Anderson
7w-8s	General Agricultural Bio-chemistry .....				
	Lect.	III	TThS	201Ch	Mr. Anderson
	Lab.	V, VI, VII	MF	203Ch	Mr. Anderson
15f	Principles of Animal Nutri- tion .....	III	MWF	3St	Mr. Palmer
101f†-102w‡	Agricultural Quantitative Analysis .....	V, VI, VII	MWF	105Ch	Mr. Morrow
103s	Dairy Chemistry.....				
	Lect.	V	MWF	251Ch	Mr. Palmer
	Lab.	VI, VII, VIII	MWF	7Ch	Mr. Palmer
106f	Chemical Technology of Agri- cultural Products.....	Ar	Ar	Ar	Mr. Bailey
108s‡	Chemistry of Wheat and Wheat Products.....	I	MWF	201Ch	Mr. Bailey
110s‡	Flour Laboratory Methods..	V, VI, VII, VIII	MWF	7Ch	Mr. Bailey
111f†-112w‡	Phytochemistry .....	III	MWF	201Ch	Mr. Morrow
113f†-114w‡	Biochemical Laboratory Methods .....	V, VI, VII	TTh	7Ch	Mr. Morrow, Mr. Sharp,
116f,w,s‡	Chemistry of "Vitamines" and Deficiency Diseases...	Ar	Ar	Ar	Mr. Palmer, Miss Kennedy
118f,w,s‡	Laboratory Problems in Bio- chemistry .....	Ar	Ar	Ar	Ar

## AGRICULTURAL ECONOMICS

See Economics, page 94.

## AGRICULTURAL EDUCATION

### COLLEGE OF EDUCATION

No.	Title	Hour	Day	Room	Instructor
11f,w	Principles of Vocational Education .....	II	TThS	1PP	Mr. Dyer
11s	Principles of Vocational Education .....	III	MWF	307Ad	Mr. Dyer
21f,w	Vocational Education.....	I	TThS	317Ad	Mr. Mayne
41f	Apprentice Teaching.....				
	Sec. 1	IV	MWF	317Ad	Mr. Field,
	2	Ar	Ar	Ar	Mr. Dyer
					Mr. Field, Mr. Dyer

† Offered also in the summer session.

‡ Offered also in the summer quarter (eleven weeks).

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
42	Teaching .....	3	Sr.	41, Agron. 121, 122, 123
53	Consolidated Rural Schools..	3	All‡	None
54	Rural Education and Community Life.....	3	All	None
63-64-65	General Agriculture.....	9	All	None
75	Visual Presentation.....	3	Jr., sr.	11
81	Extension Work.....	3	Jr., sr.	6 cred. in farm mgt., 6 cred. in farm crops, 15 cred. in an. ind., 6 cred. in agr. educ.
82	Agricultural Extension Field Course .....	3-10	Jr., sr.	81¶
121	Teachers' Course Home and School Garden Supervision	2	Approval of division	
131	Methods in Teaching High-School Agriculture.....	5	Jr., † sr. ‡	11
151	Organization and Management .....	5	Sr. ‡	11, 21
161-162-163	Fundamentals of Agriculture	9	Jr., sr. ‡	None
164	Fundamentals of Agriculture	3	§	None
176	Advanced Visual Presentation	3	Jr., sr.	75
181	Agricultural Statistics and Graphic Representation....	3	Soph., jr., sr.	Farm Eng. 3, 11
191-192-193	Seminar in Agricultural Education .....	6	Sr. ‡	11 cred. in agr. educ.

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

‡ Offered only to those preparing to teach.

§ Special reduced courses for consolidated-school principals.

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



PROGRAM

No.	Title	Hour	Day	Room	Instructor
41W	Apprentice Teaching.....				
	Sec 1	II	MWF	317Ad	Mr. Field, Mr. Dyer
	2	Ar	Ar	Ar	Mr. Field, Mr. Dyer
41S	Apprentice Teaching.....	Ar	Ar	Ar	Mr. Field
42f,w†	Teaching .....				
	Sec. 1,	I	MWF	317Ad	Mr. Field
	2	Ar	Ar	Ar	Mr. Field
53s‡	Consolidated Rural Schools..	Ar	Ar	Ar	Mr. Dyer
54w‡	Rural Education and Com- munity Life.....	Ar	Ar	Ar	Mr. Dyer
63f-64w-65s	General Agriculture.....	Ar	Ar	Ar	Mr. Storm, Mr. Mayne, Mr. Field
75f,w	Visual Presentation.....	Ar	Ar	Ar	Ar
81s	Extension Work.....	II	TThS	Ar	Mr. Storm
82f,w,s‡	Agricultural Extension Field Course .....	Ar	Ar	Ar	Mr. Storm
121w	Teachers' Course, Home and School Gardening.....	Ar	Ar	Ar	Mr. Field
131f‡	Methods in Teaching High- School Agriculture.....	II	MTWFS	317Ad	Mr. Field
131s‡	Methods in Teaching High- School Agriculture.....	III	MTWFS	317Ad	Mr. Field
151f	Organization and Manage- ment .....	III	MTWThF	317Ad	Mr. Storm, Mr. Dyer
151S	Organization and Manage- ment .....	IV	MTWFS	317Ad	Mr. Storm, Mr. Dyer
161f-162w- 163s	Fundamentals of Agriculture	Ar	Ar	Ar	Mr. Storm
164w ‡	Fundamentals of Agriculture	Ar	Ar	Ar	Mr. Field
176s‡	Advanced Visual Presentation	Ar	Ar	Ar	Ar
181w	Agricultural Statistics and Graphic Representation....	Ar	Ar	Ar	Ar
191f-192w- 193s¶	Seminar in Agricultural Education .....	Ar	Ar	Ar	Mr. Storm

† It may be possible for a limited number to take this course in the spring quarter. Approval of the instructor and chief of division is required before registering.

‡ Offered also during the summer session.

¶ A continuation of this course, (194 su), carrying 2 credits is offered only during the summer session.

## COURSES IN AGRICULTURE

## AGRONOMY AND FARM MANAGEMENT

No.	Title	Credits	Offered to	Prerequisite courses
1	Farm Crops.....	3	All	None
11	Farm Machinery.....	3	Jr., sr.	None
101	Farm Management I.....	3	Jr., sr.	1, Econ. 6
102	Farm Management II: Or- ganization .....	3	Sr.	1, Econ. 6, An. Husb. 6 or 8, Soils 5
103	Farm Management II: Op- eration .....	3	Sr.	102
104	Farm Management III.....	3	Sr.	101, 102
121	Cereal Crops.....	3	Jr., sr.	1, bot. 9 cred.
122	Corn and Potato Crops.....	3	Jr., sr.	1, bot. 9 cred.
123	Forage and Fiber Crops....	3	Jr., sr.	1, bot. 9 cred.
131	Principles of Genetics.....	3	Jr., sr.	Bot. 9 cred., an. biol. 9 cred.
132	Farm Crops Plant-Breeding..	3	Jr., sr.	131

## ANIMAL BIOLOGY

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1-2	General Zoology.....	10†	All	None
9-10	Cytology and Technic.....	10†	Soph., jr., sr.	14-15-16
11	Cytology and Technic.....	5	All	14-15-16
14-15-16	General Zoology (Agr., For., and H. E.).....	9‡	All	None

† The full course must be completed before credit will be allowed.

‡ The full course must be completed before credit will be allowed except that students in home economics may receive credit for the first two quarters work when Botany 8 has also been satisfactorily completed.

PROGRAM

AGRONOMY AND FARM MANAGEMENT

No.	Title	Hour	Day	Room	Instructor
1f,w,s†	Farm Crops.....	III, IV	MWF	2Ad	Mr. McGinnis, Mr. Steinmetz
11s	Farm Machinery.....	V, VI, VII	WF	BAd	Mr. Bassett
101s	Farm Management I.....	II	TThS	24Ad	Mr. Pond
102f	Farm Management II: Or- ganization .....	II	MWF	24Ad	Mr. Boss, Mr. Garey
102w†	Farm Management II: Or- ganization .....	I	MWF	24Ad	Mr. Boss, Mr. Garey
103w	Farm Management II: Opera- tion .....	II	MWF	24Ad	Mr. Boss, Mr. Garey
103s†	Farm Management II: Opera- tion .....	I	MWF	24Ad	Mr. Boss, Mr. Garey
104s	Farm Management III.....	II	MWF	24Ad	Mr. Boss
121f	Cereal Crops.....	V, VI, VII	TTh	2Ad	Mr. Arny, Mr. McGinnis
122w	Corn and Potato Crops.....	V, VI, VII	TTh	2Ad	Mr. Arny, Mr. McGinnis
123s	Forage and Fiber Crops.....	V, VI, VII	TTh	2Ad	Mr. Arny, Mr. McGinnis
131f	Principles of Genetics.....	I	TThS	24Ad	Mr. Hayes Mr. Dorsey
132s†	Farm Crops Plant-Breeding..	I	TThS	24Ad	Mr. Hayes, Mr. Griffee

ANIMAL BIOLOGY

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
1f-2w*	General Zoology.....				
	Sec. 1 Lab.	III, IV	MWF	101AB	Ar
	Lect.	III	TThS		
		IV	T	313AB	Ar
	2 Lab.	V, VI, VII	TTh	101AB	Ar
	Lect.	V	MWF		
		VI	F	313AB	Ar
	3 Lab.	V, VI	MWF	101AB	Ar
	Lect.	V, VI	TTh	313AB	Ar
1w-2s*	General Zoology.....				
	Lab.	I, II	MWF	101AB	Ar
	Lect.	I	T		
		II	TThS	313AB	Ar
1s-2w*	General Zoology.....				
	Lab.	V, VI, VII	TTh	101AB	Ar
	Lect.	V	MWF		
		VI	F	313AB	Ar
9f-10w*	Cytology and Technic.....	III, IV	MTWFS	201,211AB	Mr. Downey
11s*	Cytology and Technic.....	III, IV	MTWFS	201,211AB	Mr. Nachtrieb
14f-15w-16s	General Zoology, (Agr., For., and H.E.).....	V, VI, VII	TTh	101,313AB	Ar

† Offered also in the summer session.

\* Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

17-18	General Physiology.....	10†	Soph., jr., sr.	14 cred. or 9 cred. and chem. or phys. 10 cred.
23	Principles of Animal Behavior	3	All	14-15-16
37-38-39	General Entomology.....	9†	Soph., jr., sr.	14-15-16
43	Introductory Entomology....	5	All	14-15-16
44	Animal Parasites.....	3	All	14-15-16
46-47	Ornithology .....	6†	Soph., jr., sr.	14-15-16
48	General Ecology.....	5	All	14-15-16
107	Protozoology .....	3	Jr., sr.	14 cred. incl. 14-15-16
109-110	General Physiology.....	10†	Jr., sr.	20 cred.
117-118-119	Ecology of Insects.....	9†	Jr., sr.	43
124	Advanced Ecology.....	5	Jr., sr.	117-118-119
125-126-127	Advanced Entomology.....	9†	Jr., sr.	37-38-39 or 43
130	Biology and Taxonomy of the Aphididae .....	3	Jr., sr.	19 cred. incl. 14-15-16
139-140	Histology and Development of Insects.....	6†	Jr., sr.	37-38-39 or 43
144-145-146	Animal Parasites and Parasitism .....	9	Jr., sr.	37-38-39 or 43
181-182	Embryology .....	6	Jr., sr.	11 or equiv.
183	Genetics and Eugenics.....	3	Jr., sr.	14-15-16, 5 cred. in an. biol. or bot.

For additional courses, see the bulletin of the College of Science, Literature, and the Arts.

## ANTHROPOLOGY AND AMERICANIZATION TRAINING

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1	Introduction to Anthropology	5	3d qu. fr., Soph., jr., sr.	None
4	Cultural Anthropology.....	3	Soph., jr., sr.	1
5	General Immigration.....	3	Soph., jr., sr.	1
12	Ethnology .....	3	Soph., jr., sr.	1
110	Physical Anthropology and Amalgamation .....	3	Jr., sr.	1, an. biol. 9 cred.
113	The American People, Older Immigrants .....	3	Jr., sr.	3 courses
114	The American People, Newer Immigrants .....	3	Jr., sr.	3 courses
115	The American People, Americanisms and Assimilation..	3	Jr., sr.	3 courses

For additional courses, see the bulletin of the College of Science, Literature, and the Arts.

† The full course must be completed before credit will be allowed.

PROGRAM

17f-18w*	General Physiology.....	V, VI, VII V, VI, VII, VIII	MW  F				
23s*	Principles of Animal Behavior	V, VI, VII	TTh	10AB	Mr. Lund		
37f-38w-39s*	General Entomology.....	I, II	MWF	208,10AB	Mr. Oestlund		
43s*	Introductory Entomology....	I, II	MWThFS	208,10AB	Mr. Oestlund		
44f*	Animal Parasites.....	V, VI	MWF	208,10AB	Mr. Riley		
44s*	Animal Parasites.....	V, VI, VII	WF	208,10AB	Mr. Riley		
46w-47s*	Ornithology .....	V, VI, VII	TTh	211,314AB	Mr. Roberts		
48s*	General Ecology.....	V, VI, VII V, VI, VII, VIII	MW  F			208,10AB	Mr. Chapman
107s*	Protozoology .....	I, II	MWF	211,213AB	Mr. Sigerfoos		
109f-110w*	General Physiology.....	V, VI, VII V, VI, VII, VIII	MW  F			10AB	Mr. Lund
117f-118w- 119s*	Ecology of Insects.....	V, VI, VII	TTh	208,10AB	Mr. Chapman		
124†*	Advanced Ecology.....	Ar	Ar	Ar	Ar		
125f-126w- 127s*	Advanced Entomology.....	III, IV	TThS	208,10AB	Mr. Oestlund		
130w*	Biology and Taxonomy of the Aphididae .....	III, IV	MWF	208,10AB	Mr. Oestlund		
139f-140w	Histology and Development of Insects.....	II, III, IV	TTh	324Ad	Mr. Riley		
144f-145w- 146s*	Animal Parasites and Para- sitism .....	V, VI, VII	WF	208,10AB	Mr. Riley		
181f-182w*	Embryology .....	V, VI	MWF	201,211AB	Mr. Nachtrieb		
183s*	Genetics and Eugenics.....	III	MWF	211AB	Mr. Nachtrieb		

ANTHROPOLOGY AND AMERICANIZATION TRAINING

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
if*	Introduction to Anthropology				
	Sec. 1	II	MWThFS	15F	Mr. Jenks
	2	V	MTWThF	15F	Mr. Grace
1w*	Introduction to Anthropology	V	MTWThF	15F	Mr. Grace
1s*	Introduction to Anthropology				
	Sec. 1	II	MWThFS	15F	Mr. Grace
	2	V	MTWThF	25F	Mr. Grace
4w*	Cultural Anthropology.....	II	MWF	25F	Mr. Jenks
5f,w,s*	General Immigration.....	III	TThS	15F	Mr. Grace
12f*	Ethnology .....	II	TThS	12F	Miss Speaker
12w*	Ethnology .....	III	MWF	25F	Mr. Grace
12s*	Ethnology .....	II	TThS	25F	Miss Speaker
110s*	Physical Anthropology and Amalgamation .....	II	MWF	25F	Mr. Jenks
113f*	The Older Immigrants.....	III	MWF	15F	Mr. Jenks
114w*	The Newer Immigrants.....	III	MWF	15F	Mr. Jenks
115s*	Americanisms and Assimila- tion .....	III	MWF	15F	Mr. Jenks

\* Offered on the Minneapolis campus.

† Offered in the summer session.

## COURSES IN AGRICULTURE

ANIMAL HUSBANDRY  
ANIMAL INDUSTRY GROUP

No.	Title	Credits	Offered to	Prerequisite courses
1	Types and Breeds of Livestock .....	5	All	None
2	Livestock-Judging .....	3	Soph., jr., sr.	1
3	Market Classes of Livestock .....	6	Jr., sr.	2†
5	Livestock-Breeding .....	3	Jr., sr.	Agron. 131
6	Livestock-Feeding .....	5	Jr., sr.	Agr. Biochem. 15
7	Meats .....	3	Sr.	2, Agr. Biochem. 15
8	Fundamentals of Feeding....	3	Jr., sr.	Agr. Biochem. 15
9	Pedigrees and Herd Books..	3	Jr., sr.	5
101	Advanced Stock-Judging....	3	Sr.	2, 3-4
102	Horse Husbandry.....	3	Jr., sr.	2, 3-4, 5, 6
103	Beef-Cattle Husbandry.....	3	Jr., sr.	2, 3-4, 5, 6
104	Sheep Husbandry.....	3	Jr., sr.	2, 3-4, 5, 6
105	Swine Husbandry.....	3	Jr., sr.	2, 3-4, 5, 6
106	Advanced Meats.....	3	Jr., sr.	7
107	Meat Problems.....	3	Sr.	106
108	Seminar .....	3	Sr.	5, 6

## ART EDUCATION

## COLLEGE OF EDUCATION

No.	Title	Credits	Offered to	Prerequisite courses
29-30-31††	Fundamental Principles of Design .....	9	All	None
32-33-34	Freehand Drawing and Composition .....	9‡	All	None
	A Still Life, B Composition, and C Sketch			
40-41-42	Principles of Harmony in Form and Color.....	9	Soph., jr., sr.	29-30-31 or instructor's permission

For additional courses see the bulletin of the College of Education.

‡ Three one-unit courses each term which may be registered for separately.

† No prerequisite except for students who take courses in this division in addition to 1 and 3.

†† Home economics students who have completed H. E. 51 and 53 will be admitted to the last quarter's work.

PROGRAM

ANIMAL HUSBANDRY  
ANIMAL INDUSTRY GROUP

No.	Title	Hour	Day	Room	Instructor
1f,w	Types and Breeds and Live-stock .....	I, II	MTWFS	CSt	Mr. Carnes
2f	Livestock-Judging .....	III, IV	MWF	CSt	Mr. Anderson
3f-4w	Market Classes of Livestock				
	Lect.	I	M	WSt	Mr. Ferrin
	Lab.	I, II	WF	WSt	Mr. Ferrin
5w	Livestock-Breeding .....	IV	MWF	3St	Mr. Peters
6w	Livestock-Feeding .....	III	MTWFS	3St	Mr. Ferrin
7f	Meats .....	V, VI, VII	TTh	MS	Mr. Anderson
8s	Fundamentals of Feeding....	I	TThS	3St	Mr. Harvey, Mr. Rayburn
9s	Pedigrees and Herd Books..	II	TThS	3St	Mr. Ferrin
101f	Advanced Stock-Judging....	VI, VII	MWF	CSt	Mr. Ferrin
102s	Horse Husbandry.....				
	Lect.	II	TTh	WSt	Mr. Peters
	Lab.	V, VI, VII	F	CSt	Mr. Peters
103s	Beef-Cattle Husbandry.....				
	Lect.	III	MW	3St	Mr. Carnes
	Lab.	V, VI, VII	T	BB	Mr. Carnes
104s	Sheep Husbandry.....				
	Lect.	IV	WF	3St	Mr. Anderson
	Lab.	V, VI, VII	M	CSt	Mr. Anderson
105s	Swine Husbandry.....				
	Lect.	III	TS	3St	Mr. Ferrin
	Lab.	V, VI, VII	Th	CSt	Mr. Ferrin
106w	Advanced Meats.....	V, VI, VII	WF	MS	Mr. Anderson
107s	Meat Problems.....				
	Lect.	IV	TS	MS	Mr. Anderson
	Lab.	V, VI, VII	W	MS	Mr. Anderson
108s	Seminar .....	II	MWF	3St	Mr. Peters

ART EDUCATION  
COLLEGE OF EDUCATION

No.	Title	Hour	Day	Room	Instructor
29f-30w-31s*	Fundamental Principles of Design .....				
	Lect.	III	TThS	401,404F	Miss Raymond
	Sec. 1 Lab.	II	TThS	401,404F	Miss Raymond
	2	IV	TThS	401,404F	Miss Raymond
32f-33w-34s*	Freehand Drawing and Composition .....				
	Comp.	II	W	401,404F	Miss Raymond
	Sketch	III	F	401,404F	Miss Raymond
	Sec. 1 Lab.	I	MWF	401,404F	Miss Raymond
	2	IV	MWF	401,404F	Miss Raymond
40f-41w-42s*	Principles of Harmony in Form and Color.....				
	Lect.	II	TThS	406F	Miss Raymond
	Sec. 1 Lab.	I	TThS	406F	Miss Raymond
	2	III	TThS	406F	Miss Raymond

\* Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

## BACTERIOLOGY AND IMMUNOLOGY

## MEDICAL SCHOOL

No.	Title	Credits	Offered to	Prerequisite courses
1	General Bacteriology.....	5	Soph., jr., sr.	Chem. 10 cred.
103	Special Bacteriology for Students of Agriculture...	4	Jr., sr.	1
105	Household Bacteriology.....	3	Jr., sr.	1

For additional courses see the bulletin of the Medical School.

## BEE CULTURE

No.	Title	Credits	Offered to	Prerequisite courses
1	Elements of Beekeeping I...	3	All	None
2	Elements of Beekeeping II..	3	All	None
3	Advanced Beekeeping I....	3	Soph., jr., sr.	1, 2
4	Advanced Beekeeping II....	3	Soph., jr., sr.	1, 2
5	Queen-Raising .....	3	Jr., sr.	3, 4

## BOTANY

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1-2	General Botany.....	10†	All	None

† The full course must be completed before credit will be allowed.



PROGRAM

BACTERIOLOGY AND IMMUNOLOGY

MEDICAL SCHOOL

No.	Title	Hour	Day	Room	Instructor
1f-w-s*†	General Bacteriology.....	V, VI, VII	MWF	MH	Ar
103w*	Special Bacteriology for Students of Agriculture...	III, IV	TS	MH	Ar
		IV	Th	MH	Ar
105f*	Household Bacteriology.....	VI, VII	TTh	MH	Ar

BEE CULTURE

No.	Title	Hour	Day	Room	Instructor
1f,w,s†	Elements of Beekeeping I..				
	Sec. 1 Lect.	III	TThS	FH	Mr. Jager
	Lab.	Ar	Ar	FH	Mr. Jager
	2 Lect.	III	MWF	FH	Mr. Jager
	Lab.	Ar	Ar	FH	Mr. Jager
2f,w,s†	Elements of Beekeeping II..				
	Sec. 1 Lect.	IV	MW	FH	Mr. Jager
	Lab.	Ar	Ar	FH	Mr. Jager
	2 Lect.	IV	TS	FH	Mr. Jager
	Lab.	Ar	Ar	FH	Mr. Jager
3f,w	Advanced Beekeeping I.....				
	Lect.	V	TTh	FH	Mr. Jager
	Lab.	Ar	Ar	FH	Mr. Jager
4w,s	Advanced Beekeeping II....				
	Lect.	VI	TTh	FH	Mr. Jager
	Lab.	Ar	Ar	FH	Mr. Jager
5‡	Queen-Raising .....				Mr. Jager

BOTANY

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
1f-2w*	General Botany.....				Mr. Durand in charge
	Sec. 1 Lab.	I, II	MWF	212-214-220P	
	Quiz	I	T	212-214-220P	
	Lect.	II	TThS	210P	
	2 Lab.	III, IV	MWF	212-214-220P	
	Quiz	IV	T	212-214-220P	
	Lect.	III	TThS	210P	
		III, IV	S	210P	
	3 Lab.	V, VI	MWF	212-214-220P	
	Quiz	V	Th	210P	
	Lect.	V, VI	T	210P	
		VI	Th	210P	

\*Offered on the Minneapolis campus.  
 † Offered also in the summer session.  
 ‡ Offered only in the summer session.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
4-5-6	General Botany for Agriculture and Forestry Students	9†	All	None
7	Taxonomy of Flowering Plants .....	5	All	2, 6, or 8
8	General Botany for Home Economics Students.....	5	All	None
11	Algae and Fungi.....	5	Soph., jr., sr.	2, 6, or 8
15	Anatomy of Vascular Plants	5	Soph., jr., sr.	2, 6, or 8
20	Forest Ecology.....	3	Soph., jr., sr.	14 cred., for. 4 cred.
51	Histological Methods.....	3	Jr., sr.	14 cred.
52	Plant Physiology.....	5	Jr., sr.	14 cred.
53	Botany of Economic Plants..	5	Jr., sr.	14 cred.
54	Elementary Ecology.....	5	Jr., sr.	14 cred.
55	Algae .....	5	Jr., sr.	14 cred.
62	Bryophytes and Pteridophytes	5	Jr., sr.	14 cred.
63	Angiosperms and Gymnosperms .....	5	Jr., sr.	7 or 62
107	Bryophytes .....	5	Sr.	7, 62
108	Pteridophytes .....	5	Sr.	7, 62
110	Gymnosperms .....	5	Sr.	7, 63
113-114-115	Advanced Taxonomy.....	9	Jr., sr.	7
118-119	Cytology .....	6†	Jr., sr.	51
131	Field Ecology.....	5	Sr.	54
133	Forest Geography of North America .....	5	Sr.	54
141	Physical Phases of Plant Physiology .....	5	Sr.	52, org. chem.
142	Plant Metabolism.....	5	Sr.	52, org. chem.
143	Plant Metabolism and Growth .....	5	Sr.	52, org. chem.
144	Plant Microchemistry.....	5	Sr.	52, org. chem.

For additional courses, see the bulletin of the College of Science, Literature, and the Arts.

† The full course must be completed before credit will be allowed.

PROGRAM

No.	Title	Hour	Day	Room	Instructor
1s-2f*	General Botany.....				Mr. Durand in charge
	Lab.	I, II	TThS	212-214-220P	
	Quiz	I	W	210P	
	Lect.	II	MWF	210P	
4f-5w-6s*	General Botany (Agr. and For.) .....				Mr. Durand
	Lect.	VII	TTh	210P	
	Lab.	V, VI	TTh	212-214-220P	
7s*	Taxonomy of Flowering Plants .....				Mr. Rosendahl in charge
	Lab.	V, VI	MWF	212-214P	
	Quiz	VI	Th	210P	
	Lect.	V	TTh	210P	
8s*	General Botany (Home Econ.) .....				Mr. Durand
	Lect.	II	TThS	210P	
	Lab.	I, II	MWF	212-214-220P	
11f*	Algae and Fungi.....	I, II	TWThFS	10AB	Mr. Johnson
15w*	Anatomy of Vascular Plants	III, IV	MTWFS	202AB	Mr. Butters
20f*	Forest Ecology.....	Ar	Ar	Ar	Ar
51f*	Histological Methods.....	I, II	MWF	202AB	Mr. Rosendahl
52f*	Plant Physiology.....	III, IV	MTWFS	G	Mr. Knight
53w*	Botany of Economic Plants..	III, IV	MTWFS	G	Mr. Knight
54s*	Elementary Ecology.....	III, IV	MTWFS	G	Mr. Cooper
55s*	Algae .....	III, IV	MTWFS	10AB	Miss Tilden
62w*	Bryophytes and Pteridophytes .....	I, II	TWThFS	202AB	Mr. Huff
63s*	Gymnosperms and Angiosperms .....	I, II	TWThFS	202AB	Mr. Butters
107w*	Bryophytes .....	Ar	Ar	Ar	Mr. Durand
108w*	Pteridophytes .....	Ar	Ar	Ar	Mr. Butters
110w*	Gymnosperms .....	Ar	Ar	Ar	Mr. Butters
113f-114w-115s*	Advanced Taxonomy.....	V, VI	MWF	202AB	Mr. Rosendahl
118w-119s*	Cytology .....	I, II	MWF	202AB	Mr. Rosendahl
131f*	Field Ecology.....	Ar	Ar	Ar	Mr. Cooper
133s*	Forest Geography of North America .....	V, VI	MWF	G	Mr. Cooper
141f*	Physical Phases of Plant Physiology .....	I, II	TWThFS	G	Mr. Knight, Mr. Harvey
142w*	Plant Metabolism.....	I, II	TWThFS	G	Mr. Knight, Mr. Harvey
143s*	Plant Metabolism and Growth .....	I, II	TWThFS	G	Mr. Knight, Mr. Harvey
144s*	Plant Microchemistry.....	Ar	Ar	G	Mr. Harvey

\* Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

## CHEMISTRY

## SCHOOL OF CHEMISTRY

No.	Title	Credits	Offered to	Prerequisite courses
1-2-3	General Inorganic Chemistry	12†	All	None
9-10	General Inorganic Chemistry	10†	All	H.-s. chem.
11	Qualitative Chemical Analysis	4	Soph., jr., sr.	1-2-3
12-13	Qualitative Chemical Analysis	10†	Soph., jr., sr.	9-10
20-21	Quantitative Analysis.....	10	Soph., jr., sr.	12-13
35-36	Organic Chemistry.....	10†	Jr., sr.	15 cred. in chem.
126	Sanitary Water Analysis....	1 or 2	Jr., sr.	21
140-141‡-142	Physical Chemistry.....	9, 12, or 15	Jr., sr.	2 yrs. chem., 1 yr. phys.

For additional courses see the bulletin of the School of Chemistry.

† The full course must be completed before credit will be allowed.

‡ The first two quarters must be completed before credit is allowed.

PROGRAM

91

CHEMISTRY  
SCHOOL OF CHEMISTRY

No.	Title	Hour	Day	Room	Instructor
1f-2w*	General Inorganic Chemistry				
	Lect.	VI	MWF	100C	Mr. Sneed
	Lab.	VII, VIII	MW	210C	Mr. Sneed
3s*	General Inorganic Chemistry				
	Lect.	VI	MF	100C	Mr. Sneed
		IV	S	100C	Mr. Sneed
	Lab.	VII, VIII	MF	210C	Mr. Sneed
9f-10w*	General Inorganic Chemistry				
	Lect.	VI	MWF	100C	Mr. Sneed
	Lab.	VII, VIII	MWF	210C	Mr. Sneed
11f*	Qualitative Chemical Analysis				
	Lect.	IV	MWF	225C	Miss Cohen
	Lab.	V, VI	MW	210C	Miss Cohen
11s*	Qualitative Chemical Analysis				
	Lect.	V	MWF	100C	Mr. Henderson, Mr. Fosse
	Lab.	V, VI or VII, VIII	TTh TTh	210C 210C	
12s*	Qualitative Chemical Analysis				
	Lect.	II	MWF	100C	Mr. Sneed
	Lab.	I, II, III	ThS	210C	Mr. Sneed
12f-13w*	Qualitative Chemical Analysis .....				
	Lect.	II	TThS	Ar	Ar
	Lab.	V, VI, VII	MW	Ar	Ar
13f*	Qualitative Chemical Analysis				
	Lect.	II	TThS	325C	Mr. Sneed
	Lab.	V, VI, VII	MW	210C	Mr. Sneed
10w-21s*	Quantitative Analysis.....				
	Lect.	V	M	325C	Mr. Geiger
	Rec.	V	F	315C	Mr. Geiger
	Lab.	VI-VIII	MF	310C	Mr. Sidener, Mr. Geiger
		V-VIII	W	310C	Mr. Sidener, Mr. Geiger
35f-36w*	Organic Chemistry.....				
	Lect.	III	MWF	325C	Mr. Hunter
	Lab.	V-VII	TTh	10C	Mr. Hunter, Mr. Lauer
126s*	Sanitary Water Analysis....				
	Lect.	V	T	315C	Mr. Sidener
	Lab.	VI-VII	T	310C	Mr. Sidener, Mr. Geiger
	Lab.	V-VII	Th	310C	Mr. Sidener, Mr. Geiger
140f-141w- 142s*	Physical Chemistry.....				
	Lect.	IV	MWF	325C	Mr. MacDougall
	Lab.	V-VII	F	117C	Mr. MacDougall
	Rec.	IV	S	115C	Ar

\* Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

DAIRY HUSBANDRY  
ANIMAL INDUSTRY GROUP

No.	Title	Credits	Offered to	Prerequisite courses
1	Elements of Dairying.....	5	All	None
2	Dairy Bacteriology.....	5	Soph., jr., sr.	Bact. 1
3	Dairy Products.....	5	Jr., sr.	1, 2
4	Cheese-Factory Practice.....	3	Jr., sr.	1, 3
5	Creamery Practice.....	3	Jr., sr.	1, 3
101	Milk Production.....	5	Jr., sr.	1
102	Market Milk.....	3	Jr., sr.	1, 2
103	Dairy-Stock Feeding.....	3	Sr.	101, Agr. Biochem. 15
104	Advanced Study of Dairy Breeds .....	. 3	Jr., sr.	101
105	Seminar I.....	1	Sr.	3 courses in dy. husb.
106	Seminar II.....	1	Sr.	3 courses in dy. husb.
107	Seminar III.....	1	Sr.	3 courses in dy. husb.

## ECONOMICS

## SCHOOL OF BUSINESS

No.	Title	Credits	Offered to	Prerequisite courses
5	General Economics.....	5	Soph., jr., sr.	None
6	Agricultural Economics.....	3	Soph., jr., sr.	3-4, or 5
13	Agricultural Statistics.....	5	Soph., jr., sr.	3-4, or 5
20	Economic Geography of Agriculture .....	5	All	None
21	Economic History of Agriculture .....	5	All	None

PROGRAM

DAIRY HUSBANDRY  
ANIMAL INDUSTRY GROUP

No. if,w,s	Title	Hour	Day	Room	Instructor
	Elements of Dairying..... (Limited to 50)				
	Lect.	III	TWS	39DH	Mr. Keithley
	Lab.	III, IV	MF	Lab.DH	Mr. Dahle, Mr. Anderson
2w	Dairy Bacteriology..... (Limited to 12)				
	Lect.	IV	TS	40DH	Mr. Macy
	Lab.	V, VI	MWF	30DH	Mr. Macy
3f	Dairy Products.....				
	Lect.	IV	MWF	39DH	Mr. Keithley
	Lab.	V, VI	WF	Lab.DH	Mr. Dahle
4†	Cheese-Factory Practice.....	....	....	....	Mr. Keithley
5†	Creamery Practice.....	....	....	....	Mr. Keithley
101f	Milk Production.....				
	Lect.	IV	MTWF	40DH	Mr. Eckles
	Lab.	V, VI, VII	Th	Ar	Mr. Rayburn
102s	Market Milk.....	VI, VII	MWF	39DH	Mr. Keithley, Mr. Macy
103w	Dairy-Stock Feeding.....	III	MWF	30DH	Mr. Eckles
104s	Advanced Study of Dairy Breeds .....				
	Lect.	III	S	40DH	Mr. Rayburn
	Lab.	V, VI	TTh	40DH	Mr. Rayburn
105f	Seminar I.....	II	S	30DH	Mr. Eckles
106w	Seminar II.....	II	S	30DH	Mr. Eckles
107s	Seminar III.....	II	S	30DH	Mr. Eckles

ECONOMICS  
SCHOOL OF BUSINESS

No.	Title	Hour	Day	Room	Instructor
5f,w†	General Economics (Agriculture and Forestry).....				
	Sec. 1	I	MWThFS	106En	Ar
	2	III	MTWFS	4PP	Ar
5w,s	General Economics (Home Economics) .....	II	MTWThF	203HE	Ar
6f,w,s†	Agricultural Economics.....				
	Sec. 1	I	TThS	1PP	Ar
	2	II	TThS	307Ad	Ar
13f	Agricultural Statistics.....				
	Lect.	III	TThS	307Ad	Mr. Working
	Lab.	V, VI	TTh	307Ad	Mr. Working
20f	Economic Geography of Agriculture .....	IV	MTWFS	307Ad	Mr. Holmes
21w	Economic History of Agriculture .....	IV	MTWFS	307Ad	Ar

† Offered only in the summer session.

‡ Offered also in the summer session.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
25-26	Principles of Accounting....	8‡	Soph., jr., sr.	3-4, 5, or parallel
28	Principles of Accounting (for Agr., For., and H.E.).....	5	Soph., jr., sr.	3-4, or 5
50	Farm Finance.....	3	Jr., sr.	3-4, or 5 and 6
73	Railway Traffic and Rates..	3	Jr., sr.	3-4, or 5 and 6
85	Principles of Marketing.....	3	Jr., sr.	3-4, or 5 and 6
88	Advertising and Selling.....	3	Jr., sr.	85, Psychol. 156
90	Economics of Consumption..	3	Jr., sr.	3-4, or 5 and 6
91	Principles of Organization and Management.....	3	Soph., jr., sr.	3-4, or 5

‡ The full course must be completed before credit will be allowed.



PROGRAM

No.	Title	Hour	Day	Room	Instructor
25f-26w*	Principles of Accounting....				Mr. Heilman in charge
	Sec. 1	I	MWF	301MA	
	2	II	MWF	301MA	
	3	II	MWF	303MA	
	4	III	MWF	301MA	
	5	IV	MWF	301MA	
	6	V	MWF	301MA	
	7	I	TThS	301MA	
	8	II	TThS	301MA	
	9	III	TThS	301MA	
	10	VI	MWF	209MA	
25f-26w*	Accounting Laboratory (to be given with Principles of Accounting).....				Mr. Heilman in charge
	Sec. 1	V, VI	M	303MA	
	2	VI, VII	M	301MA	
	3	III, IV	T	303MA	
	4	I, II	T	303MA	
	5	VI, VII	T	301MA	
	6	VII, VIII	T	303MA	
	7	V, VI	W	303MA	
	8	VI, VII	W	301MA	
	9	II, III	Th	303MA	
	10	VI, VII	Th	301MA	
	11	V, VI	Th	303MA	
	12	VII, VIII	Th	303MA	
	13	V, VI	F	303MA	
	14	VI, VII	F	301MA	
	15	III, IV	F	303MA	
	16	III, IV	S	303MA	
	17	I, II	S	303MA	
	18	VII, VIII	W	303MA	
25w-26s*	Principles of Accounting....				
	Sec. 1	III	MWF	102MA	Mr. Heilman
	2	I	TThS	107F	Mr. Heilman
25w-26s*	Accounting Laboratory.....				Mr. Heilman in charge
	Sec. 1	V, VI	T	303MA	
	2	III, IV	W	303MA	
	3	VII, VIII	M	303MA	
28s	Principles of Accounting.... (Agr., For., and H.E.)				
	Lect.	III MWF and VI Th		24Ad	Mr. Heilman, Mr. Chapman
	Lab.	VII, VIII	Th	24Ad	Mr. Heilman, Mr. Chapman
50s	Farm Finance.....	II	MWF	307Ad	Mr. Dowrie
73w*	Railway Traffic and Rates...	V	MWF	202MA	Mr. Cummings
85f,s	Principles of Marketing....	II	TThS	4PP	Mr. Anderson
88s*	Advertising and Selling....	I	TThS	202MA	Mr. Pelz
90s	Economics of Consumption..	IV	MWF	307Ad	Mr. Garver
91w	Principles of Organization and Management.....	I	TThS	202MA	Mr. Pelz

\* Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
94	Office Management.....	3	Jr., sr.	3-4, or 5 and 6
103-104	Value and Distribution.....	6‡	Jr., sr.	3-4, or 5 and 6
106	Land Economics.....	3	Jr., sr.	See footnote†
107	Land Tenure.....	3	Jr., sr.	106
108	Marketing of Farm Products	3	Jr., sr.	85
110-111	Practice Course in Marketing	3	Jr., sr.	85
112	Business Statistics.....	3	Jr., sr.	13 or 14
116	Economics of Agricultural Production .....	3	Jr., sr.	See footnote†
117	Prices of Farm Products....	3	Jr., sr.	See footnote†
126	Principles of Coöperation...	3	Jr., sr.	85 or see footnote†
127-128	Marketing Organization and Management .....	6	Jr., sr.	85, 25-26 or 28
131-132-133	Cost Accounting.....	3	Jr., sr.	25-26
143-144	Money and Banking.....	8‡	Jr., sr.	3-4, or 5 and 6
145	International Exchange.....	3	Jr., sr.	143-144
149	Business Cycles.....	3	Sr.	143-144
176	Commercial Policies.....	3	Jr., sr.	3-4, or 5 and 6
177	Foreign Trade.....	3	Jr., sr.	176
180-181-182	Senior Seminar in Economics	9	Sr.	See footnote†
191-192	Public Finance.....	6‡	Jr., sr.	3-4, or 5 and 6
193	State and Local Taxation...	3	Jr., sr.	191-192

For additional courses, see bulletin of the School of Business

## EDUCATIONAL ADMINISTRATION AND SUPERVISION

## COLLEGE OF EDUCATION

No.	Title	Credits	Offered to	Prerequisite courses
3	Educational Sociology.....	3	Jr., sr.	Psychol. 6 cred.
5	Public Education in the United States.....	3	Jr., sr.	Psychol. 6 cred.
119	The Elementary-School Cur- riculum .....	3	Sr.	1 or 101-102-103, 3

For additional courses see the bulletin of the College of Education.

† Senior rank, or 13 credits in economics and farm management, and 5 credits in other social sciences (political science, sociology, or history).

‡ The full course must be completed before credit will be allowed.

PROGRAM

No.	Title	Hour	Day	Room	Instructor
94f*	Office Management.....				Miss Sykes
	Rec.	V	Th	102MA	
	Lab. Sec. 1	V, VI	M	104,106MA	
	2	V, VI	W	104,106MA	
103f-104w*	Value and Distribution.....	VI	MWF	102MA	Mr. Garver
106w	Land Economics.....	VI	MWF	307Ad	Mr. Black
106s*	Land Economics.....				
	See School of Business program				
107s	Land Tenure.....	VI	MWF	307Ad	Mr. Black
108w	Marketing of Farm Products	VI, VII	T	323Ad	Mr. Black
110s-111f	Practice Course in Marketing	Ar	Ar	Ar	Mr. Black, Mr. Anderson
112f*	Business Statistics.....	II	TThS	202MA	Mr. Mudgett
116f,w	Economics of Agricultural Production .....	II	TThS	24Ad	Mr. Holmes
117w	Prices of Farm Products....	II	TThS	4PP	Mr. Working
126f*	Principles of Coöperation...	Ar	Ar	Ar	Mr. Black, Mr. Miller
127w-128s	Marketing Organization and Management .....	Ar	Ar	Ar	Ar
131f-132w- 133s*	Cost Accounting.....	II	TThS	109MA	Mr. Noble
143f-144w*	Money and Banking.....				
	Lect.	IV	T		Mr. Dowrie, Mr. Ebersole, Mr. Stehman
	Sec. 1	II	TThS	302D	
	2	III	MWF	209MA	
	3	II	MWF	102MA	
	4	VII	MTW	209MA	
	5	V	MWF	102MA	
	6	III	TThS	209MA	
145s*	International Exchange.....	II	TThS	102MA	Mr. Dowrie
149s*	Business Cycles.....	VIII	MTW	209MA	Mr. Ebersole
176f*	Commercial Policies.....	I	MWF	202MA	Mr. Blakey
177w*	Foreign Trade.....	I	MWF	202MA	Mr. Blakey
180f-181w- 182s	Senior Seminar in Economics	Ar	Ar	Ar	Ar
191f-192w*	Public Finance.....	III	MWF	209MA	Mr. Blakey
193s*	State and Local Taxation...	III	MWF	209MA	Mr. Blakey

EDUCATIONAL ADMINISTRATION AND SUPERVISION

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Room	Instructor
3f*	Educational Sociology.....				
	Sec. 1	II	MWF	205Ed	Mr. Finney
	2	III	MWF	205Ed	Mr. Finney
3w,s*	Educational Sociology.....	III	MWF	205Ed	Mr. Finney
5w*	Public Education in the United States.....	VI	MWF	102Ed	Mr. Swift
5s	Public Education in the United States.....	VI	MWF	317Ad	Miss Alexander
119w*	The Elementary School Cur- riculum .....	VII	MWF	102Ed	

\* Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

## EDUCATIONAL PSYCHOLOGY

## COLLEGE OF EDUCATION

No.	Title	Credits	Offered to	Prerequisite courses
45	Elementary Educational Psychology .....	3	Soph., jr., sr.	Psychol. 6 cred.
106-107-108	Advanced Educational Psychology .....	9	Jr., sr.	45 or equiv.
111	Educational Diagnosis.....	3	Jr., sr.	45 or equiv.

For additional courses see the bulletin of the College of Education.

## ENGLISH

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1-2-3	General Survey of English Literature .....	9	Soph., jr., sr.	Rhet. 1-2-3
4	Old English.....	4	Soph., jr., sr.	1-2-3 or parallel
6	Chaucer .....	4	Soph., jr., sr.	1-2-3 or parallel
8	Shakespeare .....	4	Soph., jr., sr.	1-2-3 or parallel
27	History of the English Language .....	2	Soph., jr., sr.	4
40	Bible as Literature.....	4	Soph., jr., sr.	1-2-3 or parallel
44-45	American Literature.....	6†	Jr., sr.	1-2-3
51	Spenser .....	3	Jr., sr.	1-2-3
53	Seventeenth-Century Lyrists.	4	Jr., sr.	1-2-3
58-59	Nineteenth-Century Prose...	6†	Soph., jr., sr.	1-2-3
62	Milton .....	4	Jr., sr.	1-2-3
64	Bacon .....	3	Jr., sr.	1-2-3
66	English Novel.....	4	Jr., sr.	1-2-3

For additional courses, see the bulletin of the College of Science, Literature, and the Arts.

## ENTOMOLOGY AND ECONOMIC ZOOLOGY

No.	Title	Credits	Offered to	Prerequisite courses
1	Introductory Entomology....	5	Soph., jr., sr.	An. biol. 9 cred.
2	Economic Entomology.....	5	Soph., jr., sr.	1
3	Elementary Economic Entomology .....	3	Soph., jr., sr.	An. biol. 9 cred.
4	Economic Vertebrate Zoology .....	3	Jr., sr.	An. biol. 9 cred.

† The full course must be completed before credit will be allowed.

PROGRAM

EDUCATIONAL PSYCHOLOGY

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Room	Instructor
45f,s*	Elementary Educational Psychology .....	I	MWF	Psy	Miss Dealey
45w*	Elementary Educational Psychology .....	IV	MWF	Psy	Miss Dealey
106f-107w-108s	Advanced Educational Psychology .....	III	MWF	Psy	Mr. Van Wagenen
111s*	Educational Diagnosis.....	II	MWF	Psy	Mr. Van Wagenen

ENGLISH

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
1f-2w-3s*	General Survey of English Literature .....				
	Sec. 1 Lect.	II	M	Ar	Ar
	Rec.		WF	114F	Ar
	2 Lect.	VI	T	Ar	Ar
	Rec.	VI	WF	205F	Ar
4w,s*	Old English.....	V	MTThF	204F(w)205F(s)	Ar
6f*	Chaucer .....	VII	MWThF	204F	Ar
6w*	Chaucer .....	IV	MTWF	205F	Ar
6s*	Chaucer .....	II	TWFS	204F	Ar
8f,w*	Shakespeare .....				
	Sec. 1	I	TWFS	204F	Ar
	2	V	MTThF	204F	Ar
8s*	Shakespeare .....				
	Sec. 1	I	TWFS	204F	Ar
	2	IV	MTWF	204F	Ar
27w*	History of English Language	VIII	TTh	204F	Mr. Klaeber
40f*	Bible as Literature.....	III	MWF	301F	Mr. Burton
44f-45w*	American Literature.....	IV	MWF	204F	Mr. Moore
51f*	Spenser .....	VI	MWF	204F	Ar
53f*	Seventeenth-Century Lyrists.	II	MTWF	205F	Mr. Moore
58w-59s*	Nineteenth-Century Prose...	II	TThS	205F	Mr. Beach
62w*	Milton .....	VI	MTThF	204F	Ar
64s*	Bacon .....	VI	MWF	204F	Ar
66f*	English Novel.....	IV	MTWF	9F	Mr. Burton

ENTOMOLOGY AND ECONOMIC ZOOLOGY

No.	Title	Hour	Day	Room	Instructor
1f,s*†	Introductory Entomology....	V, VI	MTWThF	208-210AB	Mr. Oestlund, Mr. Riley
2w†	Economic Entomology.....	V, VI	MTWThF	306Ad	Mr. Ruggles
3f,w	Elementary Econ. Entomology .....	V, VI, VII	WF	306Ad	Mr. Ruggles
4f	Economic Vertebrate Entomology .....	Ar	Ar	Ar	Mr. Washburn

\* Offered on the Minneapolis campus.

† Offered also during the summer session.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
5	Elementary Forest Entomology .....	3	Soph., jr., sr.	An. biol. 9 cred.
6	Insects of Forest Products..	3	Soph., jr., sr.	5
8	Varieties and Habits of Fur-bearing Animals.....	3	Soph., jr., sr.	An. biol. 9 cred.
12	Forest Zoology.....	3	Jr., sr.	An. biol. 9 cred.
20	Home Economics Entomology	3	Soph., jr., sr.	An. biol. 6 cred.
37-38-39	General Entomology.....	9	Soph., jr., sr.	An. biol. 9 cred.
44	Introductory Course in Animal Parasites and Parasitism .....	3	Soph., jr., sr.	An. biol. 9 cred.
117-118-119	General Ecology of Insects..	9	Jr., sr.	1-2 or 37-38-39
125-126-127	Advanced General Entomology .....	9	Jr., sr.	1-2 or 37-38-39
130	Biology and Taxonomy of the Aphididae .....	5	Sr.	1-2 or 37-38-39
139-140	Histology and Development of Insects.....	6	Jr., sr.	1-2 or 37-38-39
144-145-146	Animal Parasites and Parasitism .....	3-9	Jr., sr.	1-2 or 37-38-39
150	Insecticides and Their Action	3 or 6	Jr., sr.	1-2 or 37-38-39, Agr. Biochem., 7-8 or equiv.
197	Introduction to Research....	5 or more	Sr.	1-2 or 37-38-39 and other work as prescribed by the division

## FARM ENGINEERING

No.	Title	Credits	Offered to	Prerequisite courses
3	Mechanical Drawing.....	2	All	None
4	Blacksmithing .....	2	All	None
5	Carpentry .....	3	All	None
7	Farm Structures.....	3	Jr., sr.	3
8	Farm Engineering.....	5	All	None
11	Applied Mathematics.....	5	All	None
13	Farm Motors I.....	3	All	None
14	Farm Motors II.....	3	All	13
15	Mechanical Laboratory.....	2	All	None
17	Advanced Blacksmithing....	2	All	4
18	Surveying .....	5	Jr., sr.†	3, 11 or equiv.
23	General Physics.....	5	All	None

† Open also to sophomores in forestry.

## PROGRAM

101

No.	Title	Hour	Day	Room	Instructor
5f	Elementary Forest Entomology .....	V, VI, VII	WF	306Ad	Mr. Graham
6w	Insects of Forest Products..	Ar	Ar	Ar	Mr. Graham
8f	Varieties and Habits of Fur-bearing Animals.....	Ar	Ar	Ar	Ar
12w	Forest Zoology.....	Ar	Ar	Ar	Mr. Washburn
20w	Home Economics Entomology	V, VI, VII	TTh	307Ad	Mr. Riley, Mr. Ruggles
37f-38w-39s* 44f,s	General Entomology..... Introductory Course in Animal Parasites and Parasitism .....	I, II  V, VI, VII, VIII	MWF  MW or TTh	208-210AB	Mr. Oestlund
117f-118w- 119s*	General Ecology of Insects..	V, VI, VII	TTh	208-210AB	Mr. Chapman
125f-126w- 127s*	Advanced General Entomology .....	III, IV	TThS	208-210AB	Mr. Oestlund
130w*	Biology and Taxonomy of Aphididae .....	Ar	Ar	Ar	Mr. Oestlund
139f-140w*	Histology and Development of Insects.....	III, IV	MWF	208-210AB	Mr. Riley
144f-145w- 146s	Animal Parasites and Parasitism .....	V, VI, VII	WF	Ar	Mr. Riley
150f†	Insecticides and Their Action	Ar	Ar	Ar	Mr. Moore
197f,w,s†	Introduction to Research....	Ar	Ar	Ar	Mr. Oestlund, Mr. Ruggles, Mr. Chapman, Mr. Moore, Mr. Riley, Mr. Washburn

## FARM ENGINEERING

No.	Title	Hour	Day	Room	Instructor
3f,s	Mechanical Drawing.....	III, IV	MWF	305En	Mr. Jacobson
4s	Blacksmithing .....	V, VI, VII	TTh	20En	Mr. Johnston
5f	Carpentry .....	I, II	TThS	48En	Mr. White
7w	Farm Structures.....				
	Lect.	IV	TS	305En	Mr. White
	Lab.	VI, VII, VIII	M	305En	Mr. White
8f,w	Farm Engineering.....	I	MTWFS	107En	Mr. Boss
11f,w,s	Applied Mathematics.....	III	MTWFS	215En	
13f	Farm Motors I.....	I, II	TThS	37En	Mr. Torrance
13s	Farm Motors I.....	V, VI, VII	MF	37En	Mr. Torrance
14s	Farm Motors II.....	V, VI, VII	TTh	37En	Mr. Torrance
15f,s	Mechanical Laboratory.....	I, II	WF	56,101En	Mr. Dent
17s	Advanced Blacksmithing.....	V, VI, VII	WF	20En	Mr. Johnston
18s	Surveying .....	1:15-5:20	MWF	215En	Mr. Roe
23f,s	General Physics.....				
	Lect.	III	TThS	102En	Mr. Stewart
	Sec. 1 Lab.	I, II	TS	103En	Mr. Tyler
	2	V, VI	TTh	103En	Mr. Tyler

\* Offered on the Minneapolis campus.

† Offered also during the summer session.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
24	Agricultural Physics I.....	4	All	8, 11, 23 or equiv.
25	Agricultural Physics II.....	4	All	24
28	Land-Clearing .....	3	Jr., sr.	None
31	Farm Surveying and Drain- age .....	5	Jr., sr.	3, 11 or equiv.
34	Household Mechanics and Heat .....	4	All	23 or equiv.
35	Household Electricity and Light .....	4	All	34
101	Advanced Drainage.....	3	Sr.	31

## FORESTRY

No.	Title	Credits	Offered to	Prerequisite courses
1	General Forestry.....	4	All	None
2	Elementary Dendrology.....	3	All	None
3-4	Dendrology .....	8†	Soph., jr., sr.	Bot. 4
5	Elementary Sylviculture.....	3	All	None
9	Elementary Mensuration....	5	All	None
10	Forest Mensuration.....	5	Jr., sr.	3-4
11	Forest Valuation.....	5	Jr., sr.	10, 41
20	Grazing .....	3	Jr., sr.	None
23	Factory Experience.....	3 to 5	Jr., sr.	33-34
26	Tree Crops.....	1	All	None
27	Groves and Windbreaks.....	3	All	None
28	Logging .....	3	Sr.	3-4
29	Sawmills and Wood Working Machinery .....	3	Jr., sr.	33-34
30	Wood-Seasoning .....	3	Jr., sr.	33-34
31	Logging Plans.....	3	Sr.	28
32	Lumber Distribution.....	5	Jr., sr.	33-34
33-34	Wood Structure and Identi- fication .....	6	Jr., sr.	3-4, Bot. 4-5-6
35	Seeding and Planting.....	3	Jr., sr.	41
36	Forest Policy and Administra- tion .....	5	Sr.	43, 11, 28 parallel
39	Wood Preservation.....	3	Jr., sr.	33-34
40	Forest By-Products.....	3	All	None

† The full course must be completed before credit will be allowed.



PROGRAM

103

No.	Title	Hour	Day	Room	Instructor
24w	Agricultural Physics I.....				
	Lect.	III	MWF	102En	Mr. Stewart
	Lab.	V, VI, VII	M	103En	Mr. Tyler
25s	Agricultural Physics II.....				
	Lect.	III	MWF	102En	Mr. Stewart
	Lab.	V, VI, VII	M	103En	Mr. Tyler
28w	Land-Clearing .....	Ar	Ar	Ar	Mr. Thompson
31f	Farm Surveying and Drainage .....	1:15-5:20	MWF	215En	Mr. Roe
34w	Household Mechanics and Heat .....				
	Lect.	II	MWF	102En	Mr. Stewart
	Sec. 1 Lab.	V, VI	F	103En	Mr. Stewart
	2	I, II	Th	103En	Mr. Stewart
35s	Household Electricity and Light .....				
	Lect.	II	MWF	102En	Mr. Stewart
	Sec. 1 Lab.	V, VI	F	103En	Mr. Stewart
	2	I, II	Th	103En	Mr. Stewart
101s	Advanced Drainage.....	Ar	Ar	Ar	Mr. Roe

FORESTRY

No.	Title	Hour	Day	Room	Instructor
1f,s	General Forestry.....	II	MTWF	302Hr	Mr. Cheyney
2†	Elementary Dendrology.....				Mr. Wentling
3f-4w	Dendrology .....				
	Lect.	II	TThS	302Hr	Mr. Wentling
	Lab.	VI, VII, VIII	M	302Hr	Mr. De Flon
3w-4s	Dendrology .....				
	Lect.	I	TThS	302Hr	Mr. Wentling
	Lab.	VI, VII, VIII	F	302Hr	Mr. De Flon
5†	Elementary Sylviculture.....				Mr. Wentling
9†	Elementary Mensuration....				Mr. Allison
10w	Forest Mensuration.....	IV	MTWFS	302Hr	Mr. Hansen
11f	Forest Valuation.....	I	MTWThF	302Hr	Mr. Allison
20w	Grazing .....	III	TThS	302Hr	Mr. Allison
23††	Factory Experience.....				
26f,w	Tree Crops.....	IV†	TS	217En	Mr. Cheyney
27w	Groves and Wind Breaks...	I	MWF	302Hr	Mr. Wiggins
28w	Logging .....	III	MWF	302Hr	Mr. Cheyney
29f	Sawmill and Wood-Working Machinery .....	IV	MWF	301Hr	Mr. Cheyney
30s	Wood Seasoning.....	III	MWF	302Hr	Mr. Cheyney
31s	Logging Plans.....	Ar	Ar	Ar	Mr. Cheyney
32w	Lumber Distribution.....	II	MTWThF	302Hr	Mr. Cheyney
33f-34w	Wood Structure and Identification .....	V, VI, VII	WF	303Hr	Mr. Wentling
35w	Seeding and Planting.....	III	MWF	301Hr	.....
36w	Forest Policy and Administration .....	I	MTWThF	202Hr	Mr. Allison
39f	Wood Preservation.....	II	TThS	202Hr	Mr. Allison
40s	Forest By-Products.....	I	MWF	302Hr	Mr. Allison

† Offered only during summer session at Itasca Park.

†† Arrangements for this course must be made in advance.

‡ In the fall quarter this course follows hygiene lectures the last six weeks of the quarter. In the winter quarter it will be given the first six weeks of the quarter.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
41	Sylvics .....	3	Jr., sr.	3-4, Bot. 4-5-6
43	Sylviculture Laboratory.....	6	Jr., sr.	35
44	Wood Pulp and Paper.....	3	Jr., sr.	33-34 Chem. 3 or 10
45	Forest Regulation.....	3	Sr.	43, 11
46	Forest Regulation Laboratory	3	Jr.	43, 11
101	Advanced Dendrology.....	3	Jr., sr.	3-4, Bot. 4-5-6
106	Research Methods in Sylviculture .....	3	Sr.	43
107	Uses of Wood I.....	3	Sr.	33-34
108	Uses of Wood II.....	3	Sr.	33-34
109	Uses of Wood III.....	3	Sr.	107, 108
110	Mechanical and Physical Properties of Wood.....	2	Sr.	33-34
111	Advanced Wood Structure..	3	Sr.	33-34
112	Advanced Forest Mensuration .....	3	Sr.	10
113	Advanced Forest By-Products	3	Sr.	33-34, Chem. 35-36

## FRESHMAN LECTURES

No.	Title	Credits	Offered to	Prerequisite courses
1	Agriculture and Forestry....	None	Fr.	None
2	Home Economics.....	None	Fr.	None

## GEOLOGY AND MINERALOGY

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1-2	General Geology.....	10†	Soph., jr., sr.	Chemistry
7-8	Laboratory Work.....	2†	Soph., jr., sr.	Supports 1-2
11-12	Introduction to Geology.....	8†	Soph., jr., sr.	None
21-22	Essentials of Mineralogy...	6†	Soph., jr., sr.	Chemistry
29	General Physiography.....	5	Soph., jr., sr.	None
34	Meteorology .....	5	Soph., jr., sr.	None
37	Economic and Commercial Geography .....	5	Soph., jr., sr.	None
51-52	Economic Geology.....	6†	Jr., sr.	1-2

For additional courses see the bulletin of the College of Science, Literature, and the Arts.

† Both quarters must be completed before credit will be given.

PROGRAM

105

No.	Title	Hour	Day	Room	Instructor
41f	Sylvics .....	II	MWF	301Hr	Mr. Wentling
43s	Sylviculture Laboratory....	Ar	Ar	Ar	Mr. Wentling
44s	Wood Pulp and Paper.....	II	MWF	301Hr	Mr. Allison
45s	Forest Regulation.....	IV	MWF	302Hr	Mr. Allison
46s	Forest Regulation Laboratory	Ar	Ar	Ar	Mr. Allison
101w	Advanced Dendrology.....	Ar	Ar	Ar	Mr. Wentling
106w	Research Methods in Sylviculture .....	II	MWF	301Hr	.....
107f	Uses of Wood I.....	IV	MWF	303Hr	Mr. Wentling
108w	Uses of Wood II.....	IV	MWF	303Hr	Mr. Wentling
109s	Uses of Wood III.....	IV	MWF	303Hr	Mr. Wentling
110w	Mechanical and Physical Properties of Wood.....	V, VI	TTh	303Hr	Mr. Wentling
111f	Advanced Wood Structures..	V, VI, VII	TTh	303Hr	Mr. Wentling
112w	Advanced Forest Mensuration .....	Ar	Ar	Ar	Mr. Hansen
113w	Advanced Forest By-Products	Ar	Ar	Ar	Mr. Allison

FRESHMAN LECTURES

No.	Title	Hour	Day	Room	Instructor
1f	Agriculture and Forestry....	III	Th	107En	Mr. Freeman
2f	Home Economics.....	V	F	203HE	Mr. Freeman

GEOLOGY AND MINERALOGY

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
1f-2w*	General Geology.....				
	Sec. 1	I	TWThFS	210P	Mr. Thiel
	2	III	MTThFS	110P	Mr. Emmons
	3	VI	MTWThF	110P	Mr. Allison
1w-2s*	General Geology.....	II	MWThFS	210P	Mr. Werner
1s-2w*	General Geology.....	III	MTThFS	110P	Mr. Emmons
7f-8w*	General Geology Lab.....	Ar	Ar	112P	Mr. Allison
7w-8s*	General Geology Lab.....	Ar	Ar	112P	Mr. Allison
7s*	General Geology Lab.....	Ar	Ar	112P	Mr. Allison
11f-12w*	Introduction to Geology....	VII	MTWThF	200aP	Mr. Werner
21w-22s*	Essentials of Mineralogy....				
	Lect.	IV	MWF	210P	Mr. Gruner
	Lab.	V-VIII	F	100P	Mr. Gruner
	Lab.	III	MWF	100P	Mr. Gruner
29f*	General Physiography.....	III	MTThFS	210P	.....
34w*	Meteorology .....	III	MTThFS	210P	.....
37s*	Economic and Commercial Geography .....	III	MTThFS	210P	.....
51f-52w*	Economic Geology.....	II	MWF	210P	Mr. Schwartz

\* Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

## GERMAN

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1	Beginning, A.....	5	All	None
2	Beginning, B.....	5	All	1 or 1 yr. prep. German
3	Beginning, C.....	5	All	2
10	Rapid Reading.....	5	All	3 or 2 yrs. prep. German
11	Advanced Rapid Reading....	5	All	10 or 3 yrs. prep. German
14	Nineteenth-Century Prose...	5	All	11 or 4 yrs. prep. German
28-29	Advanced Chemical German	6†	All	15

PROGRAM

107

GERMAN

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
1f*	Beginning A.....				
	Sec. 1	I	TWThFS	207F	Ar
	2	II	MWThFS	207F	Ar
	3	IV	MTWFS	207F	Ar
	4	VI	MTWThF	207F	Ar
1w*	Beginning A.....				
	Sec. 1	I	TWThFS	209½F	Ar
	2	V	MTWThF	209½F	Ar
1s*	Beginning A.....				
	Sec. 1	II	MWThFS	209½F	Ar
	2	V	MTWThF	207F	Ar
2f*	Beginning B.....				
	Sec. 1	II	MWThFS	209F	Ar
	2	VI	MTWThF	209½F	Ar
2w*	Beginning B.....				
	Sec. 1	I	TWThFS	207F	Ar
	2	II	MWThFS	207F	Ar
	3	IV	MTWFS	207F	Ar
	4	VI	MTWThF	207F	Ar
2s*	Beginning B.....				
	Sec. 1	I	TWThFS	209½F	Ar
	2	V	MTWThF	209½F	Ar
3f*	Beginning C.....				
	Sec. 1	IV	MTWFS	209F	Ar
	2	V	MTWThF	207F	Ar
3w*	Beginning C.....				
	Sec. 1	II	MWThFS	209F	Ar
	2	VI	MTWThF	209½F	Ar
3s*	Beginning C.....				
	Sec. 1	I	TWThFS	207F	Ar
	2	II	MWThFS	207F	Ar
	3	IV	MTWFS	207F	Ar
	4	VI	MTWThF	207F	Ar
1of*	Rapid Reading.....				
	Sec. 1	II	MWThFS	212F	Ar
	2	IV	MTWFS	209½F	Ar
	3	VI	MTWThF	212F	Ar
1ow*	Rapid Reading.....				
	Sec. 1	IV	MTWFS	209F	Ar
	2	V	MTWThF	207F	Ar
1os*	Rapid Reading.....				
	Sec. 1	II	MWThFS	209F	Ar
	2	VI	MTWThF	209½F	Ar
11f*	Advanced Rapid Reading....	II	MWThFS	209½F	Ar
11w*	Advanced Rapid Reading....				
	Sec. 1	II	MWThFS	212F	Ar
	2	VI	MTWThF	212F	Ar
11s*	Advanced Rapid Reading....	IV	MTWFS	209F	Ar
14s*	Nineteenth-Century Prose...	II	MTThFS	212F	Ar
28w-29s*	Advanced Chemical German..	III	MWF	209½F	Ar

\* Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
31-32	Medical German.....	6†	All	10 or 15
40	Commercial German.....	5	All	10
50-51-52	Composition .....	3†	Jr., sr.	11, 14 or 4 yrs. prep. German
53-54-55	Conversation .....	3†	Jr., sr.	11, 14 or 4 yrs. prep. German
63	Modern Drama.....	3	Jr., sr.	11 or 14
64	Classic Drama.....	3	Jr., sr.	14 or 63
74	German Poets.....	3	Jr., sr.	63 or 64

For additional courses see the bulletin of the College of Science, Literature, and the Arts.

## HISTORY AND PHILOSOPHY OF EDUCATION

## COLLEGE OF EDUCATION

No.	Title	Credits	Offered to	Prerequisite courses
1	Brief Course in the History of Education.....	5	Jr., sr.	Psychol. 6 cred.
101-102-103	Foundations of Modern Education .....	9	Jr., sr.	Psychol. 6 cred., hist. 6 cred.

For additional courses see the bulletin of the College of Education.

## HOME ECONOMICS

No.	Title	Credits	Offered to	Prerequisite courses
3	Textiles .....	5	All	None
4	Textiles .....	3	All†	None
5-6	Textiles .....	3	See note ††	None
11	Garment-Making .....	3	All	None

† All quarters must be completed before credit is granted.

‡ Not open to students in home economics.

†† For teachers only.

PROGRAM

No.	Title	Hour	Day	Room	Instructor
31f-32w*	Medical German.....	I	MWF	212F	Ar
31w-32s*	Medical German.....				
	Sec. 1	I	MWF	209F	Ar
	2	I	TThS	209F	Ar
31s*	Medical German.....	I	MWF	212F	Ar
32f*	Medical German.....	I	MWF	209½F	Ar
40w*	Commercial German.....	V	MTWThF	302D	Mr. Laughlin
50f-51w-52s*	Composition .....	III	W	227F	Mr. Laughlin
53f-54w-55s*	Conversation .....	IV	TS	101F	Mr. Laughlin
63f*	Modern Drama.....	IV	MWF	212F	Mr. Davies
63s*	Modern Drama.....	II	MWF	125F	Mr. Downis
64w*	Classic Drama.....	IV	MWF	209½F	Mr. Meyers
74s*	German Poets.....	IV	MWF	212F	Mr. Davies

HISTORY AND PHILOSOPHY OF EDUCATION

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Room	Instructor
if*	Brief Course in the History of Education.....				
	Sec. 1	II	MWThFS	102Ed	Miss Alexander
	2	IV	MTWFS	205Ed	Miss Alexander
	3	VI	MTWThF	205Ed	Miss Alexander
1w,s*	Brief Course in the History of Education.....	II	MTWThF	205Ed	Miss Alexander
101f-102w-103s*	Historical Foundations of Modern Education.....	VII	MWF	205Ed	Mr. Swift

HOME ECONOMICS

No.	Title	Hour	Day	Room	Instructor
3f,w	Textiles .....	I, II	MTWThF	211,305HE	Miss Weller, Miss Phelps
	(Limited to 20)				
3s	Textiles .....				
	(Limited to 20)				
	Sec. 1	I, II	MTWThF	211,307HE	Miss Weller, Miss Phelps
	2	III, IV	MTWFS	211,307HE	Miss Weller, Miss Phelps
4f,w,s	Textiles (S. L. & A.).....	V, VI	MWF	211,307HE	Miss Phelps
	(Limited to 20)				
5f-6w	Textiles (Teachers).....	II, III, IV	S	211,307HE	Miss Weller
	(Limited to 20)				
11f,w,s	Garment-Making .....				
	(Limited to 20)				
	Sec. 1	I, II	MWF	304HE	Miss McDowell, Miss Ebersole
	2	I, II	TThS	304HE	Miss McDowell, Miss Ebersole
	3	V, VI, VII	TTh	304HE	Miss McDowell, Miss Ebersole

\* Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
13	Dressmaking .....	5	Soph., jr., sr.	3, 11, 51, Home Pract. in Garment-Making
17	Advanced Clothing Construction .....	3	Jr., sr.	13, 52, 53
18	Commercial Clothing Manufacture .....	4	Sr.	17 or parallel
21	Foods and Cookery.....	5	Soph., jr., sr.	Chem. 5 cred., Physiol. 4 parallel
22	Food Economics.....	5	Soph., jr., sr.	21
23	Nutrition I.....	5	Jr., sr.	22, Agr. Biochem. 3, Bact. 1
24	Camp Cookery.....	4	All†	None
34	Home Management: Operation and Maintenance, Lectures .....	3	Jr.,† sr.	22, 35, parallel, Econ. 5 or parallel
35	Home Management: Operation and Maintenance, Laboratory .....	6	Jr.,† sr.	22, 37 and H. E. Educ. 40 or parallel, 34 parallel Home Pract. in Foods and Cookery advised
37	Home Care of the Sick.....	3	Jr., sr.	Chem. 5 cred., Bact. 1
45	Home Economics Survey....	2	Sr.	None
51	Drawing and Design.....	3	All	None

† Open to juniors only in their third quarter.



PROGRAM

III

No.	Title	Hour	Day	Room	Instructor
f,w	Dressmaking ..... (Limited to 20)	III, IV	MTWFS	304HE	Miss McDowell, Miss Patchin
s	Dressmaking ..... (Limited to 20) Sec. 1	III, IV	MTWFS	304HE	Miss McDowell, Miss Patchin
	2	I, II	TWThFS	112HE	Miss McDowell, Miss Patchin
f,w,†	Advanced Clothing Construc- tion ..... (Limited to 20)	III, IV	MWF	305HE	Miss McDowell, Miss Patchin, Miss Carlotta Brown
w,s	Commercial Clothing Manu- facture .....	V, VI, VII, VIII	MWF	305HE	Miss Patchin
f,w	Foods and Cookery..... (Limited to 20) Sec. 1	V, VI	MTWThF	209HE	Miss Child
	2	III, IV	MTWFS	209HE	Miss Child
s	Foods and Cookery..... (Limited to 20) Sec. 1	I, II	TWThFS	209HE	Miss Child
	2	III, IV	MTWFS	209HE	Miss Child
f,w	Food Economics..... (Limited to 20)	III, IV	MTWFS	205,207HE	Miss Child
s	Food Economics..... (Limited to 20) Sec. 1	III, IV	MTWFS	205,207HE	Miss Child
	2	V, VI	MTWThF	104,105,106HE	Ar
f,w	Nutrition I..... (Limited to 25)	V, VI, VII, VIII	MWF	211,213HE	Miss Anderson
	Camp Cookery.....	VII, VIII	MWF	105,106HE	Miss Child
f,w,†	Home Management: Opera- tion and Maintenance, Lectures .....	III	TThS	203HE	Miss Studley
f,w,†	Home Management; Opera- tion and Maintenance, Laboratory .....	Ar	Ar	Ar	Miss Lindquist, Miss Studley
†	Home Care of the Sick..... Lect.	I	S	213HE	Miss Moorhead
	Lab.	V, VI	TTh	WH	Miss Fisher
v	Home Economics Survey....	IV	TS	203HE	Miss Weigley
w,s	Drawing and Design..... (Limited to 20) Sec. 1	I, II	MWF	401HE	Miss Bacon, Miss V. Goldstein
	2	I, II	TThS	401HE	Miss Bacon, Miss V. Goldstein

† Offered also in the summer session.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
52	Art History and Appreciation	3	Jr., sr.	51
53	Advanced Design.....	4	Jr., sr.	51
54	Interior Design.....	3	Sr.	52, 53, 131
55	Decorative Needlework and Other Crafts.....	3	Jr., sr.	51, 53 or parallel
57	Weaving and Other Crafts..	3	Jr., sr.	3, 51, 53
58	Costume Design.....	3	Jr., sr.	55
61	Large Quantity Cookery and Marketing .....	4	Jr., sr.	22
63	Institutional Experience....	3	Jr., sr.	22
69	Institution-Management Prac- tice .....	3	Sr.	151
70	Food Preparation in Rela- tion to Social Work.....	3	Soph., † jr., sr.	An. Biol. 1-2, chem. to cred. advised
71	Elementary Dietetics for the Social Workers.....	3	Soph., † jr., sr.	70, Physiol. 4 or parallel
72	Home-Management Problems	3	Soph., † jr., sr.	71, Econ. 5 or parallel
103	Dietetics .....	5	Sr.	108
105	Experimental Cookery.....	3	Jr., sr.	108
108	Nutrition II.....	5	Jr., sr.	23

† Open to sophomores only in their third quarter. Not open to students in home economics except by special permission of the head of the division.

PROGRAM

113

No.	Title	Hour	Day	Room	Instructor
	Sec. 3	V, VI, VII	TTh	402HE	Miss Bacon, Miss V. Goldstein
52f,s	Art History and Appreciation (Limited to 20)				
	Sec. 1	II	MWF	309HE	Miss V. Goldstein
	2	VII	MWF	309HE	Miss V. Goldstein
52w	Art History and Appreciation (Limited to 20)	VII	MWF	309HE	Miss H. Goldstein
53f	Advanced Design..... (Limited to 20)				
	Sec. 1	V, VI, VII	MWF	402HE	Miss H. Goldstein, Miss V. Goldstein
	2	I, II	MWThF	402HE	Miss H. Goldstein, Miss V. Goldstein
53w,s	Advanced Design..... (Limited to 20)	I, II	MWThF	402HE	Miss H. Goldstein, Miss Patchin, Miss V. Goldstein
54s	Interior Design.....	V, VI	MWF	401HE	Miss Morse
55f,s	Decorative Needlework and other Crafts..... (Limited to 12)	V, VI, VII	TTh	401HE	Miss Morse
57w	Weaving and Other Crafts.. (Limited to 12)	V, VI, VII	TTh	401HE	Miss Morse
58w	Costume Design.....	V, VI	MWF	402HE	Miss H. Goldstein
61f,s	Large Quantity Cookery and Marketing .....				
	(Limited to 10)				
	Lect.	I	S	309HE	Miss Richards, Miss Farmer
	Lab.	I, II, III	TTh	DiH	Miss Richards
63f,w	Institutional Experience.....				
	Lect.	I	T	309HE	Miss Treat, Miss Richards
	Lab.	Three fourth hour periods to be arranged			
69s	Institution-Management Prac- tice .....	Two 8 hour days	Ar	Ar	Miss Treat, Miss Richards
70w	Food Preparation in Relation to Social Work.....	V, VI	MWF	107HE	Miss Lindquist
71s	Elementary Dietetics for So- cial Workers.....	V, VI	MWF	107HE	Miss Mumford
72f	Home-Management Problems.	V	MWF	106HE	Miss Lindquist
103f,w,s	Dietetics .....	V, VI	MTWThF	207-203HE	Miss Biester, Miss Mumford
	(Limited to 20)				
105w,s†	Experimental Cookery..... (Limited to 12)	I, II	MWF	207HE	Miss Weigley, Miss Child
108f,w,s†	Nutrition II..... (Limited to 25)	III, IV	MTWFS	211-213HE	Miss Anderson, Miss Mumford

† Offered also in the summer session.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
109	Advanced Nutrition.....	5	Jr., sr.	108, Agr. Biochem. 2
110	Special Problems in Dietetics	3	Sr.	103
111	Special Food Problems.....	3	Sr.	105, Agr. Biochem. 2
122	Advanced Textiles.....	3	Jr., sr.	3, Agr. Biochem. 2
123	Clothing Economics.....	2	Jr., sr.	13, Econ. 5
131	Home Management: House- Planning and Equipment..	5	Jr., sr.	52, 53
151	Institution Management.....	4	Sr.	61, 63

## HOME ECONOMICS EDUCATION

## COLLEGE OF EDUCATION

No.	Title	Credits	Offered to	Prerequisite courses
40	Child-Training .....	3	Jr., sr.	H. E. 37, Psychol. 1-2
42	Special Methods of Teaching Home Economics.....	5	Jr., sr.	H.E. 13, 22, Psychol. 1-2
43	Organization and Methods for Related Art Teaching.	3	Sr.	42, H. E. 52, 53, 131
44	Methods in Home Economics Extension Work.....	3	Sr.	42
46	Observation and Teaching: Related Art.....	8	Sr.	42, H. E. 13, 52, 53, Educ. 45 or Agr. Educ. 11, see course de- scription
47	Observation and Teaching: Foods and Home Manage- ment .....	8	Sr.	42, Educ. 45 or Agr. Educ. 11, see course de- scription
48	Observation and Teaching: Textiles and Clothing.....	8	Sr.	42, Educ. 45 or Agr. Educ. 11, see course de- scription
49	Observation and Teaching: General Home Economics.	8	Sr.	42, Educ. 45 or Agr. Educ. 11, see course de- scription
141	Problems in Home Economics Education .....	3	Sr.	42, Educ. Psychol.

PROGRAM

No.	Title	Hour	Day	Room	Instructor
9s	Advanced Nutrition..... (Limited to 15) Lect. Lab.	III V, VI, VII, VII	TS TTh	106HE 311HE	Miss Biester, Miss Anderson
0s	Special Problems in Dietetics (Limited to 20) Lect. Lab.	VII One full afternoon	MW	213HE Ar	Miss Biester Miss Mumford
1st 2f,w	Special Food Problems..... Advanced Textiles..... (Limited to 16)	V, VI, VII V, VI, VII	TTh TTh	107HE 307-311HE	Miss Child Miss Phelps, Miss Weller
3w,s 4f,w,s	Clothing Economics..... Home Management: House- Planning and Equipment..	III III, IV	TTh MTWFS	313HE 401HE	Miss Weller Miss Morse
5w	Institution Management....	III III, IV	TS M	106HE 106HE	Miss Treat Miss Treat

HOME ECONOMICS EDUCATION

COLLEGE OF EDUCATION

No.	Title	Hour	Day	Room	Instructor
1st	Child-Training .....	IV	MWF	203HE	Miss Binzel
2	Special Methods of Teaching Home Economics.....	VII	MTWThF	313HE	Miss Miller, Miss Clara Brown
3	Organization and Methods for Related Art Teaching.....	IV	MWF	309HE	Miss H. Goldstein
4	Methods in Home-Economics Extension Work.....	IV	MWF	309HE	Miss Lombard, Miss Newton
5w	Observation and Teaching: Related Art.....	VIII Ar	TTh Ar	213HE Ar	Miss Brown, Miss Bacon
6w	Observation and Teaching: Foods and Home Manage- ment .....	VIII	TTh	213HE	Miss Miller, Mrs. Dorsey, Miss Lombard, Miss Rider
7w	Teaching	Ar	Ar	Ar	
8w	Observation and Teaching: Textiles and Clothing....	VIII	TTh	213HE	Miss Clara Brown
9w	Teaching	Ar	Ar	Ar	Miss Ebersole, Mrs. MacComber
10w	Observation and Teaching: General Home Economics. Lect.	VIII	TTh	213HE	Miss Miller, Miss Brown
11†	Teaching	Ar	Ar	Ar	
12†	Problems in Home Economics Education .....	Ar	Ar	Ar	.....

† Offered also in the summer session.

## COURSES IN AGRICULTURE

## HORTICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
6	Fruit-Growing .....	3	All	None
21	Small-Fruit Culture.....	3	Soph., jr., sr.	6 or 32, bot. 9 cred.
32	Vegetable-Growing .....	3	All	None
33	Vegetable-Forcing .....	3	Soph., jr., sr.	32, bot. 9 cred.
50	Floriculture .....	3	All	None
56	Propagation and Nursery Practice .....	3	Soph., jr., sr.	None
71	Landscape-Gardening .....	3	All	None
91	Advanced General Horticulture .....	3	Jr., sr., in agr. educ.	Bot. 9 cred.
93	Judging Horticultural Crops	2	Soph., jr., sr.	6 or 32
107	Orchard Management.....	3	Jr., sr.	6
109	Principles of Genetics.....	3	Jr., sr.	Bot. 9 cred., an. biol. 9 cred.
110	Horticultural Crop-Breeding.	3	Jr., sr.	109
111	Systematic Pomology.....	3	Jr., sr.	6
131	Advanced Vegetable Production .....	3	Sr.	32
132	Systematic Olericulture.....	3	Jr., sr.	32
133	Commercial Truck-Growing..	3	Jr., sr.	32
135	Potato Production.....	3	Jr., sr.	6 or 32, bot. 9 cred.
151	Advanced Floriculture.....	3	Jr., sr.	50, bot. 9 cred.
191-192	Special Problems.....	6	Jr., sr.	Special permission
193-194-195	Horticultural Seminar.....	3	Jr., sr.	9 cred.

PROGRAM

117

HORTICULTURE

No.	Title	Hour	Day	Room	Instructor
6f	Fruit-Growing .....				
	Sec. 1 Lect.	II	MW	102Hr	Mr. Alderman
	Lab.	I, II	T or F	8Hr	Mr. Alderman
	2 Lect.	IV	TS	102Hr	Mr. Alderman
	Lab.	VI, VII	M	8Hr	Mr. Alderman
21w	Small-Fruit Culture.....	IV	MWF	210Hr	Mr. Brierley
32s	Vegetable-Growing .....				
	Sec. 1 Lect.	II	MW	102Hr	Mr. Tapley
	Lab.	I, II	T or F	8Hr	Mr. Bushnell
	2 Lect.	IV	TS	102Hr	Mr. Tapley
	Lab.	VI, VII	M	8Hr	Mr. Bushnell
33w	Vegetable-Forcing .....				
	Lect.	I	TTh	210Hr	Mr. Tapley
	Lab.	V, VI	F	8Hr	Mr. Tapley
50s	Floriculture .....	III	MWF	102Hr	Mr. Cady
56s	Propagation and Nursery Practice .....				
	Lect.	III	TS	102Hr	Mr. Cady
	Lab.	V, VI	T	8Hr	Mr. Cady
71s	Landscape-Gardening .....	II	TThS	102Hr	Mr. Cady
91s	Advanced General Horticulture .....	Ar	Ar	Ar	Mr. Alderman
93f	Judging Horticultural Crops	V, VI, VII	T	8Hr	Mr. Alderman
107f	Orchard Management.....				
	Lect.	III	TTh	106Hr	Mr. Brierley
	Lab.	I, II	Th	8Hr	Mr. Brierley
109f	Principles of Genetics (See Agronomy 131)				
110w	Horticultural Crops-Breeding	I	TThS	212Hr	Mr. Dorsey
111f	Systematic Pomology.....	IV, V, VI, VII	W	8Hr	Mr. Alderman, Mr. Brierley
131f	Advanced Vegetable Production .....				
	Lect.	III	MW	210Hr	Mr. Tapley
	Lab.	I, II	S	8Hr	Mr. Tapley
132f	Systematic Olericulture.....				
	Lect.	II	TTh	210Hr	Mr. Tapley
	Lab.	V, VI	F	8Hr	Mr. Tapley
133w	Commercial Truck-Growing..	Ar	Ar	Ar	Mr. Tapley
135w	Potato Production.....				
	Lect.	III	MW	210Hr	Mr. Krantz
	Lab.	V, VI	Th	8Hr	Mr. Krantz
151f	Advanced Floriculture.....	Ar	Ar	Ar	Mr. Cady
191w-192s	Special Problems.....	Ar	Ar	Ar	Mr. Alderman
193f-194- 195s	Horticultural Seminar.....	Ar	Ar	Ar	Horticultural Staff

## COURSES IN AGRICULTURE

## MILITARY SCIENCE AND TACTICS

No.	Title	Credits	Offered to	Prerequisite courses
1-2-3	First-Year Basic Course			
	R. O. T. C.....	None	Fr.	See notet†
4-5-6	Second-Year Basic Course			
	R. O. T. C.....	None	Soph.	1-2-3
51-52-53	First-Year Advanced Course			
	R. O. T. C.....	9	Jr.	4-5-6
54-55-56	Second-Year Advanced Course			
	R. O. T. C.....	9	Sr.	51-52-53

## MUSIC

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1-2-3	Harmony .....	9†	Jr., sr.	None
16-17-18	Pianoforte .....	6 or 12†	Jr., sr.	None
22-23-24	Violin .....	6-12†	Jr., sr.	None
40-41-42	Orchestra .....	3†	Jr., sr.	See statement
43-44-45	Choir .....	3	Jr., sr.	None
46-47-48	Appreciation of Music.....	3†	Jr., sr.	None

For additional courses see the bulletin of the College of Science, Literature, and the Arts.

## PHYSICAL EDUCATION

## FOR MEN

No.	Title	Credits	Offered to	Prerequisite courses
1	Personal Hygiene.....	None	Fr.	None
2-3-4	Gymnasium and Swimming..	None	Fr.	None
5-6-7	Advanced Leaders.....	3†	Soph., jr., sr.	Instr. permission
8-9-10	Corrective Gymnastics.....	None	All	None
11-12†	Wrestling .....	None	All	Instr. permission
13-14-15†	Intermediate Swimming.....	None	All	Instr. permission
16-17-18†	Advanced Swimming.....	None	All	Instr. permission
19-20†	Boxing .....	None	All	Instr. permission
21-22-23†	Intramural Athletics.....	None	All	Instr. permission

† The full course must be completed before credit will be allowed.

‡ Students who meet all the requirements of Course 2-3-4 and show special ability may elect these courses instead of Course 2-3-4.

†† Must be legally eligible for enrolment in Reserve Officers' Training Corps. Consult commandant.



PROGRAM

MILITARY SCIENCE AND TACTICS

No.	Title	Hour	Day	Room	Instructor
1f-2w*	First-Year Basic Course.....	V	MWF	A	Ar
3s*	First-Year Basic Course.....	VI, VII, VIII	W	A	Ar
4f-5w*	Second-Year Basic Course...	I	MWF	A	Ar
		III	MWF	A	Ar
		VII	MWF	A	Ar
6s*	Second-Year Basic Course...	VI, VII, VIII	W	A	Ar
51-52-53*	First-Year Advanced Course	Ar	Ar	Ar	Ar
54-55-56*	Second-Year Advanced Course .....	Ar	Ar	Ar	Ar

MUSIC

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
1f-2w-3s*	Harmony .....	II	MWF	Mu	Ar
		V	MWF	Mu	Ar
16f-17w-18s*	First-Year Piano.....	Ar	Ar	Mu	Ar
22f-23w-24s*	Violin .....	Ar	Ar	Mu	Ar
40f-41w-42s*	Orchestra .....	VIII	TF	A	Mr. Pepinsky
43f-44w-45s*	Choir .....	VIII	M	Mu	Mr. Scott
46f-47w-48s*	Appreciation of Music.....	V	M	Mu	Miss Reeves

PHYSICAL EDUCATION

FOR MEN

No.	Title	Hour	Day	Room	Instructor
1f,w,s*	Personal Hygiene.....				
	Sec. 1	II	TTh	A	Dr. Cooke, Mr. Roemer, Mr. Glidden
	2	III	TTh	A	Dr. Cooke, Mr. Roemer, Mr. Glidden
	3	IV	TS	A	Dr. Brown, Mr. Roemer, Mr. Glidden
	4	VI	TTh	A	Dr. Brown, Mr. Roemer, Mr. Glidden
	5	VII	TTh	A	Mr. Foster, Mr. Roemer, Mr. Glidden
2f-3w-4s*	Gymnasium .....				
	(Same schedule as Course 1, Hygiene)				
5f-6w-7s	Advanced Leaders.....	Ar	TThS	A	Mr. Foster, Mr. Roemer
8f-9w-10s*	Corrective Gymnastics.....	Ar	Ar	A	Dr. Brown
11w-12s*	Wrestling .....	Ar	Ar	A	Mr. Gilman
13f-14w-15s*	Intermediate Swimming.....	Ar	Ar	A	Mr. Glidden
16f-17w-18s*	Advanced Swimming.....	Ar	Ar	A	Mr. Foster, Mr. Glidden
19w-20s*	Boxing .....	Ar	Ar	A	Mr. Goldie
21f-22w-23s*	Intramural Athletics.....	Ar	Ar	A	Mr. Foster, Mr. Roemer

\*Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

PHYSICAL EDUCATION  
FOR WOMEN

No.	Title	Credits	Offered to	Prerequisite courses
1-2-3†	Elem. Phys. Training.....	0	Required of all new students	None
4	Preliminary Hygiene.....	0	Required of all new students	None
7-8-9‡	Sophomore Physical Training	0	Soph.	1-2-3
10-11-12	Soph. Orthopedic Gymnastics	0	Soph.	1-2-3
13-14-15	Soph. Interpretive Dancing	0	Soph.	1-2-3
16-17-18§	Soph. Organized Games and Folk-Dancing .....	0	Soph.	1-2-3
19-20-21§	Sophomore Major Sports....	0	Soph.	1-2-3
22-23	Sophomore Elementary Swim- ming .....	0	Soph.	1-2-3
28-29	Sophomore Advanced Swim- ming .....	0	Soph.	1-2-3, swimming test
32	Personal Hygiene.....	3	Soph., jr., sr.	An. Biol. 1-2
33	Hygiene of the Family.....	3	Jr., sr.	An. Biol. 1-2
34-35-36‡	Intermed. Physical Training	3†	Jr., sr.	6 qtrs. of phys. tr. Permission of director
40-41-42	Interpretive Dancing.....	3†	Jr., sr.	6 qtrs. of phys. tr.
43-44-45§	Folk-Dancing and Organized Games .....	3	Jr., sr.	6 qtrs. of phys. tr.
46-47-48‡	Hockey, Basket-Ball and Baseball. No registration necessary .....	0	Fr., jr., sr.	Permission of di- rector
49	General Swimming. No reg- istration necessary.....	0	All	None

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

‡ The third quarter of this course is open to students who have not had the first two quarters.

§ Students may enter any quarter.

PROGRAM

121

PHYSICAL EDUCATION

FOR WOMEN

No.	Title	Hour	Day	Room	Instructor
1f-2w-3s*‡	Elem. Physical Train.....	IV	MWF	3,151,153WGm	Ar
		V	MWF	3,151,153WGm	Ar
		VI	MWF	3,151,153WGm	Ar
		VII	MWF	3,151,153WGm	Ar
		III	TThS	3,151,153WGm	Ar
4f*	Preliminary Hygiene.....	I	M	201WGm	Dr. Norris
		II	T	201WGm	Dr. Norris
		IV	T	201WGm	Dr. Norris
		VII	T	201WGm	Dr. Norris
		III	W	201WGm	Dr. Norris
7f-8w-9s*‡	Sophomore Physical Train..	IV	TS	3,153WGm	
		V	TTh	3,153WGm	
10f-11w-12s*	Soph. Orth. Gymnastics....	IV	TS	3,153WGm	
		V	TTh	3,153WGm	
13f-14w-15s*	Soph. Interpretive Dancing..	VII	TTh	151WGm	Miss Baker
		VIII	TTh	151WGm	Miss Baker
16f-17w-18s*§	Soph. Org. Games and Folk-Dancing .....	III	MF	151WGm	Ar
19f-20w-21s*§	Soph. Major Sports.....	VIII	MW	151WGm	Ar
22f-23w-24s* ¶	Soph. Elem. Swimming.....	IV	MW	51WGm	Ar
		VI	MW	51WGm	Ar
		II	TTh	51WGm	Ar
		III	MTh	51WGm	Ar
		III	TF	51WGm	Ar
		IV	TS	51WGm	Ar
		VI	TTh	51WGm	Ar
		VII	TTh	51WGm	Ar
28f-29w-28s* ¶	Sophomore Adv. Swim.....	VII	MW	51WGm	Ar
		III	WS	51WGm	Ar
32w*	Personal Hygiene.....	III	TThS	201WGm	Ar
33s*	Hygiene of the Family.....	II	MWF	201WGm	Dr. Norris
34f-35w-36s*‡	Intermed. Phys. Train.....	VI	TTh	153WGm	Ar
40f-41w-42s*	Interpretive Dancing.....	IV	TS	151WGm	Miss Baker
43f-44w-45s*§	Folk-Dancing and Organized Games .....	V	TThF	151WGm	Miss Kissock
46f-47w-48s*‡	Hockey, Basket-Ball, Base-ball .....	VIII	TTh	151WGm	Ar
49f,w,s*	General Swimming.....	VIII	MTWTh	51WGm	No instr.

\*Offered on the Minneapolis campus.

‡ The third quarter is open to students who have not taken the preceding quarters.

§ The second or third quarter of this course is open to students who have not had the first two quarters.

¶ No student may register for more than two quarters of swimming without permission.

## COURSES IN AGRICULTURE

## PHYSICS

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1	Elements of Mechanics and Sound .....	3	All	Trigonometry
2	Elements of Mechanics Lab- oratory .....	1	All	1 or parallel
9	Acoustics .....	3	All	None
21	Heat .....	3	All	1
22	Heat Laboratory.....	1	All	2, 21 or parallel
31	Optics .....	3	All	1
32	Optics Laboratory.....	1	All	2, 31 or parallel
41	Magnetism and Electricity...	3	All	1
42	Magnetism and Electricity Laboratory .....	1	All	2, 41 or parallel

For additional courses see the bulletin of the College of Science, Literature, and the Arts.

PROGRAM

PHYSICS

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
1f,w*	Elements of Mechanics and Sound .....				
	Lect.	VII	MWF	30Ph	Mr. Erikson
	Quiz	VIII	W	100C	Mr. Erikson
15*	Elements of Mechanics and Sound .....				
	Lect.	III	TThS	30Ph	Mr. Erikson
	Quiz	VIII	W	100C	Mr. Erikson
2f,w,s*	Elements of Mechanics Laboratory .....				
	Sec. 1	V, VI	T	16Ph	Mr. Erikson
	2	VII, VIII	T	16Ph	Mr. Erikson
	3	V, VI	Th	16Ph	Mr. Erikson
	4	VII, VIII	Th	16Ph	Mr. Erikson
9s*	Acoustics .....	Ar	Ar	30Ph	Mr. Erikson
21f,w*	Heat .....				
	Lect.	III	TThS	30Ph	Mr. Miller
	Quiz	VIII	W	100C	Mr. Miller
22f,w*	Heat Laboratory .....				
	Sec. 1	V, VI	M	23Ph	Mr. Miller
	2	VII, VIII	M	23Ph	Mr. Miller
	3	V, VI	T	23Ph	Mr. Miller
	4	VII, VIII	T	23Ph	Mr. Miller
31f,s*	Optics .....				
	Lect.	I	TThS	30Ph	Mr. Valasek
	Quiz	VIII	W	100C	Mr. Valasek
32f,s*	Optics Laboratory .....				
	Sec. 1	V, VI	Th	23Ph	Mr. Valasek
	2	VII, VIII	Th	23Ph	Mr. Valasek
	3	V, VI	F	23Ph	Mr. Valasek
	4	VII, VIII	F	23Ph	Mr. Valasek
41w,s*	Magnetism and Electricity...				
	Lect.	III	TThS	30Ph	Mr. Zeleny
	Quiz	VIII	W	100C	Mr. Zeleny
42w,s*	Electrical Laboratory .....				
	Sec. 1	V, VI	T	31Ph	Mr. Zeleny
	2	VII, VIII	T	31Ph	Mr. Zeleny
	3	V, VI	Th	31Ph	Mr. Zeleny
	4	VII, VIII	Th	31Ph	Mr. Zeleny
	5	V, VI	W	31Ph	Mr. Zeleny
	6	VII, VIII	W	31Ph	Mr. Zeleny

\*Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

PHYSIOLOGY  
MEDICAL SCHOOL

No.	Title	Credits	Offered to	Prerequisite courses
4	Human Physiology.....	5	All	Chem. 10 cred., biol. 8 cred.
100-101	Physiologic Chemistry.....	12	Jr., sr.	Org. chem., physics, an. biol.
103	Physiology of Muscle, Nerve, Blood, Circulation, and Di- gestion .....	8	Jr., sr.	Org. chem., an. biol., physics
104	Physiology of the Nervous System and Special Senses	8	Jr., sr.	Org. chem., an. biol., physics
150	Some Newer Aspects of Nu- trition .....	3	Sr.	101
153	Advanced Physiologic Chem- istry .....	3	Sr.	101
163	Metabolism .....	2 or 3	Sr.	101

For additional courses see the bulletin of the Medical School.

PLANT PATHOLOGY AND BOTANY

No.	Title	Credits	Offered to	Prerequisite courses
1	Plant Pathology.....	5	Jr., sr.	Bot. 9 cred.
7	Weeds and Grasses.....	3	Soph., jr., sr.	Bot. 9 cred.
9	Weeds and Seed-Testing....	3	Soph., jr., sr.	Bot. 9 cred.
10	Forest Pathology.....	5	Soph., jr., sr.	Bot. 9 cred.
12	Seed Problems.....	3	Jr., sr.	9
14	Plant-Disease Control.....	5	Jr., sr.	1, Ent. 1 or 3
105-106-107	Mycology .....	9	Jr., sr.	Bot. 7, 11 or equiv.
108-109	Methods .....	6	Jr., sr.	1, Bact. 1
110	Principles of Pathology....	3	Jr., sr.	1, Bact. 1
111	Diseases of Field Crops....	3	Jr., sr.	1
112	Diseases of Fruit and Vege- table Crops.....	3	Jr., sr.	1

PROGRAM

PHYSIOLOGY  
MEDICAL SCHOOL

No.	Title	Hour	Day	Room	Instructor
4f,w,s*	Human Physiology.....				
	Lab.	I, II, III	Th	315MH	Miss Greisheimer
	Lect.	I	MTWFS	301MH	Miss Greisheimer
100f-101w*	Physiologic Chemistry.....	I, II, III	TThS	310MH	Mr. Pettibone, Mr. Kingsbury
103f*	Physiology of Muscles, etc..	IV, V, VI, VII	MWF	301MH	Mr. Scott
104w*	Physiology of Nervous System, etc.....	IV, V, VI, VII	MWF	301MH	Mr. Scott
150f*	Some Newer Aspects of Nutrition .....	Ar	Ar	Ar	Mr. Pettibone
153f,w,s*	Advanced Physiologic Chemistry .....	Ar	Ar	310MH	Mr. Pettibone or Mr. Kingsbury
163s*	Metabolism .....	VI, VII, VIII	TTh	310MH	Mr. Pettibone

PLANT PATHOLOGY AND BOTANY

No.	Title	Hour	Day	Room	Instructor
1f†	Plant Pathology.....	V, VI, VII, VIII	MWF	1,2PP	Mr. Stakman, Mr. Leach, Mr. Seal
7w	Weeds and Grasses I.....	V, VI, VII	WF	3PP	Mr. Larson
9f†	Weeds and Seed-Testing....	V, VI, VII	WF	3,4PP	Mr. Larson
10f	Forest Pathology.....	V, VI, VII, VIII	MWF	1,2PP	Mr. Stakman, Mr. Leach, Mr. Seal
12w	Seed Problems.....	Ar	Ar	Ar	Mr. Larson
14†	Plant-Disease Control.....	..	..	..	.....
105f-106w- 107s	Mycology .....	III, IV	MWF	1,3,2PP	Mr. Freeman, Mr. Stakman, Miss Dsdall
108f-109w	Methods .....	I, II	MWF	1,30PP	Mr. Stakman, Mr. Leach
110s	Principles of Pathology.....	I, II	MWF	1,30PP	Mr. Stakman, Mr. Barker
111w†	Diseases of Field Crops.....	V, VI	MWF	1,2PP	Mr. Stakman, Mr. Barker
112s†	Diseases of Fruit and Vegetable Crops.....	V, VI	MWF	1,2PP	.....

\*Offered on the Minneapolis campus.

† Offered also in the summer session.

‡ Not offered in 1921-22.

## COURSES IN AGRICULTURE

## POLITICAL SCIENCE

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1	American Government.....	5	Soph., jr., sr.	None
7	State and Local Government	5	Soph., jr., sr.	1

For additional courses see the bulletin of the College of Science, Literature, and the Arts.

## POULTRY HUSBANDRY

## ANIMAL INDUSTRY GROUP

No.	Title	Credits	Offered to	Prerequisite courses
1	Poultry .....	3	All	None
2	Poultry-Judging .....	3	All	None
4	Incubating and Brooding...	3	All	None
5	Advanced Poultry-Judging...	3	All	2

## PSYCHOLOGY

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1-2-3	General Psychology.....	9†	Soph., jr., sr.	None
4-5	Introductory Laboratory Psychology .....	4†	Soph., jr., sr.	1-2 or parallel
7	Introductory Laboratory Psychology .....	4	Soph., jr., sr.	1-2 or parallel
101-102	Experimental Psychology....	6†	Jr., sr.	1-2, 4-5, or 7

† The full course must be completed before credit will be allowed.

‡ Six credits will be allowed for the first two quarters.



PROGRAM

POLITICAL SCIENCE

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
1f*	American Government.....				
	Sec. 1	IV	MTWFS	LitTh	Ar
	2	VI	MTWThF	306D	Ar
1w*	American Government.....				
	Sec. 1	IV	MTWFS	LitTh	Ar
	2	VI	MTWThF	306D	Ar
1s*	American Government.....				
	Sec. 1	IV	MTWFS	LitTh	Ar
	2	VI	MTWThF	LitTh	Ar
7f*	State and Local Government	VI	MTWThF	308D	Mr. Cushman
7w*	State and Local Government	VI	MTWThF	109MA	Mr. Cushman
7s*	State and Local Government	VI	MTWThF	209MA	Mr. Cushman

POULTRY HUSBANDRY

No.	Title	Hour	Day	Room	Instructor
1f,w	Poultry .....	V	MWF	104Ve	Mr. Smith
2w	Poultry-Judging .....	Ar	Ar	Ar	Mr. Smith
4s	Incubating and Brooding....	V	MWF	104Ve	Mr. Smith
5s	Advanced Poultry-Judging...	Ar	Ar	Ar	Mr. Smith

PSYCHOLOGY

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
1f-2w*	General Psychology.....				
	Lect. Sec. 1	I	MW	LitTh	Mr. Elliott, Mr. Foster
	2	VII	MW	LitTh	Mr. Elliott, Mr. Foster
	Rec. Sec. 1	III	S	Psy	
	2, 3	VII	Th or F	Psy	
3s*	General Psychology (cont.)..				
	Lect.	I	MW	LitTh	Mr. Elliott
	Rec. Sec. 1	I	Th or F or S	Psy	
	2	III	Th or F or S	Psy	
	3	V	Th or F	Psy	
	4	VII	Th or F	Psy	
4f-5w*	Introductory Laboratory Psychology .....				
	Sec. 1	I, II	TTh	211Psy	Mr. Foster
	2	III, IV	TS	211Psy	
	3	V, VI	TTh	211Psy	
	4	VII, VIII	TTh	211Psy	
7s*	Introductory Laboratory Psychology .....				
	Sec. 1	V, VI	MTWF	211Psy	
	2	III, IV	MTWF	211Psy	
101f-102w*	Experimental Psychology....				
	VI	VI	MWF		
	VII	VII	WF	116Psy	Miss Fernald

\*Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

108-109	Advanced General Psychology .....	6†	Sr.	101-102 or by per- mission
114-115	Human Behavior.....	6†	Jr., sr.	1-2, 4-5 or 7, 9 cr. an. biol., or by permission
119-120	Animal Behavior.....	6†	Jr., sr.	1-2, 4-5 or 7, 9 cr. an. biol., or by permission
121	Neuro-Psychology .....	3	Jr., sr.	1-2, 4-5 or 7, 9 cr. an. biol., or by permission
125-126	Differential Psychology.....	6†	Jr., sr.	1-2, 4-5 or 7
127	Social Psychology.....	5	Jr., sr.	1-2, 4-5 or 7
135-136	Dynamic Psychology.....	6†	Jr., sr.	1-2, 4-5 or 7
144-145	Abnormal Psychology.....	6†	Jr., sr.	1-2, 4-5 or 7

For additional courses see the bulletin of the College of Science, Literature, and the Arts.

## PUBLICATIONS AND RURAL JOURNALISM

No.	Title	Credits	Offered to	Prerequisite courses
10-11-12	Agricultural Journalism.....	9	Jr., sr.	13-14-15, 16-17
19	Agricultural Publicity.....	3	Jr., sr.	Rhet. 19 cred. or rhet. 9 cred., Eng. 9 cred.

## RHETORIC

No.	Title	Credits	Required of	Prerequisite courses
1	Rhetoric I.....	3	All	None
2	Rhetoric II.....	3	All	1
3	Rhetoric III.....	3	All	2
4	Elementary Rhetoric.....	3	All	None

† The full course must be completed before credit will be allowed.

PROGRAM

129

No.	Title	Hour	Day	Room	Instructor
108w-109s*	Advanced General Psychology	II	MWF	109Psy	.....
114w-115s*	Human Behavior.....	II	TThS	109Psy	Mr. Elliott
119f-120w*	Animal Behavior.....	VI	MWF		Mr. Lashley
121s*	Neuropsychology .....	VII	WF	109Psy	Mr. Lashley
		VI	MWF		Mr. Lashley
125f-126w*	Differential Psychology.....	VII	WF	109Psy	Mr. Lashley
		III	MWF	109Psy	Miss Fernald
127s*	Social Psychology.....	IV	MTWFS	115Psy	Mr. Bird
135w-136s*	Dynamic Psychology.....	III	TThS	115Psy	Mr. Woodrow
144f-145w*	Abnormal Psychology.....	IV	MWF	109Psy	Mr. Lashley

PUBLICATIONS AND RURAL JOURNALISM

No.	Title	Hour	Day	Room	Instructor
10f-11w-12s	Agricultural Journalism.....	V	MWF	317Ad	Mr. Kirkwood
19f	Agricultural Publicity.....	I	TThS	4PP	Mr. Kirkwood

RHETORIC

No.	Title	Hour	Day	Room	Instructor	
1f	Rhetoric I.....					
	Sec. 1	I	MWF	310En	Miss Jenkins	
	2	II	MWF	310En	Miss Jenkins	
	3	III	MWF	310En	Miss Clausen	
	4	IV	MWF	310En	Miss Clausen	
1w,s	Rhetoric I.....	II	TThS	310En	Miss Jenkins	
		VI	MWF	308En	Miss Clausen	
2f,s	Rhetoric II.....	II	MWF	311En	Miss Clausen	
2w	Rhetoric II.....	Sec. 1	II	MWF	310En	Miss Jenkins
		2	IV	MWF	310En	Miss Jenkins
		3	IV	MWF	217En	Miss Clausen
		4	I	TThS	310En	Miss Clausen
		5	II	TThS	310En	Miss Jenkins
3f	Rhetoric III.....	III	TThS	310En	Miss Jenkins	
3w	Rhetoric III.....	III	MWF	310En	Miss Jenkins	
3s	Rhetoric III.....	Sec. 1	II	MWF	310En	Miss Jenkins
		2	IV	MWF	310En	Miss Clausen
		3	IV	MWF	307En	Miss Jenkins
		4	I	TThS	310En	Miss Jenkins
		5	II	MWF	307En	Miss Clausen
4f,w,s	Elementary Rhetoric.....	Ar	Ar	Ar	Miss Jenkins	

\*Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
11	Argumentation .....	3	Soph., jr., sr.	3
22	Public Speaking.....	3	Soph., jr., sr.	3
24	Advanced Public Speaking..	3	Soph., jr., sr.	22
31	Survey of English Literature			
	I .....	5	Soph., jr., sr.	3
32	Survey of English Literature			
	II .....	3	Soph., jr., sr.	31

## ROMANCE LANGUAGES

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

*French*

No.	Title	Credits	Offered to	Prerequisite courses
1-2	Beginning French.....	10†	All	None
3-4	Intermediate French.....	10	All	1-2 or 2 yrs. h. s.

† The full course must be completed before credit will be allowed.

PROGRAM

No.	Title	Hour	Day	Room	Instructor
11f	Argumentation .....				
	Sec. 1	I	MWThFS	311En	Mr. Lansing
	2	IV	MTWFS	311En	Mr. Burtis
11w	Argumentation .....	III	MTWFS	311En	Mr. Burtis
11s	Argumentation .....	III	MTWFS	307En	Mr. Lansing
22f	Public Speaking.....	III	MTWFS	311En	Mr. Burtis
22w	Public Speaking.....				
	Sec. 1	I	MTWFS	311En	Mr. Burtis
	2	IV	MTWFS	311En	Mr. Burtis
22s	Public Speaking.....				
	Sec. 1	III	MTWFS	311En	Mr. Burtis
	2	IV	MTWFS	311En	Mr. Burtis
24f,w,s	Advanced Public Speaking..	II	TThS	311En	Mr. Burtis
31f,w,s	Survey of English Literature				
	I .....	II	MWThFS	306En	Mr. Lansing
32w,s	Survey of English Literature				
	II .....	I	MWF	310En	Mr. Lansing

ROMANCE LANGUAGES

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	<i>French</i>				Instructor
		Hour	Day	Room		
1f-2w*	Beginning French.....					
	Sec. 1	I	TWThFS	213F	Ar	
	2	II	MWThFS	227F	Ar	
	3	III	MTThFS	226F	Ar	
	4	IV	MTWFS	201F	Ar	
	5	V	MTWThF	226F	Ar	
	6	VI	MTWThF	202F	Ar	
1w-2s*	Beginning French.....					
	Sec. 1	I	TWThFS	227F	Ar	
	2	V	MTWThF	202F	Ar	
1s*	Beginning French.....					
	Sec. 1	Ar	Ar	Ar	Ar	
	2	Ar	Ar	Ar	Ar	
2f*	Beginning French.....					
	Sec. 1	I	TWThFS	202F	Ar	
	2	V	MTWThF	213F	Ar	
3f-4w*	Intermediate French.....					
	Sec. 1	I	TWThFS	205F	Ar	
	2	II	MWThFS	204F	Ar	
	3	III	MTThFS	213F	Ar	
	4	VI	MTWThF	213F	Ar	
3w-4s*	Intermediate French.....					
	Sec. 1	I	TWThFS	202F	Ar	
	2	V	MTWThF	213F	Ar	
3s*	Intermediate French.....					
	Sec. 1	I	TWThFS	213F	Ar	
	2	II	MWThFS	227F	Ar	
	3	III	MTThFS	226F	Ar	
	4	IV	MTWFS	201F	Ar	
	5	V	MTWThF	226F	Ar	
	6	VI	MTWThF	202F	Ar	

\*Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
20	Oral and Written French...	5	All	3-4 or 3 yrs. h. s.
21-22-23	Survey of French Literature	9†	All	3-4 or 3 yrs. h. s.
50-51-52	French Conversation.....	3†	Jr.,‡ sr.	3-4 or 3 yrs. h. s., 53-54-55 or parallel
53-54-55	French Composition.....	3†	Jr.,‡ sr.	3-4 or 3 yrs. h. s.

For additional courses see the bulletin of the College of Science, Literature, and the Arts.

*Spanish*

No.	Title	Credits	Offered to	Prerequisite courses
1-2	Beginning Spanish.....	10†	All	None

† The full course must be completed before credit will be allowed.

‡ Open without petition to sophomores who can satisfy the requirements.

PROGRAM

133

No.	Title	Hour	Day	Room	Instructor
4f*	Intermediate French.....				
	Sec. 1	I	TWThFS	227F	Ar
	2	II	MWThFS	213F	Ar
	3	III	MTThFS	124F	Ar
	4	IV	MTWFS	125F	Ar
	5	V	MTWThF	202F	Ar
20f*	Oral and Written French....				
	Sec. 1	III	MTThFS	205F	Mr. Frelin
	2	VI	MTWThF	206F	Ar
20s*	Oral and Written French....				
	Sec. 1	I	TWThFS	15F	Ar
	2	II	MWThFS	213F	Ar
	3	VI	MTWThF	213F	Ar
21f-22w-23s*	Survey of French Literature				
	Sec. 1	II	TThS	107F	Mr. Barton
	2	III	TThS	301F	Mr. Sirich
	3	VI	MWF	107F	Mr. Searles
50f-51w-52s*	French Conversation.....				
	Sec. 1	III	MW	201F	Miss Guinotte
	2	V	MW	107F	Mr. Frelin
53f-54w-55s*	French Composition.....				
	Sec. 1	III	F	201F	Miss Guinotte
	2	V	F	107F	Mr. Frelin

ROMANCE LANGUAGES

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

*Spanish*

No.	Title	Hour	Day	Room	Instructor
1f-2w*	Beginning Spanish.....				
	Sec. 1	I	TWThFS	15F	Ar
	2	II	MWThFS	226F	Ar
	3	III	MTThFS	227F	Ar
	4	IV	MTWFS	226F	Ar
	5	V	MTWThF	201F	Ar
	6	VI	MTWThF	226F	Ar
1w-2s*	Beginning Spanish.....				
	Sec. 1	II	TWThFS	202F	Ar
	2	VI	MTWThF	125F	Ar
1s*	Beginning Spanish.....				
	Sec. 1	II	TWThFS	201F	Ar
	2	VI	MTWThF	226F	Ar
2f*	Beginning Spanish.....				
	Sec. 1	I	TWThFS	201F	Ar
	2	VI	MTWThF	201F	Ar
3f-4w*	Intermediate Spanish.....				
	Sec. 1	II	MWThFS	201F	Ar
	2	III	MTThFS	202F	Ar
	3	V	MTWThF	109F	Ar
3w-4s*	Intermediate Spanish.....				
	Sec. 1	I	TWThFS	201F	Ar
	2	VI	MTWThF	201F	Ar

\*Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
3-4	Intermediate Spanish.....	10	All	1-2 or 2 yrs. h. s.
20	Oral and Written Spanish..	5	All	3-4 or 3 yrs. h. s.
50-51-52	Spanish Conversation.....	3†	Jr., ‡ sr.	3-4 or 3 yrs. h. s., 53-54-55 or parallel
53-54-55	Spanish Composition.....	3†	Jr., ‡ sr.	3-4 or 3 yrs. h. s.
65-66-67	Survey of Spanish Literature	9†	Jr., ‡ sr.	3-4

For additional courses see the bulletin of the College of Science, Literature, and the Arts.

## SOCIOLOGY AND SOCIAL WORK

## COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Credits	Offered to	Prerequisite courses
1	Introduction to Sociology....	3†† or 5	3d qu. fr., soph., jr., sr.	None
6	Modern Social Reform Move- ments .....	3	Soph., jr., sr.	1

† The full course must be completed before credit will be allowed.

‡ Open without petition to sophomores who can satisfy the requirements.

†† A 3-credit course, open only to students in Agriculture, Forestry, and Home Economics will be offered at University Farm in the fall and spring quarters.



PROGRAM

No.	Title	Hour	Day	Room	Instructor
3s*	Intermediate Spanish.....				
	Sec. 1	I	TWThFS	226F	Ar
	2	II	MWThFS	226F	Ar
	3	III	MTThFS	227F	Ar
	4	IV	MTWFS	226F	Ar
	5	V	MTWThF	201F	Ar
	6	VI	MTWThF	227F	Ar
(3s)-4f*	Intermediate Spanish.....				
	Sec. 1	I	TWThFS	301F	Ar
	2	II	MWThFS	202F	Ar
	3	III	MTThFS	308D	Ar
	4	IV	MTWFS	202F	Ar
	5	V	MTWThF	227F	Ar
20s*	Oral and Written Spanish...	III	MTThFS	202F	Ar
50f-51w-52s*	Spanish Conversation.....	II	MW	302D	Mr. House
53f-54w-55s*	Spanish Composition.....	II	F	302D	Mr. House
65f-66w-67s*	Survey of Spanish Literature	II	TThS	306F	Mr. House

SOCIOLOGY AND SOCIAL WORK

COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

No.	Title	Hour	Day	Room	Instructor
1f	Introduction to Sociology....				
	Sec. 1*	I	TWThFS	9F	
	2*	III	MTThFS	5F	
	3*	IV	MTWFS	301F	
	4, 5*	V	MTWThF	5F,9F	
	6*	VI	MTWThF	9F	
	7 (3 cred.)	IV	MWF	105En	Mr. Lundquist
1w	Introduction to Sociology....				
	Sec. 1*	I	TWThFS	9F	
	2*	III	MTThFS	5F	
	3*	IV	MTWFS	301F	
	4, 5*	V	MTWThF	5F,9F	
	6*	VI	MTWThF	9F	
	7*	VII	MTWThF	110F	
	8 (3 cred.)	IV	MWF	105En	Mr. Lundquist
1s	Introduction to Sociology....				
	Sec. 1*	I	TWThFS	9F	
	2*	II	MWThFS	5F	
	3*	III	MTThFS	5F	
	4*	IV	MTWFS	301F	
	5, 6*	V	MTWThF	5F,9F	
	7*	VI	MTWThF	9F	
	8*	VII	MTWThF	110F	
	9 (3 cred.)	IV	MWF	105En	Mr. Lundquist
6f*	Modern Social Reform Move- ments .....				
	Sec. 1	II	TThS	102F	Ar
	2	IV	MWF	5F	Ar
	3	V	MWF	110F	Ar
	4	VI	MWF	5F	

\*Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
14	Rural Sociology.....	3	Soph., jr., sr.	1‡
51	Background of Dependency and Defectiveness.....	3	Jr., sr.	10 cred. in social; or 10 cred. in social. and pol. sci.; econ. or psychol.
52	Treatment of Dependents and Defectives .....	3	Jr., sr.	51
53	Treatment of Delinquents...	3	Jr., sr.	Same as for 51
55	Housing Problems.....	3	Jr., sr.	Same as for 51
56	Field Practice in Case Work	2	Jr., sr.	51 parallel

‡ No prerequisite for seniors in the College of Agriculture, Forestry, and Home Economics.

PROGRAM

No.	Title	Hour	Day	Room	Instructor
6w*	Modern Social Reform				
	Movements .....				
	Sec. 1	II	TThS	301F	Ar
	2	IV	MWF	5F	Ar
	3	V	MWF	110F	Ar
	4	VI	MWF	5F	
6s*	Modern Social Reform				
	Movements .....				
	Sec. 1	II	TThS	301F	Ar
	3	IV	MWF	5F	Ar
	4	V	MWF	110F	Ar
	5	VI	MWF	5F	
14f	Rural Sociology.....				
	Sec. 1*	III	MWF	25F	Ar
	2*	V	MWF	25F	Ar
	3	I	MWF	105En	Mr. Lundquist
14w	Rural Sociology.....				
	Sec. 1*	III	MWF	9F	Ar
	2*	V	MWF	25F	Ar
	3	I	MWF	105En	Mr. Lundquist
14s	Rural Sociology.....				
	Sec. 1*	III	MWF	25F	Ar
	2*	V	MWF	15F	Ar
51f*	Background of Dependents and Defectives.....	I	TThS	5F	Mr. Bruno
51w*	Background of Dependents and Defectives.....	I	MWF	5F	Mr. Bruno
51s*	Background of Dependents and Defectives.....	I	TThS	5F	Mr. Bruno
52w*	Treatment of Dependents and Defectives.....	I	TThS	5F	Mr. Bruno
52s*	Treatment of Dependents and Defectives.....	I	MWF	5F	Mr. Bruno
53f*	Treatment of Delinquents...	III	MWF	9F	
53w*	Treatment of Delinquents...	III	MWF	101F	
53s*	Treatment of Delinquents...	III	MWF	101F	
55w*	Housing Problems.....	I	MWF	101F	Mr. Davis
56f*	Field Practice in Case Work				
	Sec. 1	I, II, III	MW		Mrs. Mudgett
	2	I, II, III	WF		
	3	V, VI, VII	MW		
	4	V, VI, VII	TTh		
	5	V, VI, VII	WF		
56w*	Field Practice in Case Work				
	Sec. 1	II, III, IV	MW		Mrs. Mudgett
	2	II, III, IV	WF		
	3	V, VI, VII	MW		
	4	V, VI, VII	WF		
	5	V, VI, VII	TTh		
56s*	Field Practice in Case Work				
	Sec. 1	V, VI, VII	MW		Mrs. Mudgett
	2	V, VI, VII	WF		
	3	II, III, IV	TTh		
	4	V, VI, VII	TTh		

\*Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

No.	Title	Credits	Offered to	Prerequisite courses
57	Field Practice in Case Work	2	Jr., sr.	52 parallel
60	Child Welfare.....	3	Jr., sr.	52
97-98-99	Supervised Field Practice Work .....	3, 6 or 9	Jr., sr.	Director's consent
100	Social Psychology.....	3	Jr., sr.	1 and 15 cred. in sociol.; anthro.; econ.; educ.; hist.; philos.; pol. sci.; or psychol. includ- ing Psychol. 1-2
101	Social Organization.....	3	Jr., sr.	4 courses in sociol. or 1 and 15 cred. in sociol.; anth.; econ.; educ.; hist.; philos.; or pol. sci.; or psychol.
102	Social Control.....	3	Jr., sr.	Same as for 101
110	Community Organization and Social Work in Small Towns and Country.....	2	Jr., sr.	Same as for 101
114	Rural Social Institutions....	3	Jr., sr.	Same as for 101
119	The Family.....	3	Jr., sr.	Same as for 101
120	Social Progress.....	3	Jr., sr.	Same as for 101
122	Methods of Social Investiga- tion .....	3	Jr., sr.	Same as for 101
123	Social Statistics.....	3	Jr., sr.	122
128	Charitable Administration, Finance, and Publicity....	2	Jr., sr.	Same as for 101
130	Technic of Family Treatment	2	Jr., sr.	Same as for 101 including 52
134	Legal Protection of the Child	3	Jr., sr.	Same as for 101 including 60
138-139	Mental Case Work.....	6	Jr., sr.	Same as for 130
140	History of Social Theory...	3	Jr., sr.	Same as for 101
141	Contemporary Social Theory	3	Jr., sr.	Same as for 101
150	Seminar: The Literature of Social Protest.....		Sr.	Consent of director
180-181-182	Seminar in Educational Soci- ology .....	6	Jr., sr.	1, 6, 120

For additional courses see the bulletin of the College of Science, Literature, and the Arts.

PROGRAM

No.	Title	Hour	Day	Room	Instructor
57w*	Field Practice in Case Work				
	Sec. 1	II, III, IV	MW		Mrs. Mudgett
	2	II, III, IV	WF		
	3	V, VI, VII	MW		
	4	V, VI, VII	WF		
	5	V, VI, VII	TTh		
57s*	Field Practice in Case Work				
	Sec. 1	V, VI, VII	MW		Mrs. Mudgett
	2	V, VI, VII	WF		
	3	II, III, IV	TTh		
	4	V, VI, VII	TTh		
60w*	Child Welfare.....	VIII	MWF	9F	Mr. Hodson
97f-98w-99s*	Supervised Field Practice				
	Work .....	Ar	Ar	Ar	Mrs. Mudgett
100f*	Social Psychology.....	II	TThS	9F	Mr. Bernard
101w*	Social Organization.....	II	TThS	9F	Mr. Bernard
102s*	Social Control.....	II	TThS	9F	Mr. Bernard
110w*	Community Organ. and Social Work in Small Towns and Country.....	VII-VIII	Th	9F	Mr. Bernard
114s	Rural Social Institutions....	I	MWF	105En	Mr. Lundquist
119f*	The Family.....	III	TThS	9F	
120f*	Social Progress.....	II	MWF	9F	
122w*	Methods of Social Investigation .....	VII	MWF	9F	Mr. Elmer
123s*	Social Statistics.....	VII	MWF	9F	Mr. Elmer
128s*	Charitable Administration, Finance, and Publicity....	VII-VIII	Th	9F	Mr. Davis
130s*	Technic of Family Treatment .....	VII-VIII	T	9F	Mr. Bruno
134s*	Legal Protection of the Child	VIII	MWF	9F	Mr. Hodson
135w*	Mental Case Work.....	VII, VIII	T and Ar	5F	Miss Seeberg
139s*	Mental Case Work.....	VIII	Th and Ar	5F	Miss Seeberg
140w*	History of Social Theory....	II	MWF	9F	Mr. Bernard
141s*	Contemp. Social Theory.....	II	MWF	9F	Mr. Bernard
180f-181w-182s*	Seminar in Educ. Sociol....	VIII-IX	M	Ed	Mr. Finney

\*Offered on the Minneapolis campus.

## COURSES IN AGRICULTURE

## SOILS

No.	Title	Credits	Offered to	Prerequisite courses
4	Soils .....	3	Soph., jr., sr.	Chem. 10 cred.
5	Soil Fertility.....	3	Soph., jr., sr.	4
101	Chemical Analysis of Soils..	3-5	Jr., sr.	5, quant. anal.
102	Special Problems in Soils....	*	Jr., sr.	101 or 108
104	Soil-Surveying .....	3	Jr., sr.	108
105	Minnesota Soils.....	3	Jr., sr.	5
106	Peat Soils.....	2	Jr., sr.	5
107	Fertilizers and Manures....	2	Jr., sr.	5
108	Physical Properties of Soils..	3	Jr., sr.	5

## VETERINARY MEDICINE

## ANIMAL INDUSTRY GROUP

No.	Title	Credits	Offered to	Prerequisite courses
2	Anatomy of Domestic Animals .....	5	Soph., jr., sr.	None
3-4	Comparative Physiology.....	6	Soph., jr., sr.	2
6	Physiology and Hygiene of Breeding .....	3	Jr., sr.	3-4
8	Veterinary Studies.....	5	Soph., jr., sr.	None
12	Infectious Diseases.....	3	Jr., sr.	3-4, Bact. I
13	Non-Infectious Diseases....	3	Jr., sr.	3-4
101-102	Advanced Anatomy of Domestic Animals.....	6	Jr., sr.	2 or equiv.
103-104	Advanced Comparative Physi- ology .....	6	Jr., sr.	3-4 or equiv.

\* Credit according to the amount of work.

PROGRAM

SOILS

No.	Title	Hour	Day	Room	Instructor
4f	Soils .....				
	Lect.	III	TTh	251Ch	Mr. Rost
	Lab.	III, IV	S	253Ch	
5s	Soil Fertility.....				
	Lect.	III	TTh	251Ch	Mr. Alway,
	Lab.	III, IV	S	253Ch	
101f	Chemical Analysis of Soils..	Ar	Ar	Ar	Mr. Rost
102w,s	Special Problems in Soils...	Ar	Ar	Ar	Mr. Rost
104s	Soil-Surveying .....	Ar	Ar	Ar	Mr. Alway
105w	Minnesota Soils.....	Ar	Ar	Ar	Mr. McMiller
106w	Peat Soils.....	Ar	Ar	Ar	Mr. Alway
107w	Fertilizers and Manures.....	Ar	Ar	Ar	Mr. Alway
108w	Physical Properties of Soils	Ar	Ar	Ar	Mr. Rost
					Mr. McMiller

VETERINARY MEDICINE

No.	Title	Hour	Day	Room	Instructor
2t	Anatomy of Domestic Animals .....	V	MTWF	2Ve	
		II	MWThFS	2Ve	Mr. Kernkamp
3w-4s	Comparative Physiology.....	I	TThS	2Ve	Mr. Hewitt
6f	Physiology and Hygiene of Breeding .....	IV	MWF	9Ve	Mr. Boyd
8s	Veterinary Studies.....	III	MTWFS	9Ve	Mr. Reynolds
12w	Infectious Diseases.....	I	MWF	2Ve	Mr. Fitch, Mr. Billings
13s	Non-Infectious Diseases.....	I	MWF	2Ve	Mr. Boyd
101w-102s	Advanced Anatomy of Domestic Animals.....	Ar	Ar	Ar	Mr. Kernkamp
	(Limited to 9)				
103f-104w	Advanced Comparative Physi- ology .....				
	Lect.	II	TTh	9Ve	Mr. Hewitt
	Lab.	V, VI	Th	9Ve	Mr. Hewitt

## INDEX

Page	Page		
Admission .....	15	General Agriculture Course.....	22
Agricultural Biochemistry .....	30, 36	General Information.....	15
Agricultural Economics.....	31	General Course in Agricultural	
<i>see also</i> Economics		Economics .....	23
Agricultural Education.....	23, 32, 37	General Course in Agricultural	
Sciences, special		Extension .....	24
courses in.....	30	General Course in Animal Hus-	
Agricultural-Business Course.....	33	bandry .....	25
Agronomy and Farm Manage-		General Course in Dairy Hus-	
ment .....	32, 39	bandry .....	26
Animal Biology.....	41	General Course in Farm Manage-	
Animal Husbandry.....	32, 43	ment .....	27
		General Course in Horticulture...	29
Bacteriology and Immunology....	44	Geology and Mineralogy.....	58
Bee Culture .....	44	German .....	59
Botany .....	45	Gymnasium, <i>see</i> Physical Education	
		History and Philosophy of Educa-	
Calendar .....	5	tion .....	59
Chemistry .....	47	Home Economics .....	60
Committees, <i>see</i> Faculty committees		Horticulture .....	32, 60
Course numbers, explanation of..	18	Hour schedule.....	74
Courses of study in agriculture...	18	Journalism, <i>see</i> Rural Publications	
Courses of study, open elective...	21	and Journalism	
Courses of study, suggested elec-		Late admission.....	16
tive .....	22	Late registration.....	16
Dairy Husbandry.....	32, 48	Major .....	18
Degrees, requirements for.....	16	Military Science and Tactics.....	62
Description of courses.....	36	Minor .....	18
Economics .....	49	Music .....	63
Educational Administration and		Physical Education .....	63
Supervision .....	53	Physics .....	64
Educational Psychology.....	53	Plant Pathology and Botany....	32, 65
Elective courses.....	20	Political Science.....	66
Electives, free.....	18	Poultry Husbandry.....	66
Elective groups.....	21	Program of courses.....	74
Electives, limited.....	18	Psychology .....	67
Entomology and Economic Zool-		Regulations, <i>see</i> Faculty regulations	
ogy.....	32, 54	Rhetoric .....	68
Extension staff.....	11	Romance Languages.....	69
Faculty .....	7	Rural Publications and Journalism	68
Faculty committees.....	14	Sociology and Social Work.....	70
Faculty regulations.....	16	Soils .....	33, 71
Farm Engineering.....	56	Spanish, <i>see</i> Romance Languages	
Farm Management, <i>see</i> Agronomy		Tabular statement of courses.....	74
and Farm Management		Teacher's certificates.....	17
Fees .....	15	Terms, explanation of.....	18
Forestry .....	57	Veterinary Medicine.....	33, 72
Free tuition.....	15		
French, <i>see</i> Romance Languages			
Fur farming.....	28		

*Ed.*



PROGRAM

Intermediate Courses

101f-103w-105s	Theoretical Physics.....	IV	MTWTF	18Ph	Mr. Tate
102f-104w-106s	Experimental Physics.....				
	Sec. 1	V-VII	MW	2Ph	Mr. Tate & Assts.
	2	V-VII	TTh	2Ph	Mr. Tate & Assts.
111f-113w-115s	Elem. of Math. Physics..	Ar	Ar	18Ph	Ar
112f-114w-116s	Elem. Phys. Investigation.	Ar	Ar	1Ph	Mr. Swann
121s	Pyrometry and Heat.....	V-VII	MWF	9Ph	Mr. Miller
132w	Applied Optics.....	Ar	Ar	3Ph	Mr. Valasek
142f	Elect. Measure. ....	See Engineering program		31Ph	Mr. Zeleny
146w	Elect. Meas. of Precision.	Ar	Ar	12Ph	Mr. Zeleny
145f-147w-148s	Radioactivity .....	Ar	Ar	15Ph	Mr. Erikson

POLITICAL SCIENCE

No.	Title	Hour	Day	Building	Instructor
1f	American Government .....	IV	MTWFS	Lit Th	Ar
		VI	MTWThF	306D	Ar
1w	American Government .....	IV	MTWFS	Lit Th	Ar
		VI	MTWThF	306D	Ar
1s	American Government .....	IV	MTWFS	Lit Th	Ar
		VI	MTWThF	Lit Th	Ar
3f	Comparative European Govt....	III	MTThFS	302D	Mr. Wright
3w	Comparative European Govt....	III	MTThFS	302D	Mr. Quigley
3s	Comparative European Govt....	V	MTWThF	109MA	Mr. Quigley
7f	State Government.....	VI	MTWThF	308D	Mr. Cushman
7w	State Government.....	VI	MTWThF	109MA	Mr. Cushman
7s	State Government.....	VI	MTWThF	209MA	Mr. Cushman
11f	Municipal Government.....	I	TWThFS	111Lib	Mr. Anderson
11w	Municipal Government.....	II	MWThFS	202MA	Mr. Anderson
15f	Introduction to Political Science	IV	MTWFS	109MA	Mr. Quigley
15w	Introduction to Political Science	IV	MTWFS	109MA	Mr. Quigley
25f	World Politics.....	V	MTWThF	109MA	Mr. Tyler, Mr. Quigley
25s	World Politics .....	VI	MTWThF	109MA	Mr. Quigley
33w-34s†	English Leg. Institutions.....	See	History statement		
51f-52w-53s	Business Law.....				
	Lect.	II	WF	Ar	Mr. Young
	Sec. 1	I	M	102F	
	2	II	M	109F	
	3	III	M	205F	
	4	IV	M	202F	
	5	V	M	227F	
	6	VI	M	102MA	
65w	Colonization .....	III	TThS	102MA	Mr. Allin
107-108	Europe: 1848-1914.....	See	History statement		
115s	Municipal Problems.....	II	MWF	213MA	Mr. Anderson
117s	Municipal Engineering.....	See	Civil Engineering 53.3		
121f-122w	International Law.....	IV	MTWTF	213MA	Mr. Wright
123s	Development of International Law and Organization.....	IV	MTWTF	213MA	Mr. Wright
125w	American Diplomatic History...	III	MTWTF	213MA	Mr. Wright
127s	American Foreign Relations....	III	MTWTF	213MA	Mr. Wright

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

No.	Title	Credits	Offered to	Prerequisite courses
129	Far Eastern Politics.....	3	Jr., sr., grad.	15 cr. in pol. sci., incl. 25, or 10 cr. in pol. sci. & Hist. 107-108
141	Problems in State Government .....	3	Jr., sr., grad.	Pol. sci. 7 and one of 151, 152, or 157
[145 146-147†	Legislative Power and Meth. Constitutional History of U. S. ....	3	Jr., sr., grad.	15 cr.] See History statement
151	Constitutional Law: The American Federal System..	4	Jr., sr., grad.	15 cr. incl. one Sen. Col. course
152	Constitutional Law: Fundamental Rights & Immunities	4	Jr., sr., grad.	15 cr. incl. one Sen. Col. course
153	West in American Politics since 1865.....			See History statement
[154	National and State Adminis.	3	Jr., sr., grad.	15 cr. including 1 and 7]
155	Compar. Administrative Law	5	Jr., sr., grad.	15 cr.
157	Police Power.....	5	Jr., sr., grad.	15 cr. in pol. sci. or econ. or soc.
158	Government and Business...	3	Jr., sr., grad.	15 cr. in pol. sci. or in econ.
[161	Comparative Federal Govt...	3	Jr., sr., grad.	15 cr.]
165-166	Govt. of British Empire....	6	Jr., sr., grad.	15 cr. or Hist. 109-110
167	British Politics .....	3	Jr., sr., grad.	15 cr. or Hist. 109-110
169	Labor and Socialist Movement in Europe.....			See Economics statement
171	Municipal Corporations.....	3	Jr., sr., grad.	15 cr.
181	Modern Political Thought...	3	Jr., sr., grad.	20 cr. in soc. sci. or 10 cr. in phil.
185	Political and Social Ethics...	5	Jr., sr., grad.	20 cr. in soc. sci. or 10 cr. in phil.
191-192	Public Finance.....			See Economics statement
193	State and Local Taxation....			See Economics statement
201-202-203	Seminar in Public Law....			See Graduate School bulletin
211-212-213	Seminar in Modern Government and Political Theory..			See Graduate School bulletin
221-222-223	Seminar in Local Government and Administration..			See Graduate School bulletin

† The entire course must be completed before credit is received for any quarter.  
[ ] Not offered in 1921-22.

PROGRAM

193

No.	Title	Hour	Day	Building	Instructor
129f	Far Eastern Politics.....	VI	MWF	213MA	Mr. Quigley
141f	Problems in State Govt.....	V	MWF	213MA	Mr. Cushman
146-147†	Constitutional History of U. S..	See	History statement		
151w	Constitutional Law: The American Federal System.....	V	MWThF	213MA	Mr. Cushman
152s	Constitutional Law: Fundamental Rights and Immunities	V	MWThF	213MA	Mr. Cushman
153s	West in Am. Pol. since 1865....	See	History statement		
155w	Comparative Administrative Law	II	TThS	102MA	Mr. Young
157f	Police Power.....	II	TThS	102MA	Mr. Young
158s	Government and Business.....	III	TThS	202MA	Mr. Young
165f-166w	Govt. of the British Empire....	IV	MWF	302D	Mr. Allin
167s	British Politics .....	IV	MWF	302D	Mr. Allin
169s	Labor and Socialist Movement in Europe .....	See	Economics statement		
171f	Municipal Corporations.....	II	MWF	213MA	Mr. Anderson
181s	Modern Political Thought.....	I	TThS	322F	Mr. Wilde
185w	Political and Social Ethics.....	I	TWThFS	322F	Mr. Wilde
191f-192w	Public Finance.....	See	Economics statement		
193s	State and Local Taxation.....	See	Economics statement		

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

## PSYCHOLOGY

No.	Title	Credits	Offered to	Prerequisite courses
1-2†-3	General Psychology .....	6-9	Soph., jr., sr.	None
4-5†	Introd. Lab. Psychology.....	4	Soph., jr., sr.	With or after 1-2
7	Introd. Lab. Psychology (Identical with 4-5 combined) .....	4	Soph., jr., sr.	1-2
18	Applications of Psychology to Business .....	3	Bus., pre-bus.	1-2]
56	Psychology of Advertising..	3	Jr., sr.	1-2, Econ. 3-4
60	Employment Psychology.....	3	Jr., sr.	1-2, Econ. 3-4
101-102†	Experimental Psychology....	6	Jr., sr., grad.	1-2, and 4-5 or 7
108-109†	Adv. General Psychology....	6	Sr., grad.	101-102 or by permission
114-115†	Human Behavior.....	6	Jr., sr., grad.	1-2; and 4-5 or 7, or An. Bi. 1-2
119-120†	Animal Behavior.....	6	Jr., sr., grad.	1-2; and 4-5 or 7, or An. Bi. 1-2
121	Neuro-Psychology .....	3	Jr., sr., grad.	1-2; and 4-5 or 7, or An. Bi. 1-2
125-126†	Differential Psychology.....	6	Jr., sr., grad.	1-2; and 4-5 or 7, or Ed. Psych. 126-127
127	Social Psychology.....	5	Jr., sr., grad.	1-2; and 4-5 or 7, or An. Bi. 1-2, or 15 cr. soc. sci.
135-136†	Dynamic Psychology.....	6	Jr., sr., grad.	1-2; and 4-5 or 7, or An. Bi. 1-2, or 15 cr. soc. sci.
144-145†	Abnormal Psychology.....	6	Jr., sr., grad.	1-2; and 4-5 or 7, or An. Bi. 1-2, or 15 cr. soc. sci.
[200-201-202†	Seminar in the History of Psychology] .....		See Graduate School bulletin	
205	Advanced Differential Psychology .....		See Graduate School bulletin	
210-211-212	Research Problems.....		See Graduate School bulletin	
215-216-217†	Seminar in Physiological Psychology .....		See Graduate School bulletin	
220-221-222†	Journal Club and Seminar in Contemporary Trends in Psychology .....		See Graduate School bulletin	

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

[ ] Not offered in 1921-22.

PROGRAM

PSYCHOLOGY

No.	Title	Hour	Day	Building	Instructor	
1f-2w†	General Psychology.....					
	Lect. 1	I	MW	Lit. Th.	Mr. Elliott, Mr. Foster	
	2	VII	MW	Lit. Th.	Mr. Elliott, Mr. Foster	
	Rec. Sec. 1	I	Th	Psy.		
	2	II	Th	Psy.		
	3	III	Th	Psy.		
	4, 5	V	Th	Psy.		
	6	VII	Th	Psy.		
	7, 8, 9	I	F	Psy.		
	10	II	F	Psy.		
	11	III	F	Psy.		
	12	IV	F	Psy.		
	13, 14	V	F	Psy.		
	15, 16, 17	VII	F	Psy.		
	18	I	S	Psy.		
	19	II	S	Psy.		
	20	III	S	Psy.		
	38	General Psychology (cont.) .....				
		Lect.	I	MW	Lit. Th.	Mr. Elliott
		Rec. Sec. 1	I	Th	Psy.	
	2, 3	III	Th	Psy.		
	4	V	Th	Psy.		
	5, 6, 7	I	F	Psy.		
	8	II	F	Psy.		
	9	V	F	Psy.		
	10	I	S	Psy.		
4f-5w†	Intro. Lab. Psychol.....					
	Sec. 1	I, II	TTh	211 Psy.	Mr. Foster, et al.	
	2	III, IV	TS	211 Psy.		
	3	V, VI	T, Th	211 Psy.		
	4	VII, VIII	TTh	211 Psy.		
	(Sections limited to 40)					
78	Intro. Lab. Psychol. (Identical with 4f-5w combined) .....					
	Sec. 1	V, VI	MTWF	211 Psy.		
	2	III, IV	MTWF	211 Psy.		
	(Sections limited to 40)					
56w	Psychol. of Advertising..	II	MWF	115 Psy.	Mr. Dickinson	
6of	Employment Psychology..	II	MWF	115 Psy.	Mr. Dickinson	
101f-102w†	Exper. Psychol.....	VI	MWF			
		VII	WF	116 Psy.	Mr. Woodrow	
108w-109s†	Adv. Gen. Psychol.....	II	MWF	109 Psy.		
114w-115s†	Human Behavior.....	II	TThS	109 Psy.	Mr. Elliott	
119f-120w	Animal Behavior.....	VI	MWF			
		VII	WF	109 Psy.	Mr. Lashley	
121s	Neuropsychology .....	VI	MWF			
		VII	WF	109 Psy.	Mr. Lashley	
125f-126w†	Differential Psychol.....	III	MWF	109 Psy.		
127s	Social Psychology.....	IV	MTWFS	115 Psy.	Mr. Bird	
135w-136s†	Dynamic Psychol.....	III	TThS	115 Psy.	Mr. Woodrow	
144f-145w†	Abnormal Psychol.....	IV	MWF	109 Psy.	Mr. Lashley	

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

## ROMANCE LANGUAGES

## FRENCH

No.	Title	Credits	Offered to	Prerequisite courses
1-2†	Beginning French .....	10	All	None
3-4	Intermediate French .....	10	All	1-2, or 2 yrs. high-school French
8-9-10¶	Scientific French.....	9	Pre-med.	3 or equiv.
[11-12-13†	Educ., Journalism, Commerce	9	All	3-4 or 3 yrs. high-school French]
[14-15-16†	Commercial Correspondence..	3	All	3-4 or 3 yrs. high-school French]
20§	Oral and Written French....	5	All	3-4 or 3 yrs. high-school French
21-22-23†	Survey of French Literature.	9	All	3-4 or 3 yrs. high-school French
24-25†	Survey of French Literature	10	All	3-4 or 3 yrs. high-school French
50-51-52†	French Conversation*.....	3	Jr., sr.‡	3-4
53-54-55†	French Composition.....	3	Jr., sr.‡	3-4
56-57-58†	Adv. French Conversation*..	3	Jr., sr.‡	20 or 50-51-52
59-60-61†	Adv. French Composition....	3	Jr., sr.‡	20 or 53-54-55
62-63-64†	Practical French Phonetics..	6	Jr., sr.‡	21-22-23 & 20 (or 50-51-52 & 53-54-55) and permission of dept.
80-81-82†	French Lit., 19th Century...	9	Jr., sr.‡	21-22-23 or 24-25
[100-101-102†	French Oral Diction.....	6	Jr., sr., grad.	56-57-58]
103-104-105†	French Syntax and Comp...	3	Jr., sr., grad.	59-60-61
[106	Adv. French Phonetics.....	5	Jr., sr., grad.	56-57-58; 59-60-61, one century course and permission of dept.]
115-116-117†	French Lit., 17th Century...	9	Jr., sr., grad.	21-22-23 or 24-25
118-119-120†	French Lit., 18th Century...	9	Jr., sr., grad.	21-22-23 or 24-25
[121-122-123†	French Lit., 16th Century...	9	Jr., sr., grad.	80-81-82, or 115-116-117, or 118-119-120]
141-142-143†	Realistic Novel, 19th Century	6	Jr., sr., grad.	80-81-82
[150-151-152†	French Dramatic Literature.	6	Jr., sr., grad.	80-81-82 or 115-116-117]
153-154-155†	French Lyric Poetry.....	6	Jr., sr., grad.	20-21-22 or 24-25
[156-157-158†	French Classicism .....	6	Jr., sr., grad.	115-116-117]
[159-160-161†	French Criticism.....	6	Jr., sr., grad.	80-81-82]
[162-163-164†	French Lit. Craftsmanship..	6	Jr., sr., grad.	80-81-82 and 115-116-117]
[171-172-173†	Explication de Textes.....	6	Sr., grad.	56-57-58, 59-60-61, & 115-116-117 or 118-119-120]
174-175-176†	Lectures in French.....	6	Jr., sr., grad.	50-51-52, 53-54-55; (or 20) & 80-81-82
[177-178-179†	Adv. Lectures in French....	6	Sr., grad.	56-57-58, 59-60-61, & 115-116-117 or 118-119-120]
191-192-193†	Research Methods & Material	3	Sr., grad.	Consent of instr.

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

‡ Open without petition to sophomores who have the prerequisites and who satisfy the requirement given on page 20.

§ See departmental requirements, note on freshmen entering with 3 years of high-school French.

[ ] Not offered in 1921-22.

¶ Students may enter any quarter.

\* Courses in conversation may be taken only when accompanied by the corresponding courses in composition. Courses in composition may be taken separately.

PROGRAM

197

ROMANCE LANGUAGES

		FRENCH				
No.	Title	Hour	Day	Building	Instructor	
(1s)-2f†	Beginning French.....	I	TWThFS	202F	Ar	
		V	MTWThF	213F	Ar	
1f-2w†	Beginning French.....	I	TWThFS	213F	Ar	
		II	MWThFS	227F	Ar	
		III	MTThFS	226F	Ar	
		IV	MTWFS	201F	Ar	
		V	MTWThF	226F	Ar	
		VI	MTWThF	202F	Ar	
1w-2s†	Beginning French.....	I	TWThFS	227F	Ar	
1s-(2f)†	Beginning French.....	Ar	TWThFS	104F	Ar	
		Ar	MTWThF	Ar	Ar	
(3s)-4f	Intermediate French.....	I	TWThFS	227F	Ar	
		II	MWThFS	213F	Ar	
		II'	MTThFS	124F	Ar	
		IV	MTWFS	125F	Ar	
		V	MTWThF	202F	Ar	
		VI	MTWThF	205F	Ar	
3f-4w	Intermediate French.....	I	TWThFS	204F	Ar	
		II	MWThFS	213F	Ar	
		III	MTThFS	213F	Ar	
		VI	MTWThF	213F	Ar	
3w-4s	Intermediate French.....	I	TWThFS	202F	Ar	
		V	MTWThF	213F	Ar	
3s-(4f)	Intermediate French.....	I	TWThF	213F	Ar	
		II	MWThFS	227F	Ar	
		III	MTThFS	226F	Ar	
		IV	MTWFS	201F	Ar	
		V	MTWThF	226F	Ar	
		VI	MTWThF	202F	Ar	
8f-9w 10s	Scien. French (Pre-Medics)	I	MWF	109F	Ar	
20f	Oral and Written French	III	MTThFS	205F	Mr. Frelin	
		VI	MTWThF	206F	Ar	
20s	Oral and Written French	I	TWThFS	15F	Ar	
		II	MWThFS	213F	Ar	
		VI	MTWThF	213F	Ar	
21f-22w-23s†	Survey of French Lit....	II	TThS	107F	Mr. Barton	
		III	TThS	301F	Mr. Sirich	
		VI	MWF	107F	Mr. Searles	
		III	MTThFS	205F		
24w-25s†	Survey of French Lit....	VI	M-F	105F		
		III	MW	201F	Miss Guinotte	
50f-51w-52s†	French Conversation.....	V	MW	107F	Mr. Frelin	
		III	F	201F	Miss Guinotte	
53f-54w-55s†	French Composition.....	V	F	107F	Mr. Frelin	
		II	MW	113F	Ar	
56f-57w-58s†	Adv. French Conversation	III	MW	113F	Ar	
		V	MW	113F	Ar	
		II	F	113F	Ar	
59f-60w-61s†	Adv. French Composition	III	F	113F	Ar	
		V	F	113F	Ar	
		VII	TTh	227F	Ar	
62f-63w-64s†	Practical French Phonetics	VII	TTh	227F	Ar	
80f-81w-82s†	French Lit.: 19th Century	IV	MWF	101F	Mr. Barton	
		VI	MWF	114	Mr. Sirich	
103f-104w-105s†	French Syntax and Comp.	V	F	203F	Mr. Barton	
115f-116w-117s†	French Lit.: 17th Century	III	TThS	201F	Mr. Searles	
118f-119w-120s†	French Lit.: 18th Century	III	MWF	212F	Mr. Parker	
141f-142w-143s†	Realistic Novel: 19th Cent.	VI	TTh	203F	Mr. LeCompte	
153f-154w-155s†	French Lyric Poetry.....	III	TTh	203F	Mr. Olmsted	
174f-175w-176s†	Lectures in French.....	VIII	TTh	201F	Mr. van Roosbroeck	
191f-192w-193s†	Research Meth. & Material	VIII	M	201F	Mr. van Roosbroeck	

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

( ) Numbers in parenthesis do not refer to the year 1921-22: See *Course Numbering*, p. 128.

## ITALIAN

No.	Title	Credits	Offered to	Prerequisite courses
1-2†	Beginning Italian .....	10	Soph., jr., sr.	None
80	Italian Survey: Renaissance Period .....	5	Jr., sr.	1-2
[81	Italian Survey: Romantic Period .....	5	Jr., sr.	1-2]
[153-154-155†	Italian Lyrics.....	6	Jr., sr., grad.	80 or 81]
159-160-161†	Dante, Petrarch, Boccaccio...	6	Jr., sr., grad.	80 or 81
162-163-164†	Dante (in English).....	3	Jr., sr., grad.	Eng. 1-2-3 or Fr. 21-22-23. (Re- quired of stu- dents taking 159- 160-161)

## SPANISH

No.	Title	Credits	Offered to	Prerequisite courses
1-2†	Beginning Spanish.....	10	All	None
3-4	Intermediate Spanish.....	10	All	1-2 or 2 yrs. high- school Spanish
20‡	Oral and Written Spanish...	5	All	3-4 or 3 yrs. high- school Spanish
50-51-52†	Spanish Conversation*.....	3	Jr., sr.‡	3-4
53-54-55†	Spanish Composition.....	3	Jr., sr.‡	3-4
56-57-58†	Adv. Spanish Conversation*.	3	Jr., sr.‡	50-51-52
59-60-61†	Adv. Spanish Composition...	3	Jr., sr.‡	53-54-55
162-63-64†	Practical Spanish Phonetics.	6	Jr., sr.‡	65-66-67, and 20 (or 50-51-52 and 53-54-55)]
65-66-67†	Survey of Spanish Lit.....	9	Jr., sr.‡	3-4
68-69†	Survey of Spanish Lit.....	10	Jr., sr.‡	3-4
[70-71-72†	South Amer. Life and In- stitutions .....	6	Jr., sr.‡	20, or 50-51-52 and 53-54-55]
[73-74-75†	Span. Commer. Correspond..	3	Jr., sr.‡	20, or 53-54-55]
80-81-82†	Spanish Lit., 19th Century..	9	Jr., sr.‡	65-66-67 or 68-69
83-84-85†	Span. Amer. Literature.....	9	Jr., sr.‡	65-66-67 or 68-69
[100-101-102†	Spanish Oral Diction.....	6	Jr., sr., grad.	56-57-58]
[103-104-105†	Spanish Syntax.....	3	Jr., sr., grad.	59-60-61]
[115-116-117†	Spanish Lit., Golden Age...	9	Jr., sr., grad.	65-66-67 or 68-69
[141-142-143†	Spanish Novel.....	6	Jr., sr., grad.	65-66-67 or 68-69]
[150-151-152†	Spanish Dramatic Lit.....	6	Jr., sr., grad.	65-66-67 or 68-69]
156-157-158†	Spanish Lit., 16th Century..	6	Jr., sr., grad.	65-66-67 or 68-69
[159-160-161†	Cervantes .....	6	Jr., sr., grad.	65-66-67 or 68-69]
174-175-176†	Lectures in Spanish.....	6	Jr., sr., grad.	20 (or 50-51-52 & 53-54-55) & 65- 66-67
[177-178-179†	Adv. Lectures in Spanish....	6	Sr., grad.	56-57-58, 59-60-61, and one literary course above Survey]
194-195-196†	Introd. to Old Spanish Read- ings and Historical Gram- mar .....	6	Sr., grad.	Permission of in- structor

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

‡ Open without petition to sophomores who have the prerequisites and who satisfy the requirements given on page 20.

[ ] Not offered in 1921-22.

§ See departmental requirements note on freshmen entering with 3 years of high-school Spanish.

\* Courses in conversation may be taken only when accompanied by the corresponding courses in composition. Courses in composition may be taken separately.



PROGRAM

199

ITALIAN

No.	Title	Hour	Day	Building	Instructor
1f-2w†	Beginning Italian.....	I	TWThFS	113F	Miss Phelps
8os	Ital. Survey: Renaissance Period .....	I	TWThFS	113F	Miss Phelps
159f-160w-161s†	Dante, Petrarch, Boccaccio	IV	MW	113F	Miss Phelps
162f-163w-164s†	Dante (in English).....	IV	F	113F	Miss Phelps

SPANISH

No.	Title	Hour	Day	Building	Instructor
(1s)-2f†	Beginning Spanish.....	I	TWThFS	201F	Ar
		VI	MTWThF	201F	Ar
1f-2w†	Beginning Spanish.....	I	TWThFS	15F	Ar
		II	MWThFS	226F	Ar
		III	MTThFS	227F	Ar
		IV	MTWFS	226F	Ar
		V	MTWThF	201F	Ar
		VI	MTWThF	226F	Ar
1w-2s†	Beginning Spanish .....	II	TWThFS	202F	Ar
		VI	MTWThF	125F	Ar
1s-(2f)	Beginning Spanish.....	II	TWThFS	201F	Ar
		VI	MTWThF	226F	Ar
(3s)-4f	Intermediate Spanish.....	I	TWThFS	301F	Ar
		II	MWThFS	202F	Ar
		III	MTThFS	308D	Ar
		IV	MTWFS	202F	Ar
		V	MTWThF	227F	Ar
3f-4w	Intermediate Spanish.....	II	MWThFS	201F	Ar
		III	MTThFS	202F	Ar
		V	MTWThF	109F	Ar
3w-4s	Intermediate Spanish....	I	TWThFS	201F	Ar
		VI	MTWThF	201F	Ar
3s-(4f)	Intermediate Spanish.....	I	TWThFS	226F	Ar
		II	MWThFS	226F	Ar
		III	MTThFS	227F	Ar
		IV	MTWFS	226F	Ar
		V	MTWThF	201F	Ar
		VI	MTWThF	227F	Ar
2os	Oral and Written Spanish	III	MTThFS	202F	Ar
50f-51w-52s†	Spanish Conversation....	II	MW	302D	Mr. House
53f-54w-55s†	Spanish Composition....	II	F	302D	Mr. House
56f-57w-58s†	Adv. Spanish Convers...	V	MW	114F	Mr. Heras
59f-60w-61s†	Adv. Spanish Comp.....	V	F	114F	Mr. Heras
65f-66w-67s†	Survey of Spanish Lit..	II	TThS	306F	Mr. House
68w-69s†	Survey of Spanish Lit..	V	MTWThF	227F	Mr. Drake
80f-81w-82s†	Spanish Lit., 19th Cent..	IV	MWF	302D	Mr. Heras
83f-84w-85s†	Spanish American Lit....	VI	MW	203F	Mr. Henriquez
156f-157w-158s†	Spanish Literature, 16th Century .....	IV	TS	227F	
174f-175w-176s†	Lectures in Spanish.....	VIII	TTh	202F	Mr. Henriquez
194f-195w-196s†	Spanish Readings and His- torical Grammar.....	VII	TTh	202F	Mr. House

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

( ) Numbers in parenthesis do not refer to the year 1921-22: See *Course Numbering*, p. 128.

## GRADUATE COURSES

Consult the bulletin of the Graduate School

No.	Title	Credits	Offered to	Prerequisite courses
201-202-203	Old French Phonology and Morphology			
204-205-206	Readings in Old French Literature			
207-208-209	Old Provençal			
222-223-224	Seminar in Modern French Literature			
[241-242-243	Old Spanish Philology]			
[244-245-246	Old Spanish Literature]			
250-251-252	Spanish Seminar			
259-260-261	Research in Romance Languages			

## SCANDINAVIAN

No.	Title	Credits	Offered to	Prerequisite courses
1-2	Beginning Norwegian.....	10	All	None
3	Intermediate Norwegian....	5	All	1-2, or 1 yr. h.s.
4-5	Adv. Norwegian (Survey)..	10	Soph., jr., sr.	1-2-3 or 2 yrs. h.s.
7-8	Beginning Swedish.....	10	All	None
9	Intermediate Swedish.....	5	All	7-8, or 1 yr. h.s.
10-11	Advanced Swedish.....	10	Soph., jr., sr.	7-8-9 or 2 yrs. h.s.
12	Anc. and Med. Scand. Hist.	5	Soph., jr., sr.	10-11, or 4-5 or Hist. 1-2
45	Scandinavian Mythology....	3	Jr., sr., grad.†	None
101-102-103	Modern Norweg. Literature.	9	Jr., sr., grad.	4-5
104-105	Mod. Scand. History.....	6	Jr., sr., grad.	10-11-12 or 4-5 or 15 cr. in hist.
107-108-109	Mod. Swed. Literature.....	9	Jr., sr., grad.	10-11-12
110	Ibsen .....	3	Sr., grad.	101-102-103
111-112-113	Old Norse (Icelandic).....	6	Sr., grad.	Consent of instr.
114	Strindberg .....	3	Sr., grad.	107-108-109
117	Earlier Norweg. Literature..	5	Jr., sr., grad.	4-5
[130-131-132	Danish Lit. of 19th Century	9	Jr., sr., grad.	4-5]
[134-135	The Landsmaal Movement and Literature .....	6	Sr., grad.	101-102-103 or 130-131-132]
136	Björnson .....	3	Sr., grad.	101-102-103 or 130-131-132
201-202-203	Seminar in History of Scandinavian Languages, including Semasiology.....		See Graduate School bulletin	
204-205-206	Seminar in Old Norwegian..		See Graduate School bulletin	
209-210	Seminar in Modern Swedish Languages and Literature		See Graduate School bulletin	
215-216-217	Seminar in Modern Norwegian Literature.....		See Graduate School bulletin	

## SHOP PRACTICE

No.	Title	Credits	Offered to	Prerequisite courses
11-12-13†	Shop Practice.....	6§	Pre-dent. only	None

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

[ ] Not offered in 1921-22.

‡ Does not count as a Senior College course. Not open to sophomores under the rule on p. 20.

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

SCANDINAVIAN

No.	Title	Hour	Day	Building	Instructor
1f-2w	Beginning Norwegian....	I	TWThFS	206F	Mr. Bothne
3s	Intermediate Norwegian..	I	TWThFS	206F	Mr. Bothne
4f-5w	Adv. Norwegian (Survey)	III	MTThFS	206F	Mr. Bothne
7f-8w	Beginning Swedish.....	II	MWThFS	206F	Mr. Stomberg
9s	Intermediate Swedish....	II	MWThFS	206F	Mr. Stomberg
10f-11w	Advanced Swedish.....	I	TWThFS	110F	Mr. Stomberg
12s	Ancient and Medieval Scandinavian History..	I	TWThFS	110F	Mr. Stomberg
45s	Scand. Mythol.....	IV	MWF		
101f-102w-103s	Modern Norwegian Lit...	II	TThS	110F	Mr. Bothne
104f-105w	Modern Scand. History..	IV	MWF	206F	Mr. Stomberg
107f-108w-109s	Modern Swedish Lit....	V	MWF	206F	Mr. Stomberg
110w	Ibsen .....	IV	T&Ar	206F	Mr. Bothne
111f-112w-113s	Old Norse (Icelandic)....	V	TTh	206F	Mr. Bothne
114f	Strindberg .....	Ar	Ar	Ar	Mr. Stomberg
117s	Earlier Norwegian Lit....	III	MTThFS	206F	Mr. Bothne
136s	Björnson .....	Ar	Ar	206F	Mr. Bothne

SHOP PRACTICE

No.	Title	Hour	Day	Building	Instructor
11f-12w-13s	Shop Practice.....	7:00-9:30 p.m.	Ar	ME	Mr. Martenis and assistants

## SOCIOLOGY AND SOCIAL WORK

No.	Title	Credits	Offered to	Prerequisite courses
1	Introduction to Sociology...	5	3d qu. fr., soph., jr., sr.	None
3	Educational Sociology.....	3	Jr., sr.	1
6	Modern Social Reform Move- ments .....	3	Soph., jr., sr.	1
14	Rural Sociology.....	3	Soph., jr., sr.	1 for Arts stud.; none for seniors in professional schools

## SOCIOLOGY AND SOCIAL WORK

No.	Title	Hour	Day	Building	Instructor
1f	Intro. to Sociology.....				
	Sec. 1	I	TWThFS	9F	
	2	III	MTThFS	5F	
	3	IV	MTWFS	301F	
	4, 5	V	MTWThF	5F, 9F	
	6	VI	MTWThF	9F	
	7 (Farm)				
	3 cred.	II	MWF	105En(F)	Mr. Lundquist
1w	Intro. to Sociology.....				
	Sec. 1	I	TWThFS	9F	
	2	III	MTThFS	5F	
	3	IV	MTWFS	301F	
	4, 5	V	MTWThF	5F, 9F	
	6	VI	MTWThF	9F	
	7	VII	MTWThF	110F	
	8 (Farm)	II	MWF	105En(F)	Mr. Lundquist
3 cred.					
1s	Intro. to Sociology.....				
	Sec. 1	I	TWThFS	9F	
	2	II	MWThFS	5F	
	3	III	MTThFS	5F	
	4	IV	MTWFS	301F	
	5, 6	V	MTWThF	5F, 9F	
	7	VI	MTWThF	9F	
	8	VII	MTWThF	110F	
	9 (Farm)	II	MWF	105En(F)	Mr. Lundquist
(3 cred.)					
3f	Educational Sociology....				
	Sec. 1	II	MWF	Ed	Mr. Finney
3w	Educational Sociology....	III	MWF	Ed	Mr. Finney
	Educational Sociology....	III	MWF	Ed	Mr. Finney
6f	Modern Social Reform				
	Movements .....				
	Sec. 1	II	TThS	102F	Ar
	2	IV	MWF	5F	Ar
	3	V	MWF	110F	Ar
6w	Modern Social Reform				
	Movements .....				
	Sec. 1	II	TThS	301F	Ar
	2	IV	MWF	5F	Ar
	3	V	MWF	110F	Ar
6s	Modern Social Reform				
	Movements .....				
	Sec. 1	II	TThS	301F	Ar
	3	IV	MWF	5F	Ar
	4	V	MWF	110F	Ar
14f	Rural Sociology.....				
	Sec. 1	III	MWF	25F	Ar
	2	V	MWF	25F	Ar
	3 (Farm)	II	TThS	105En(F)	Mr. Lundquist
14w	Rural Sociology.....				
	Sec. 1	III	MWF	9F	Ar
	2	V	MWF	25F	Ar
14s	Rural Sociology.....				
	3 (Farm)	II	TThS	105En(F)	Mr. Lundquist
14s	Rural Sociology.....				
	Sec. 1	III	MWF	25F	Ar
	2	V	MWF	15F	Ar

No.	Title	Credits	Offered to	Prerequisite courses schools
[45-46	Elements of Social Hygiene and Community Protective Work .....	2	Jr., sr.	1]
51	Background of Dependency and Defectiveness.....	3	Jr., sr.	10 cr. in soc.; or Soc. 1 and 10 cr. in soc. sci. or psych.
52	Treatment of Dependents and Defectives .....	3	Jr., sr.	51
53	Treatment of Delinquents..	3	Jr., sr.	Same as for 51
55	Housing Problems.....	3	Jr., sr.	Same as for 51
56	Field Practice in Case Work	2	Jr., sr.	Open to students taking 51
57	Field Practice in Case Work	2	Jr., sr.	Open to students taking 51
60	Child Welfare.....	3	Jr., sr.	51 and 52
61	Field Practice in Child Wel- fare .....	2	Jr., sr.	Open to those tak- ing 60
97-98-99	Supervised Field Practice Work .....	3, 6, or 9	Jr., sr.	Consent of director
100	Social Psychology (primarily for sociology students)....	3	Jr., sr., grad.	Soc. 1 and 15 cr. in soc., anth., econ., educ., hist., philos., pol. sci., or psych., in- cluding Psych. 1-2
101	Social Organization.....	3	Jr., sr., grad.	4 courses in soc., or Soc. 1 and 15 cr. in soc., anth., econ., educ., hist., philos., pol. sci., or psych.
102	Social Control.....	3	Jr., sr., grad.	Same as for 101

[ ] Not offered in 1921-22.

PROGRAM

No.	Title	Hour	Day	Building	Instructor
51f	Background of Depend. and Defect. ....	I	TThS	5F	Mr. Bruno
51w	Background of Depend. and Defect. ....	I	MWF	5F	Mr. Bruno
51s	Background of Depend. and Defect. ....	I	TThS	5F	Mr. Bruno
52w	Treatment of Depend. and Defect. ....	I	TThS	5F	Mr. Bruno
52s	Treatment of Depend. and Defect. ....	I	TThS	5F	Mr. Bruno
53f	Treatment of Delinquents	III	MWF	9F	Mr. Bruno
53w	Treatment of Delinquents	III	MWF	101F	
53s	Treatment of Delinquents	III	MWF	101F	
55w	Housing Problems.....	I	MWF	101F	Mr. Davis
56f	Field Practice in Case Work .....				
	Sec. 1	I, II, III	MW		Mrs. Mudgett
	2	I, II, III	WF		
	3	V, VI, VII	MW		
	4	V, VI, VII	TTh		
	5	V, VI, VII	WF		
56w	Field Practice in Case Work .....				
	Sec. 1	II, III, IV	MW		Mrs. Mudgett
	2	II, III, IV	WF		
	3	V, VI, VII	MW		
	4	V, VI, VII	WF		
	5	V, VI, VII	TTh		
56s	Field Practice in Case Work .....				
	Sec. 1	V, VI, VII	MW		Mrs. Mudgett
	2	V, VI, VII	WF		
	3	II, III, IV	TTh		
	4	V, VI, VII	TTh		
57w	Field Practice in Case Work .....				
	Sec. 1	II, III, IV	MW		Mrs. Mudgett
	2	II, III, IV	WF		
	3	V, VI, VII	MW		
	4	V, VI, VII	WF		
	5	V, VI, VII	TTh		
57s	Field Practice in Case Work .....				
	Sec. 1	V, VI, VII	MW		Mrs. Mudgett
	2	V, VI, VII	WF		
	3	II, III, IV	TTh		
	4	V, VI, VII	TTh		
60w	Child Welfare.....	VIII	MWF	9F	Mr. Hodson
61w	Field Practice in Child Welfare .....				
	Sec. 1	II, III, IV	MW		Mrs. Mudgett
	2	II, III, IV	WF		
	3	V, VI, VII	MW		
	4	V, VI, VII	WF		
	5	V, VI, VII	TTh		
97f-98w-99s	Super. Field Prac. Work.	Ar	Ar	Ar	Mrs. Mudgett
100f	Social Psychology.....	II	TThS	9F	Mr. Bernard
101w	Social Organization.....	II	TThS	9F	Mr. Bernard
102s	Social Control.....	II	TThS	9F	Mr. Bernard

No.	Title	Credits	Offered to	Prerequisite courses
[103	Sociology of Conflict.....	3	Jr., sr., grad.	Same as for 101]
[104	State Care of Dependents, Defectives, and Delinquents in Minnesota.....	2	Jr., sr., grad.	51, 52 and 53 or 6a]
110	Community Organization and Social Work in Small Towns and Country.....	2	Jr., sr., grad.	Same as for 101
114	Rural Social Institutions....	3	Jr., sr., grad.	Same as for 101
119	The Family.....	3	Jr., sr., grad.	Same as for 101
120	Social Progress.....	3	Jr., sr., grad.	Same as for 101
122	Methods of Social Investiga- tion .....	3	Jr., sr., grad.	Same as for 101
123	Social Statistics.....	3	Jr., sr., grad.	122
[125-126-127	Settlement and Community Center Work.....	4	Sr., grad.	Consent of direc.]
128	Charitable Admin., Finance, and Publicity.....	2	Jr., sr., grad.	Same as for 101
130	Technic of Family Treat- ment .....	2	Jr., sr., grad.	Same as for 101, including 51 and 52
[132	Juvenile Courts and Proba- tion .....	2	Jr., sr., grad.	51, 52, 53]
133	Medical Social Service.....	3	Jr., sr., grad.	Same as for 130
134	Legal Protection of the Child .....	3	Jr., sr., grad.	Same as for 101 including 60
135	Field Practice in Legal Pro- tection of the Child..	2	Jr., sr., grad.	Open to students taking 134
138-139	Mental Case Work.....	3	Jr., sr., grad.	Same as for 130
140	History of Social Theory....	3	Jr., sr., grad.	Same as for 101
141	Contemporary Social Theory	3	Jr., sr., grad.	Same as for 101
[150	Seminar: The Literature of Social Protest.....		Sr., grad.	Consent of direc.]
[151	Seminar: Social Aspects of the Labor Problem.....		Sr., grad.	Consent of direc.]
[152	Seminar: Prob. of Institu- tional Administration and Reconstruction .....		Sr., grad.	Consent of direc.]
180-181-182	Seminar in Educational Soc.	6	Jr., sr., grad.	1, 6 and 120

[ ] Not offered in 1921-22.



PROGRAM

No.	Title	Hour	Day	Building	Instructor
110w	Community Organ. and Social Work in Small Towns and Country...	VII-VIII	Th	9F	Mr. Bernard
114s	Rural Social Institutions..	I	MWF	105En(F)	Mr. Lundquist
119f	The Family.....	III	TThS	9F	
120f	Social Progress.....	II	MWF	9F	
122w	Methods of Social Investigation .....	VII	MWF	9F	Mr. Elmer
123s	Social Statistics .....	VII	MWF	9F	Mr. Elmer
128s	Charitable Administration, Finance, and Publicity.	VII-VIII	Th	9F	Mr. Davis
130s	Technic of Family Treatment .....	VII-VIII	T	9F	Mr. Bruno
133f	Medical Social Service...	Ar	Ar	Ar	
134s	Legal Protection of the Child .....	VIII	MWF	9F	Mr. Hodson
135s	Field Practice in Legal Protection of the Child	Ar	Ar	Ar	Mrs. Mudgett
138w	Mental Case Work.....	VII, VIII	T and Ar	5F	Miss Seeberg
139s	Mental Case Work.....	VIII	Th and Ar	5F	Miss Seeberg
140w	History of Social Theory.	II	MWF	9F	Mr. Bernard
141s	Contemp. Social Theory..	II	MWF	9F	Mr. Bernard
180f-181w-182s	Seminar in Educ. Sociol.	VIII-IX	M	Ed	Mr. Finney

## COURSES IN OTHER COLLEGES

These courses are open to election by seniors, subject to the regulations on page 25.

### COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

The following divisions of this college offer courses to students in the College of Science, Literature, and the Arts who can meet the prerequisites:

Agricultural Biochemistry	Farm Engineering
Agricultural Education	Forestry
Agronomy and Farm Management	Home Economics
Animal Husbandry	Horticulture
Bee Culture	Plant Pathology and Botany
Dairy Husbandry	Soils
Entomology and Economic Zoology	Veterinary Medicine

Descriptions of the courses will be found in the bulletin of the College of Agriculture, Forestry, and Home Economics. The hour schedule will be found in the program issued each quarter.

### SCHOOL OF BUSINESS

Students in the College of Science, Literature, and the Arts are limited to courses in economics announced in this bulletin.

### COLLEGE OF EDUCATION

#### DEPARTMENT OF PHYSICAL EDUCATION FOR WOMEN

	Credits
66 Anatomy and Kinesiology.....	3
67 Principles of Gymnastic Exercise.....	3
68 Teachers' Course in Play.....	3

For description of these courses see bulletin of the College of Education.

### LAW SCHOOL

<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
*Contracts (3)	*Contracts (3)	*Contracts (3)
*Property (5)	*Property (3)	*Property (3)
*Torts (3)	*Torts (3)	*Torts (3)

### SCHOOL OF MINES

1w	Assaying
2w	Assay Laboratory
3f	General Metallurgy
4w	Metallurgy of Pig Iron
5s	Metallurgy of Wrought Iron and Steel
105f	Metallurgy of the Base Metals
106w	Continuation of Course 105f
107s	Metallurgy of the Precious Metals
153f,154w,155s	Metallography

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

## INDEX

Pages	Pages
Abbreviations .....	128
Admission .....	18
to advanced standing .....	18
to freshman class .....	18
to Senior College .....	24
Advanced standing .....	18
Advisers for students	
in Junior College .....	20
in Senior College .....	21
Agricultural Biochemistry .....	62, 144, 145
Americanization Training Course ..	28
Animal Biology .....	42, 130, 131
Anthropology and Americanization Training .....	47, 134, 135
Architecture .....	49, 136, 137
Architecture and Decoration, 4-year course in .....	29
Architecture, 6-year course in Arts and .....	39
Astronomy .....	51, 136, 137
Auditors .....	21
Bacteriology and Immunology .....	52, 136, 137
Botany .....	54, 138, 139
Business, School of, preliminary course .....	32
Calendar .....	5
Chemistry .....	58, 140, 141
Chemistry, 5-year course in Arts and .....	35
Class officers .....	20
Class routine and scholastic re- quirements .....	19
Combined arts and professional courses .....	34
Comparative Literature .....	63, 146, 147
Comparative Philology .....	64, 146, 147
Correspondence courses .....	25
Course numbers .....	43
Courses in other colleges, election of .....	25, 208
list .....	208
Courses of study .....	22
Credits, definition of .....	19
Curriculum, old .....	25
Dentistry, 7-year course in Arts and .....	36
pre-dental course .....	33
Diplomatic and Consular Service, 5-year course in .....	26
Directory, department offices .....	129
Drawing and Descriptive Geometry .....	64, 146, 147
Economics .....	65, 148ff
Education .....	69, 154ff
Education, College of, preliminary course .....	33
Educational Psychology .....	70, 156, 157
English .....	72, 156ff
habitual bad English .....	19
Entomology .....	45, 132, 133
Extension courses .....	25
Faculty advisers for students .....	20
Fees .....	18
French .....	117, 196, 197
General course .....	23
General information .....	18
Geology .....	78, 162, 163
German .....	83, 166, 167
Grades .....	19
Greek .....	85, 168, 169
History .....	87, 170, 171
Home Economics .....	92, 174, 175
Honor points, definition of .....	19
Hour schedule .....	19
Human Anatomy .....	93, 176, 177
Human Physiology .....	94, 176, 177
Italian .....	119, 198, 199
Journalism .....	95, 176, 177
Junior and Senior colleges .....	20
advisers in .....	20
Junior College, requirements .....	23
Latin .....	96, 178, 179
Law, 6-year course in Arts and ...	37
pre-legal course .....	33
Mathematics .....	97, 180, 181
Medicine, 8-year course in Arts and .....	37
Medicine, 7-year course in Science and .....	38
Military Science and Tactics .....	99, 182, 183
special training in .....	28
Municipal Administration and En- gineering, course in .....	30
Music .....	100, 182, 183
Music, B.A., with major in .....	25
Nursing, 5-year course in Arts and	40
Old curriculum .....	25

	Pages		Pages
Philosophy .....	102, 184, 185	Rhetoric .....	75, 160, 161
Physical Education for Men.....	104, 184, 185	Romance Languages.....	116, 196, 197
Physical Education for Women...	105, 186, 187	Scandinavian .....	121, 200, 201
Physics .....	107, 188, 189	Scholastic requirements.....	19
Plant Pathology.....	57, 140, 141	Senior advisers .....	21
Political Science.....	108, 190, 191	Senior College, requirements....	24
Pre-business course.....	32	Senior College courses, admission of sophomores to.....	20
Pre-dental course.....	33	Shop Practice.....	200, 201
Pre-legal course.....	33	Social and Civic Work.....	31
Pre-medical course.....	38	Sociology .....	123, 202, 203
Program of courses.....	127ff	Spanish .....	119, 198, 199
Psychology .....	114, 194, 195	Special regulations for general course .....	25
Public Speaking .....	77, 162, 163	State and Federal Administration, course in.....	27
Reasonable advance towards gradu- ation .....	19	Tabular statement of courses.....	127ff
Regulations applying to all courses .....	23	Vocational courses.....	34
special regulations for general course .....	25		

**COLLEGE OF SCIENCE, LITERATURE, AND  
THE ARTS**

**TABULAR STATEMENT AND PROGRAM OF COURSES  
CORRECTIONS AND ADDITIONS, FEBRUARY, 1922**

Hours, Spring quarter: I (8:00 to 8:50), II (9:00 to 9:50), etc.

**ANIMAL BIOLOGY**

1S-2SU or 2W. GENERAL ZOOLOGY. Changed to Lab. V, VI MWF.  
Lec. V, VI TTh.

43S. INTRODUCTION TO ENTOMOLOGY. Cancelled.

46W-47S. ORNITHOLOGY. Changed to V, VI, VII MW.

111S. GENERAL PHYSIOLOGY. Continuation of 109f-110w. V, VI, VII MW;  
V, VI, VII, VIII F.

**ANTHROPOLOGY**

150f-151w-152s. FIELD PROBLEMS. Credits 6.

**ASTRONOMY**

11S. DESCRIPTIVE ASTRONOMY, (New section) I TWThFS, 124F. MR. BEAL.

**ARCHITECTURE**

4f-5w-6s. ELEMENTS OF ARCHITECTURE. I, II, V, VI, VII MWF, IV TS.

**ECONOMICS**

1S. INTRODUCTION TO ECONOMIC HISTORY. Sec. 5, cancelled.

60S. PROPERTY INSURANCE. Changed to II MWF.

90S. ECONOMICS OF CONSUMPTION. See College of Agriculture bulletin.

106S. LAND ECONOMICS. Cancelled.

154S. PUBLIC UTILITIES. Changed to I MWF.

**EDUCATION**

164S. PROBLEMS OF HIGH SCHOOL ADMINISTRATION. Spring instead of winter, II TThS.

180S. JUNIOR COLLEGE. Cancelled.

**ENGLISH**

Eng. 140S. ADVANCED CHAUCER. Cancelled.

Rhet. 6S. COMPOSITION FOR TECHNICAL STUDENTS, VII MWF. Cancelled.  
II TThS. Cancelled.

## GEOLOGY

- 37s. ECONOMIC AND COMMERCIAL GEOGRAPHY. Cancelled.  
124W-125s. STRUCTURAL AND METAMORPHIC GEOLOGY. Consult School of Mines program.  
144W-145s. CONST. AND INTERP. OF GEOL. MAPS. Consult School of Mines program.

## GERMAN

- 14s. 19TH CENTURY PROSE. Cancelled.  
40s. COMMERCIAL GERMAN. Cancelled.  
62s. 19TH CENTURY PROSE. II MWF 212F, jr., sr.; 3 cr.; prerequisite, II or 4 yrs. h.-s. German.  
63s. MODERN DRAMA. Cancelled.  
162s. LYRIC POETRY. Cancelled.

## HISTORY

- 33W-34s. ENGLISH LEGAL INSTITUTIONS. Cancelled.

## MATHEMATICS

- 6s. TRIGONOMETRY, (New section) III MTThFS, 101F.  
8s. COMMERCE ALGEBRA. Added, V MTWThF, 104F.

## PHILOSOPHY

- 135s. PLATO. Cancelled.

## PHYSICAL EDUCATION FOR WOMEN

- 15s. SOPHOMORE INTERPRETIVE DANCING. Sec. 1 changed to VI TTh.  
36s. INTERMEDIATE PHYSICAL TRAINING. Cancelled.

## PHYSICAL EDUCATION FOR MEN

- 1s and 2s. PERSONAL HYGIENE, IV TS.

## PHYSICS

- 1s. MECHANICS AND SOUND. Quiz changed to VIII F.  
31s. OPTICS. Quiz changed to VIII F.  
41s. ELECTRICITY. Lecture II, III, or V MWF, quiz VIII F.  
42s. ELECTRICITY LABORATORY. V, VI T, VII, VIII T, or VII, VIII Th

## POLITICAL SCIENCE

- 11s. MUNICIPAL GOVERNMENT. I TWThFS, 112Lib.  
31s. POLITICAL PARTIES, (New course) VI MTWThF, 6F. MR. BLACK.  
5 cr., soph., jr., sr. Prerequisites, 10 cr.

- 127s. AMERICAN FOREIGN RELATIONS Prerequisites, 20 cr. in social science, including HISTORY 5-6, or 10 cr. in political science.
- 154s. PROBLEMS IN ADMINISTRATION, (New course) IV MWF. MR. LAMBIE, jr., sr., 3 cr. Prerequisite, 15 cr.
- 181s. MODERN POLITICAL THOUGHT. Cancelled.

#### PSYCHOLOGY

- 8s. APPLICATIONS OF PSYCHOLOGY TO BUSINESS. V MWF, Psych. Amph. MR. PATERSON.
- 103s. EXPERIMENTAL PSYCHOLOGY. Continuation of 101f-102w. MR. JOHNSON.

#### ROMANCE LANGUAGES

- Fr. 1s. BEGINNING FRENCH, I TWThFS, 109F; VI MTWThF, 212F.
- Fr. 2s. (New section) IV MTWFS, 125F.
- Fr. 20s. (New section) III MTThFS, 107F.
- Sp. 1s. VI MTWThF. Changed to V MTWThF, 124F.
- Sp. 1w-2s. (New section), III MTThFS, 209F; IV MTWFS, 301F.
- Sp. 3w-4s. (New section), V MTWThF, 209F.
- Sp. 20s. (New section), V MTWThF, 109F.

#### SHOP PRACTICE

- 13s. SHOP PRACTICE. VII, VIII MTF.

#### SOCIOLOGY

102. SOCIAL CONTROL. Cancelled.
- 141s. CONTEMPORARY SOCIAL THEORY. Cancelled.