

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

*The Law School*  
*Announcement for the Years*  
**1932-1934**



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## THE ASSOCIATION OF AMERICAN LAW SCHOOLS

The Association of American Law Schools was organized in 1900 for the purpose of improving legal education. Membership is dependent upon maintaining the standards set by the association. These standards have been advanced from time to time as conditions warranted. At present they are substantially the same as those approved by the American Bar Association stated below. The association now includes 76 of the 178 law schools in the United States.

*The University of Minnesota Law School has been a member of the association since it was organized.*

### THE AMERICAN BAR ASSOCIATION STANDARDS FOR ADMISSION TO THE BAR

The following resolution was adopted by the American Bar Association September 1, 1921. It was approved by a national conference of state and local bar associations, February 24, 1922, and by the Minnesota State Bar Association, September 1, 1922.

"(1) The American Bar Association is of the opinion that every candidate for admission to the bar should give evidence of graduation from a law school complying with the following standards:

(a) It shall require as a condition of admission at least two years of study in a college.

(b) It shall require its students to pursue a course of three years' duration if they devote substantially all of their working time to their studies, and a longer course, equivalent in the number of working hours, if they devote only part of their working time to their studies.

(c) It shall provide an adequate library available for the use of the students.

(d) It shall have among its teachers a sufficient number giving their entire time to the school to insure actual personal acquaintance and influence with the whole student body.

The Council on Legal Education and Admission to the Bar is directed to publish from time to time the names of those law schools which comply with the above standards and of those which do not and to make such publications available so far as possible to intending law students."

*The University of Minnesota Law School is approved by the council.*

## FACULTY

Lotus Delta Coffman, Ph.D., LL.D., President  
Everett Fraser, B.A., LL.B., Dean of the Law School and Professor of Law  
Wilbur H. Cherry, B.A., LL.B., Professor of Law  
Ralph H. Dwan, B.A., LL.B., S.J.D., Professor of Law.  
Henry J. Fletcher, LL.M., Professor Emeritus  
Harvey S. Hoshour, B.A., LL.B., Professor of Law  
Henry L. McClintock, Ph.B., LL.B., S.J.D., Professor of Law  
James Paige, M.A., LL.M., Professor of Law  
Harold S. Quigley, Ph.D., Professor of Political Science  
Henry Rottschaefer, B.A., J.D., S.J.D., Professor of Law  
Oliver P. Field, M.A., LL.B., S.J.D., Professor of Political Science  
Maynard E. Pirsig, B.A., LL.B., Associate Professor of Law  
William L. Prosser, B.A., LL.B., Assistant Professor of Law  
John F. Bonner, LL.B., Instructor in Practice  
Paul S. Carroll, B.A., LL.B., Instructor in Practice  
Leo N. DeMouilly, B.A., LL.B., Instructor in Practice  
Walter W. Finke, B.A., LL.B., Instructor in Practice  
Samuel H. Maslon, B.A., LL.B., Instructor in Law

## SPECIAL LECTURERS

Charles W. Bunn, B.S., St. Paul  
Homer B. Dibell, B.A., LL.B., Associate Justice of the Supreme Court of  
Minnesota  
Bert Fesler, Duluth, Judge of the District Court  
Hugh B. Mercer, LL.M., D.C.L., Minneapolis  
George W. Strong, LL.B., Minneapolis  
Arthur C. Pulling, Law Librarian

## GENERAL INFORMATION

### OBJECT AND METHOD OF INSTRUCTION

The Law School of the University of Minnesota was established in 1888.

The object of the Law School is to provide a thoro training in the law and to prepare students for practice in any jurisdiction where the Anglo-American legal system prevails.

In the last few years a number of law schools have increased admission requirements to three or more years of college work, but have made no change in the period of law study. Believing that the additional time might well be used in a broader study of law, this school now offers a four-year law course to students who enter with two years of college work as an alternative to the three-year law course preceded by three years of college work.

Instruction is given by the use of the "case system." This method of teaching law, which has been approved by experience and which is now employed in the leading law schools of the country, has the twofold merit of enabling the student to acquire a thoro and practical knowledge of legal principles, and to become familiar with those processes of legal reasoning which have determined the form and character of our jurisprudence, and will govern its future development.

The faculty is composed chiefly of resident professional law teachers who devote their entire time and energy to teaching. The courses in practice are taught by men experienced in practice at the Minnesota bar. In addition, courses of lectures on special topics are given by distinguished lawyers and judges, selected primarily from the bar of Minnesota.

### LAW BUILDING

A new law school building was erected in 1928. It is situated on the east bank of the Mississippi near the center of the campus. It contains four classrooms, a reading room 140 by 50 feet capable of seating 260 students, stackroom for 100,000 volumes, offices of instructors, *Law Review* room, and rooms for men and women students. The building is well equipped and admirably suited for the work of a modern law school.

### LIBRARIES

The library of the Law School contains 63,000 volumes, including all the American reports, state and federal, Interstate Commerce and other commission reports, nearly all the English, Australian, New Zealand, Indian, and Canadian reports, the English, federal, and state statutes (with a few exceptions), the standard digests, encyclopedias, legal periodicals, and textbooks. To this collection substantial additions, particularly in foreign law, are constantly being made. The State Law Library, located at the Capitol in St. Paul, is also accessible to students in the Law School.



## STATE AND UNITED STATES COURTS

The University is located within easy reach of both the federal and state courts. The United States courts are in session in St. Paul and Minneapolis during the greater part of the school year. The Supreme Court of Minnesota, sitting at St. Paul, the district courts of Ramsey and Hennepin counties, and the municipal courts of St. Paul and Minneapolis are open and in session almost constantly, and afford the student abundant opportunity for witnessing the trial of actual cases and hearing the argument of appeals.

## MINNESOTA LAW REVIEW

The *Minnesota Law Review* is a legal periodical published by the faculty and students of the Law School. There are seven regular issues each year, from December to June, inclusive, containing leading articles by law teachers, judges, and lawyers, and notes and comments on recent cases prepared by students in the school. Twenty students are elected to the editorial board of the *Review* from the junior and senior classes upon recommendation of the faculty on the basis of scholarship. Membership on the board is an honor, and an opportunity for training in legal research of the highest value. Law offices prefer graduates who have been members of the board. Work done on the *Review* is given weight by the faculty in awarding honors in the Law School. The *Review* is the official journal of the Minnesota State Bar Association, and is sent to all members of the association.

## ORDER OF THE COIF

The school has a chapter of the Order of the Coif, a national honorary society of law students. Election to the society is made by the faculty at the close of the senior year, from the ten per cent of the graduating class highest in scholarship.

## SCHOLARSHIPS AND AIDS

Twenty scholarships of \$150 each are offered by the Law Alumni Association, the *Minnesota Law Review*, and the faculty of the Law School to students in the junior and senior classes for meritorious work in the course and on the *Minnesota Law Review*. Several readerships of \$120 each are also available to high rank students of the senior class. Loan funds available to law students are listed in the bulletin of general information.

## ADMISSION

Candidates for admission to the Law School must have completed at least two years of work in the College of Science, Literature, and the Arts of the University of Minnesota, or some other accredited college or university. The minimum requirement is 90 quarter (60 semester) credits.

Students must complete a total of six years of college and law school work to qualify for the bachelor of laws degree. A student may elect to take three years of college work and three of law school work, or two years of college work and four of law school work. A minimum of 135 quarter

(90 semester) credits are necessary on entering the Law School to be admitted to the three-year law school course, and a minimum of 90 quarter (60 semester) credits to be admitted to the four-year law school course. (See Courses and Degrees.)

An average of one honor point for each credit in all college work is necessary for admission. Excess honor points do not count as credits for admission to the Law School. Application for admission should be sent to the registrar of the University together with a transcript of the applicant's college record.

Students preparing to enter the Law School may qualify for the degree of bachelor of arts or bachelor of science in law on completing four years of college and law work by complying with the requirements of the proper six-year combined course outlined below.

#### RECOMMENDED PRE-LAW COURSE

Students in the University preparing to enter the Law School register in the College of Science, Literature, and the Arts. They should follow a course that will qualify them for the bachelor of arts degree or the bachelor of science in law degree. The requirements for the former are found in the bulletin of the College of Science, Literature, and the Arts. The requirements for the latter are stated in the combined course below. The faculty of the Law School recommends that prospective law students select generally the following subjects:

1. Latin, 20 credits, minus 5 credits for each year of Latin in high school.
2. English A-B-C or Composition 4-5-6 or exemption from requirement
3. Natural Science, 10 credits
4. Political Science 1-2
5. Philosophy 2 and 1, 3 or 50, 51, 52
6. Psychology 1-2
7. History, 10 credits, and 70-71-72
8. Economics 6-7
9. Sociology 1

Additional subjects should be selected in Economics, History, Philosophy, Political Science, Sociology, and Speech.

#### COMBINED SIX-YEAR COURSE LEADING TO DEGREES OF BACHELOR OF ARTS AND BACHELOR OF LAWS

A student in the College of Science, Literature, and the Arts of this University who has by the end of his junior year secured not less than 135 credits selected in accordance with the regulations of that college and an average of one honor point for each credit in all his college work, may take during his senior year the first year law course, and upon its completion receive the degree of bachelor of arts. Upon completion of the work of the remaining two years in law, such student will receive the degree of bachelor of laws, thus obtaining both degrees in six years. The first two years of this course may be taken in another accredited college, but the third year must be taken in the College of Science, Literature, and the Arts of this Univer-

sity. Several Minnesota colleges permit students who have completed three years of work to transfer to this Law School and accept the first year of law in completion of their requirements for their bachelor of arts degree.

#### COMBINED SIX-YEAR COURSE LEADING TO DEGREES OF BACHELOR OF SCIENCE IN LAW AND BACHELOR OF LAWS

A student who has completed two years of work in the recommended pre-law course including Rhetoric, English, Psychology, American Government, Logic, English Constitutional History, and Principles of Economics in the College of Science, Literature, and the Arts of this University, or equivalent work in some other accredited college or university, with an average of one honor point for each credit in all his college work, and who has completed two years of work in the Law School, in accordance with its rules, will be entitled to receive the degree of bachelor of science in law. Upon completion of two more years of work in the Law School, he will receive the degree of bachelor of laws, thus obtaining both degrees in six years.

#### ADVANCED STANDING

No credit is given for time spent in private reading or for study in a law office. The candidate for graduation must spend the required time in residence, either at this Law School or at some other school which is a member of the Association of American Law Schools. A student coming from such other law school must have the preliminary education required for admission to this school and must spend at least one year in attendance at this school before he can qualify for a degree. Advanced standing will be given only to students with satisfactory records, and credit may be withdrawn because of poor work in this school. Candidates should forward a transcript of their record in both pre-law and law work. Attorneys at law who have been admitted to practice in the state of Minnesota and who have had the required college work may enter the senior law class without examination upon presentation to the registrar of their certificates of admission to the bar, and shall be entitled to the degree of bachelor of laws upon satisfactorily completing such courses, aggregating 36 credits (one year of work), as the law faculty may designate.

#### ELECTIVES IN OTHER DEPARTMENTS OF THE UNIVERSITY

Students in the Law School may be permitted, after completion of the work of the first year, and under proper regulations to elect, without extra charge, courses offered in other departments of the University, provided that such election does not interfere with their law studies; but such election of courses in other departments may be made only with permission of the law faculty.

## REGISTRATION

New students will be admitted only at the opening of the school year.<sup>1</sup> All students should register on or before the registration period stated in the university calendar. Lectures in all subjects begin promptly on the opening day of the term, and those who join their classes later will necessarily be seriously handicapped in their work. No student will be admitted to classes unless he registers within ten days after the opening of the year, except by special action of the faculty and for good cause shown.

## FEES

Quarterly resident tuition fees.....	\$40.00
Quarterly non-resident tuition fees.....	50.00
Credit hour fee (resident).....	3.75
Credit hour fee (non-resident).....	4.75
Quarterly incidental fee.....	6.00
Deposit fee (first quarter only).....	15.00
Special fees	
Examination for removal of conditions.....	1.00
Special examination.....	5.00
Graduation fee.....	10.00
Large diploma fee.....	5.00

## EXPENSES

Careful estimates of the expenses of a student attending the Law School, together with other general information useful to students, are to be found in the bulletin of general information, to be had upon application to the registrar of the University.

## INQUIRIES

Further particulars as to any phase of the work of the Law School not given herein, or in the bulletin of general information, will be cheerfully given upon request. Communications addressed to the dean of the Law School of the University of Minnesota, Minneapolis, Minnesota, will receive prompt attention.

<sup>1</sup> See general information bulletin, page 52, for the provisions as to penalty for late registration.

## COURSES AND DEGREES

The Law School offers three courses, the 2-2 course, the 2-4 course, and the 3-3 course.

The 2-2 course is two years (90 quarter, 60 semester credits) of college work and two years in law. The college work must include English, psychology, American government, logic, English constitutional history, principles of economics; but reasonable substitutions will be allowed. Other credits are elective. No foreign language is required. The pre-business course will satisfy the college requirement. The law work may be either the first two years of the regular professional course, or selected law work for those who wish training only for business purposes. The degree conferred is bachelor of science in law. This degree does not qualify for admission to the bar, but students who have completed this course may go on to the bachelor of laws degree in the 2-4 course next described.

The 2-4 course consists of two years (90 quarter, 60 semester credits) of college work and four years in law. No foreign language or other specific college subject is required. It is enough that the 90 credits be creditable toward an arts degree. The four years in the Law School are devoted to the three-year professional course (the same as in the 3-3 course next described), and one additional year of law work of the type of graduate law work in some law schools, such as administration of law, legislation, legal history, jurisprudence, comparative law, and criminology, not available in the three-year course, and which will be later announced. The degree conferred on completion of this course is bachelor of laws. This is the course recommended by the law faculty as preparation for the practice of law.

Students in the 2-4 course who have the college subjects specified in the 2-2 course receive the bachelor of science in law degree on completing two years of the law work. Students lacking those subjects when they enter the Law School may qualify for that degree after entering the Law School by making up in summer such of those subjects as the law faculty may require. Thus the degrees of bachelor of science in law and bachelor of laws may be obtained in six years.

The 3-3 course requires three years (135 quarter, 90 semester credits) of college work, and three years in law. No specific arts subjects are necessary to qualify for the law degree, but a student must satisfy the requirements of the College of Science, Literature, and the Arts in the six-year combined course in order to qualify for the bachelor of arts degree. The three years in the Law School are devoted to the regular professional course. The degree conferred is bachelor of laws.

It will be noted that the 2-4 course and the 3-3 course require the same period of study, and that three years of the law work is the same in both. The difference between them is that in the 2-4 course one year less is given to college work and one year more to studies of a legal nature. This year will broaden the student's understanding of law and legal institutions. The law faculty believes that the 2-4 course is the better course for those who

intend to enter the practice of law. Students entering the Law School after two years of college work do as well in their law work as those who have three or four years of college work. It is the quality and not the quantity of the college work that indicates success in the Law School.

Students, unless they be of exceptional ability and industry, who find it necessary to devote a considerable portion of their time and energy to work not connected with their law studies are strongly advised to limit their work in the Law School to not more than ten hours in the classroom per week, and thus extend their study of law over a longer period.

No student, unless permitted by special action of the faculty, will be allowed to carry more than the regular prescribed work for the year, or proportional work for any term.

Attendance upon all special lectures scheduled is required; and all students in the Law School may be required to serve as jurors or witnesses in any proceedings before the practice court.

A course leading to the degree of master of laws may be taken under the direction of the Graduate School of the University. Candidates must have completed two years of college work, and the work required for the bachelor of laws degree in a school which is a member of the Association of American Law Schools. No specific course of study is required, but the course elected must be approved by an adviser. Subjects in the curriculum of the Law School not counted towards the first degree may be elected and additional work in subjects already studied. The candidate may also elect studies in the social sciences in the College of Science, Literature, and the Arts, and in the School of Business Administration. The candidate must complete 24 quarter credits of classroom work and prepare a thesis that will be accepted for publication in the *Minnesota Law Review*. The course may be shaped to secure a more extensive survey of the law and related subjects, or to give a more thoro training in some special branch.

All the courses offered by the Law School are given between the hours of 8:30 a.m. and 5:30 p.m.

A student who is absent from the school two consecutive years must satisfy the requirements in force when he returns.

#### FIRST YEAR SUBJECTS

Contracts. Williston, *Cases on Contracts* (2nd ed.). Three hours. Mr. Hoshour.

Property 1. Introduction to real and personal property. Fraser, *Cases on Property*. Three hours. Mr. Fraser.

Torts. Bohlen, *Cases on Torts* (3rd ed.). Three hours. Mr. Paige  
Common Law Actions and Equity I. Cook and Hinton, *Cases on Common Law Pleading*. Mimeographed material on Equity. Two hours. Mr. McClintock.

Criminal Law and Procedure. Sayre, *Cases on Criminal Law*. Two hours. Mr. Maslon.

Agency. Mechem, *Cases on Agency* (2nd ed.). Two hours. Mr. Rottschaefer.

## SECOND YEAR SUBJECTS

- Constitutional Law. Rottschaefer, *Cases on Constitutional Law*. Two hours. Mr. Rottschaefer.
- Equity II. Durfee, *Cases on Equity*. Two hours. Mr. McClintock.
- Private Corporations. Richards, *Cases on Private Corporations* (2nd ed.). Two hours. Mr. Hoshour.
- Property II. Kirkwood, *Cases on Conveyances*. One hour. Mr. Fraser.
- Negotiable Instruments. Smith and Moore, *Cases on Bills and Notes* (3rd ed.). Two hours. Mr. Paige.
- Sales. Lewis, *Cases on Sales*. Two hours. Mr. Prosser.
- Trusts. Scott, *Cases on Trusts* (2nd ed.). Two hours. Mr. Dwan.
- Briefmaking. One hour. Mr. Cherry.
- Wills. Text to be announced. One hour. Mr. Dibell.

## THIRD AND FOURTH YEAR SUBJECTS

- Practice and Practice Court (required). Sunderland, *Cases on Trial and Appellate Practice* (1924 ed.). Three hours. Mr. Cherry, Mr. Bonner, Mr. Carroll, Mr. DeMouilly, Mr. Finke.
- Evidence (required). Hinton, *Cases on Evidence*. Two hours. Mr. Cherry.
- Pleading (required). Throckmorton, *Cases on Code Pleading*. Two hours. Mr. Prosser.
- Conflict of Laws. Lorenzen, *Cases on Conflict of Laws* (2nd ed.). Two hours. Mr. McClintock.
- Property III. Kales, *Cases on Future Interests*. Two hours. Mr. Fraser.
- Mortgages. Dibell, *Cases on Mortgages*. One hour. Mr. Dibell.
- International Law. Mr. Quigley.  
(See announcement of Department of Political Science.)
- Administrative Law. Mr. Field.  
(See announcement of Department of Political Science.)
- Damages. Beale, *Cases on Damages* (3rd ed.). Two hours, half year. Mr. Prosser.
- Insurance. Vance, *Cases on Insurance*. Two hours, half year. Mr. Prosser.
- Municipal Corporations. Tooke's *Cases on Municipal Corporations* (1931 ed.). Two hours, half year. Mr. Dwan.
- Public Utilities. Robinson, *Cases on Public Utilities*. Two hours, half year. Mr. Rottschaefer.
- Taxation. Rottschaefer, *Cases on Taxation* (2nd ed.). Two hours, half year. Mr. Rottschaefer.
- Partnership. Crane and Magruder, *Cases on Partnership* (shorter selection). Two hours, half year. Mr. Dwan.
- Suretyship. Arant, *Cases on Suretyship* (2nd ed.). Two hours, half year. Mr. Paige.
- Quasi Contracts. Thurston, *Cases in Quasi Contracts*. Two hours, half year. Mr. Dwan.

Bankruptcy. Holbrook and Aigler, *Cases on Bankruptcy* (2nd ed.). Two hours, half year. Mr. Dwan.

Persons. McCurdy, *Cases on the Law of Persons and Domestic Relations*. Two hours, half year. Mr. Paige.

Jurisprudence. Textbook to be announced. Two hours, half year. Mr. Rottschaefer.

#### WORK IN PRACTICE

Members of the third year class, in addition to classroom instruction in practice, engage in the exercises of the practice court. Each student is assigned a number of cases in which he is required to draw the necessary pleadings, to see to the service of process of pleadings, and to prepare for and conduct the trial. In at least one of the cases so assigned, the student must take steps to secure or oppose a provisional or extraordinary remedy. Each student also serves as a witness in several cases. The trial is followed by a discussion of the conduct of the case, led by the instructor who has acted as judge.

Students prepare three sets of papers, which include all papers ordinarily used in the prosecution and defense of a civil action in the District Court and on appeal to the Supreme Court. The papers are explained and discussed in class.

Members of the third year class are required to serve as assistants in the office of the Legal Aid Society and to attend at the office of the society during the periods assigned for such service.

#### ATTENDANCE FOR 1931-32

First year class.....	98
Second year class.....	74
Third year class.....	77
Total .....	<hr/> 249



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

*Division of Library Instruction*  
*Announcement for the Year*  
**1932-1933**



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## OFFICERS AND FACULTY

- Lotus Delta Coffman, Ph.D., LL.D., President
- Frank K. Walter, M.A., M.L.S., University Librarian, Director of the Division of Library Instruction, and Professor of Library Methods
- Rodney M. West, B.A., Registrar
- Lura C. Hutchinson, B.A., Assistant Professor of Cataloging, Classification, Reference, and Selection of Books
- Harold Russell, B.A., B.L.S., Head of Order and Binding Sections, University Library, Assistant Professor of Library Methods and Bibliography
- Miriam E. Carey (Univ. of Ill. certificate), Instructor in Classification
- Margaret R. Greer, B.A., B.S., Instructor in School Library Administration
- Della McGregor, B.A., Chief, Juvenile Department, St. Paul Public Library, Instructor in Work with Children
- Harriet A. Wood, B.A., Assistant Director of Libraries and Supervisor of School Libraries, Minnesota State Education Department, Lecturer on School Library Administration
- Clara F. Baldwin, B.A., Director of Libraries, Minnesota State Education Department, Lecturer on Public Library Administration
- Etta Claire Hirschfield, B.S., Lecturer on Use of Books and Libraries
- Blanche Moen, B.A., Reference Assistant, University of Minnesota Library, Lecturer on Use of Books and Libraries
- Helen M. Smith, B.A., Head, Circulation Department, University of Minnesota Library, Lecturer on Circulation Work

## GENERAL INFORMATION

The Division of Library Instruction of the University of Minnesota was established by the regents of the University in April, 1928. It unites for instructional and administrative purposes all the facilities of the University for training librarians for service in libraries of varied types. It submits to the different schools, colleges, or other units of the University interested in such training, curricula or programs suitable for the different types of work desired. It maintains an instructional staff to carry on such courses or curricula as may be approved for credit by these university units.

Credits for such courses are given by the school or college approving them for inclusion in its curriculum. Students who offer these courses in library training as a partial requirement for a degree must comply in every particular with the requirements of the school or college from which the degree is desired. These specific requirements are included in the regular announcements of the various schools and colleges of the University. These announcements may be obtained on application to the registrar of the University.

The professional courses in library instruction are for senior college students. At least two full years of approved college work are required as prerequisite for regular admission to any of these courses and at least three years of approved preliminary college work, in addition to a year in library instruction, are required for a degree. The College of Science, Literature, and the Arts accepts only library training students in senior standing. The College of Education will credit a minor of library training during the junior year. (See pages 7-8.) School of Business Administration students desiring library instruction credits must be in senior standing. Students in the College of Agriculture, Forestry, and Home Economics may also receive credit by special arrangement. Persons not eligible for regular registration may be admitted as unclassified students only by complying with such college regulations or by passing such tests as may be required from such students.

As in many other vocations at present, the number of persons trained for library work exceeds the number of positions available. This in turn has stimulated a demand from library boards for broader education, acceptable personality, and higher professional standards on the part of candidates for positions. For these reasons, prospective students of mediocre scholastic standing, unsuitable personality, and without intelligent, active interest in people and books are not advised to register. Under present employment conditions there are very few beginning opportunities for employment in libraries for those who have failed in other vocations, those unwilling or unable to obtain adequate training, and those over thirty-five years old.

Library instruction implies a good educational background. Students in full senior standing are eligible for admission. Those who are able to complete a full college course before admission to this division will usually find it much to their advantage to do so. Many in each year's class have a Bachelor's degree before entering this division. Admission to the second (or graduate) year of library schools offering advanced work is usually conditioned on at least five years' preparation (including four full years of college work).

Every effort is made to assist students obtain positions but no promise of employment can be made. This division can neither create positions nor require employers to accept candidates.

*Registration.*—All students, whether full time or part time, must be regularly registered. Full information concerning registration is given in the general information bulletin, which may be obtained on application to the registrar of the University.

*Fees and expenses.*—The tuition fees in library training are, for full time students, \$40 per quarter for residents of Minnesota and \$45 per quarter for non-residents. Unclassed students, auditors, and others carrying less than full work in library instruction (15 credits per quarter) pay a tuition fee of \$3 per credit per hour for all courses under the supervision of the Division of Library Instruction (except Library Methods 1), irrespective of their registration in courses in other subjects, or service on the university staff. The incidental, penalty, and other general fees are listed in the general information bulletin, in which information concerning the cost of board and room and other estimated expenses may also be found.

## COURSES OF STUDY

Two programs, one of one year in the College of Science, Literature, and the Arts, and the other in the College of Education, leading to the degree of bachelor of science are offered. Each requires for its completion four full years of work, including a full year of professional training in library methods, in the college in which the student is registered. All regulations of the college from which the degree is desired must be complied with before the degree will be granted. Credit for certain courses in library instruction will also be given in the School of Business Administration and the College of Agriculture, Forestry, and Home Economics. Permission for such credit must be obtained from the deans of these colleges.

### DESCRIPTION OF COURSES

#### 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), e.g.:

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.

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. (See also pp. 5-7.) The hours of recitation are numbered by roman numerals, the day by the appropriate initial, the room by an arabic numeral, and the building by an abbreviation. For example, (MWF III, 5Lib.) means that the class meets Monday, Wednesday, and Friday, the third recitation hour, in Room 5, Library.

#### FRESHMAN AND SOPHOMORE NON-PROFESSIONAL COURSE

Lib.Meth. 1. Use of Books and Libraries. Study of reference material for personal study and research. No credit toward a degree in library instruction, but general credit is given in the College of Science, Literature, and the Arts, and in such other schools and colleges as may, by special arrangement, desire their students to be registered in the course. (2 cred.; Sec. 1, MW II, 3Lib.; Sec. 2, MW IV, 3Lib.; Sec. 3, MW VI, 5Lib.) Mr. Russell, Miss Hirschfield, Miss Moen.

#### PROFESSIONAL COURSES

For the courses below, aggregating a full year of college work, credit is given only to students who have met all the requirements for admission to the senior college courses in the colleges specified above, except as specified on pages 5-7. Courses 102, 104, 111, and 112 are required of all candidates for a degree.

Lib.Meth. 101f. Bibliography. Trade and national bibliography of the United States, Great Britain, and Europe; book ordering methods. (3 cred.; MWF III; 5Lib.) Mr. Russell.

Lib.Meth. 102f. Cataloging. Elements of dictionary cataloging. Lecture, problems, and practice. Required of all candidates for a degree in library methods. (3 cred.; Sec. 1, MWF I, Ed. students; Sec. 2, MWF IV.) Miss Hutchinson.

- Lib.Meth. 103w. Cataloging. Continuation of Cataloging 102, with special attention to difficult books and administrative aspects of a catalog department. (3 cred.; prereq., Lib.Meth. 102; MWF IV; 5Lib.) Miss Hutchinson.
- Lib.Meth. 104f. Classification. Classification by the Dewey Decimal System, subject headings, author numbers, shelf and accession records. Required of all candidates for a degree. (3 cred.; TThS II; 5Lib.) Miss Hutchinson.
- Lib.Meth. 105w. Classification. Continuation of Lib.Meth. 104. Library of Congress and other classifications; classed catalogs; special adaptations of classification. (3 cred.; prereq., Lib.Meth. 104; TThS II; 5Lib.) Miss Carey.
- Lib.Meth. 107s. School Library Administration. Administrative methods and problems of school libraries. (3 cred.; prereq., 9 cred. in library methods; F VII-IV, S IV; 3Lib.) Miss Greer.
- Lib.Meth. 108s. Public Library Administration. Administration, equipment, finance, and extension work of public libraries. (3 cred.; prereq., 9 cred. in library methods; TThS I; 5Lib.) Miss Baldwin, Miss Wood, and others.
- Lib.Meth. 110f. Library Binding. Economics of library binding. Materials, processes, records, book repair. (1 cred.; T III; 5Lib.) Mr. Walter.
- Lib.Meth. 111f,w,s. Library Practice. Practice, under supervision, in Minneapolis and St. Paul libraries. The time and character of the practice will be individually arranged to suit student aptitudes, usually in the second and third quarters. Required of all candidates for a degree in library methods. (3 cred.; prereq., 15 cred. in library methods.) Mr. Walter.
- Lib.Meth. 112w. Reference. Reference books and other material with emphasis on methods of search and adaptation of material to needs of users. (3 cred.; MWF III; 5Lib.) Required of all candidates for a degree in library methods. Miss Hutchinson.
- Lib.Meth. 113s. Reference—Continued. Specialized reference material, public documents, and periodicals. Reference lists and reports on special problems. (3 cred.; prereq., Lib.Meth. 112; MWF III; 5Lib.) Miss Hutchinson.
- Lib.Meth. 114s. Selection of Books for Adolescents. Principles of selection and criticism of representative books. Study and preparation of book lists for adolescents in school and public libraries. (3 cred.; prereq., 9 credits in library methods; MWF II; 5Lib.) Miss McGregor.
- Lib.Meth. 117w. Library Printing. Preparation of copy, editing, proof reading, layout of library publications. Criticism of typical printed material. (1 cred.; T III; 5Lib.) Mr. Walter.
- Lib.Meth. 118s. Library Publicity. Preparation and use of print in library publicity. Library exhibits, etc. (1 cred.; prereq., 9 cred. in library methods; T III; 5Lib.) Mr. Walter.
- Lib.Meth. 119f. Current Library Problems. Discussion of typical problems and conditions in American libraries. (3 cred.; prereq., 9 cred. in library methods or simultaneously with Lib.Meth. 101, 102, 104; MWF II; 5Lib.) Mr. Walter.
- Lib.Meth. 120w. Current Library Problems. Further discussion of typical library problems, college and university libraries, library buildings, library surveys, etc. (3 cred.; prereq., Lib.Meth. 119; MWF II; 5Lib.) Mr. Walter.
- Lib.Meth. 121w. Library Work with Children. Administration of children's rooms and book selection. (3 cred.; prereq., 9 cred. in library methods or 6 cred. and one three-credit course in library training simultaneously with 121; MWF I; 5Lib.) Miss McGregor.
- Lib.Meth. 122s. Library Work with Children. Further discussion of administration of children's rooms and book selection. (3 cred.; prereq., Lib.Meth. 121; MWF I; 5Lib.) Miss McGregor.

Lib.Meth. 123f. Selection of Books for Adults. Principles of selection and criticism of representative books. Criticism and preparation of book lists. (2 cred.; ThS III; 5Lib.) Miss Hutchinson.

Lib.Meth. 124w. Selection of Books for Adults. Further discussion of books and aids to book selection. (2 cred.; prereq., Lib.Meth. 123; ThS III; 5Lib.) Miss Hutchinson.

Lib.Meth. 125s. Selection of Books for Adults. (2 cred.; prereq., Lib.Meth. 124; ThS III; 5Lib.) Miss Hutchinson.

A special fifth year course in Hospital Library Training is noted on page 8.

## CURRICULUM IN THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

The successful completion of three years of work in the general course of the College of Science, Literature, and the Arts in addition to not less than 45 credits of courses listed on pages 5-7 will entitle the student to the degree of bachelor of science. The specific requirements for the three years of preliminary work may be found in the bulletin of the College of Science, Literature, and the Arts.

During the four years, the student must secure 180 credits and 180 honor points. For each five honor points in excess of one honor point per credit, the required number of credits will be diminished by one.

Students from other institutions desiring a degree in library training must meet the same specific requirements which students of the University of Minnesota must meet.

### COLLEGE OF EDUCATION

#### SPECIALIZED CURRICULUM FOR SCHOOL LIBRARIAN

The successful completion of the following four-year curriculum will entitle the student to the degree of bachelor of science. Students also qualify for the Minnesota high school general certificate for teaching academic subjects in junior and senior high schools by completing one teaching major or two teaching minors. It will usually be wisest to choose these majors and minors in the fields of English and history. Students who complete eighteen credits selected from Courses 102, 104, 107, 108, 112, 114, 121, and 122 will satisfy the requirements for a minor in library training. (See pp. 5-7 for description of courses.)

#### *Freshman Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
English .....	5	English .....	5	English .....	5
Modern World .....	5	Modern World .....	5	History .....	5
Language .....	5	Language .....	5	Language .....	5
	<hr/>		<hr/>		<hr/>
	15		15		15

#### *Sophomore Year*

FALL		WINTER		SPRING	
	Credits		Credits		Credits
Science .....	5	Science .....	5	Elective .....	5
Language .....	5	Elective <sup>1</sup> .....	7	Elective .....	5
Psychology .....	3	Psychology .....	3	Elective .....	5
Elective .....	2		<hr/>		<hr/>
	<hr/>		15		<hr/>
	15				15

### Junior Year

FALL	Credits	WINTER	Credits	SPRING	Credits
102 Cataloging .....	3	112 Reference .....	3	(6 credits selected from	
103 Classification .....	3	121 Library Work with		107, 108, 114)	
55 Ed. Psy. ....	3	Children .....	3	107 Library Administration	3
Continuation of re-		Ed. Ad. 65 The High		108 Library Administration	3
quired elective aca-		School .....	3	114 Book Selections for	
demie courses .....	6	Continuation of re-		Adolescents .....	3
	—	quired elective aca-		T. 15 Technique of H. S.	
	15	demie courses .....	6	Instruction .....	3
				Continuation of re-	
				quired elective aca-	
				demie courses .....	6
				From above, .....	—
				select total of .....	15

### Senior Year

FALL	Credits	WINTER	Credits	SPRING	Credits
Special Methods and Prac-		Special Methods and Prac-		Special Methods and Prac-	
tice Teaching .....	3	tice Teaching .....	3	tice Teaching .....	3
Completion of academic requirements—fall, winter, spring.					
Library courses—27 credits—fall, winter, spring (see pp. 5-7).					
Elective—9 credits.					

### ADVANCED COURSE IN HOSPITAL LIBRARY SERVICE

This course is no longer regularly offered. Arrangements may be made for it if applications from no less than ten qualified applicants are received before June 1 of the academic year preceding that in which the course is desired. Admission to it requires no less than four years of college work, including at least one full college year of library training (see pp. 5-7) and the satisfactory completion of not less than three years of English, foreign languages, science, sociology, and psychology. The fifth (or Hospital Library year) will include courses in preventive medicine, medical social science, sociology, and special library methods. Supervised observation and practice in the University of Minnesota Hospital and hospitals of Minneapolis and St. Paul are required. The degree bachelor of science will be granted for satisfactory completion of the course.

Fuller details may be obtained from the director, Division of Library Instruction, University of Minnesota, Minneapolis, Minn.

<sup>1</sup> Electives should be chosen to meet the requirements of one teaching major or two teaching minors. See College of Education bulletin, Part I.



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

*The Medical School*  
*Announcement for the Years*  
**1931-1933**



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THE MEDICAL SCHOOL  
ADMINISTRATIVE OFFICERS

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Richard E. Scammon, Ph.D., Dean of Medical Sciences

Elias P. Lyon, Ph.D., M.D., LL.D., Dean of the Medical School

Katharine J. Densford, M.A., R.N., Director of School of Nursing

Paul Fesler, Superintendent of University Hospital

## GENERAL INFORMATION

The Medical School is conducted on the four-quarter system. Beginning freshmen are received at the opening of the fall and winter quarters. Students with advanced standing may be received at the beginning of any quarter for work for which they are prepared, provided there is a vacancy.

### REQUIREMENTS FOR ADMISSION

At least ninety quarter credits<sup>1</sup> of college work, including rhetoric, 9 credits; chemistry, 20 credits; physics, 12 credits; and zoology, 12 credits; a reading knowledge of German; subject to detailed requirements and rules governing limited registration. A candidate's record must show a total number of honor points at least equal to the total number of credits; also a number of honor points in rhetoric, chemistry, physics, and biology at least equal to the total number of credits in these subjects taken collectively.

1. *Rhetoric*.—Nine 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*.—Twenty credits, including general chemistry, qualitative and quantitative analysis, and organic chemistry with laboratory work. At Minnesota, Inorg. Chem. 4-5 (or 1, 2, 3) and 11, Anal. Chem. 7 and Org. Chem. 1-2 are necessary. Students are advised to take chemistry in high school.

3. *Physics*.<sup>2</sup>—Twelve credits, covering mechanics, sound, heat, light, electricity, and magnetism. At Minnesota Courses 3, 13, 23, 33, and 43 (a total of 15 credits)<sup>3</sup> meet the requirement. See Bulletin of the College of Science, Literature, and the Arts for description of these courses and statement of prerequisites. Laboratory courses 4, 24, 34, and 44 are recommended.

4. *Zoology*.—Twelve credits, including proper laboratory work. At Minnesota, Zoology 5-6-7, meets this requirement; Zoology 1-2, 10 credits, will be accepted.

5. *German*.—Sufficient high school or college training to insure a reading knowledge of German medical literature. This requirement is fulfilled:

(a) By passing in Course 31-32, Department of German, in this University or by acceptable credits covering similar work done elsewhere; or

<sup>1</sup> By "credit" is meant quarter credits. Three quarter credits equal two semester credits.

<sup>2</sup> Students at the University of Minnesota of good ability as shown by their records and who have had high school physics may petition the Students' Work Committee of the Medical School to substitute other college work for part of the physics set forth in the above requirement. The petition must indicate the subject desired to be substituted for part of the physics and the reasons why such substitution for part of the physics seems advantageous to the student's educational plan.

<sup>3</sup> A combined course in Heat and Acoustics, 3 credits, has been requested for pre-medical students. If arranged by the Department of Physics, such course may be substituted for 13 and 23 in meeting the Medical School requirements.

(b) By passing an examination in Scientific German conducted by the Department of German. The usual requirement for admission to this examination is two college years of German, or satisfactory equivalent.

6. *Military drill* and *Gymnasium*, if part of the requirement of the college in which pre-medical studies were made, must have been satisfactorily completed.

7. *Aptitude test*.—The taking of an aptitude test is required of all candidates for admission to the Medical School. The results of such tests are used in advising students and as a factor in their acceptance into the school.

#### QUALITY CREDITS

The total number of credits required for admission to the Medical School may be diminished, in the case of superior students, under the quality credit rule of the College of Science, Literature, and the Arts. The omitted work may not be from the required courses unless special permission is obtained from the Students' Work Committee of the Medical School.

#### *Advised Subjects*

Pre-medical students are advised to secure preparation in some or all of the following: Latin (high school or college), mathematics, psychology, sociology, drawing, comparative anatomy, additional work in biology and chemistry. A broader cultural background is advisable if the student can devote time and money to longer pre-professional study. See the combined B.A.-M.D. course in the bulletin of the College of Science, Literature, and the Arts.

#### MODIFIED ADMISSION REQUIREMENTS

The foregoing regulations governing the quality and amount of pre-medical training required for admission to the Medical School will be enforced in all cases upon those who present the minimum amount of work. In cases of mature and superior students, especially such as have taken degrees and have made special progress along some line (even tho it may not have been closely related to medicine), concessions may be made. Cases under this paragraph will be considered individually and upon petition to the Students' Work Committee of the Medical School.

It should be borne in mind that no student can pursue the medical course without knowledge of biology, chemistry, and physics.

#### REGISTRATION LIMITED

The incoming (third year or freshman) class in the fall quarter will be limited to one hundred. Application blanks may be obtained from the dean's office.

The last day for receiving applications to begin the freshman year in the fall quarter will be June 15. If college work was done elsewhere than at the University of Minnesota, detailed credentials, showing subjects, credits, and marks, must be presented by July 1.

Subject to recommendations as to character, ability, and personal qualities, candidates will be accepted in the order of their scholastic rating as indicated by the records of their previous work and aptitude tests. The entire one hundred candidates will be accepted as soon after July 1 as possible. Candidates will be notified of their acceptance or rejection by July 15.

Accepted applicants will receive a bill for a preliminary fee of \$10. This must be paid within ten days, in order to hold a place in the limited registration. The above fee will not be returnable should the student fail to enter.

In the winter quarter not to exceed 40 students may be accepted into the freshman year. These students are usually such as were nearly, but not quite, prepared for the fall class. They must take the courses in gross anatomy in summer. They are advised to take them the summer preceding their intended entrance to the Medical School. If not taken then, they must be taken the summer after admission.

Students desiring to enter the winter quarter freshman class should make applications early and consult the Students' Work Committee in regard to their programs of studies. In the fall quarter they should register in the Arts College and take as part of their program Physical Chemistry and Physiologic Chemistry for Medical School credit. If their work is satisfactory and pre-medical requirements complete, they may be admitted to the Medical School in the winter quarter; and their freshman legal year will consist of the winter, spring, and summer quarters. If successful in these quarters, these students become regular sophomores the next year.

Winter quarter freshmen who have not had Gross Anatomy must present Comparative Anatomy as a Medical School admission subject and prerequisite for Histology.

Other qualifications being equal, residents of Minnesota will be given preference in selecting students for the Medical School.

The fifth and sixth (junior and senior) years are limited to such numbers as can be provided with good training in the clinics connected with the school.

The junior work is taught in the fall, winter, and spring quarters. Senior work is taught all four quarters with three divisions of the class in continuous attendance as follows: Divisions A, B, and D in summer; Divisions A, B, C in fall, Divisions A, C, D in winter, Divisions B, C, D in spring. Division A graduates in March; the other divisions in June.

#### UNCLASSED STUDENTS

Superior students prepared for particular courses in departments of the Medical School may be admitted as unclassified students. Such students receive subject credit for courses satisfactorily completed but are not entitled to time credit toward the bachelor or doctor of medicine degree.

## SPECIAL STUDENTS

The term "special student" is applied to a medical graduate who desires to register for a time in the Medical School but who does not wish to work toward an advanced degree.

## IRREGULAR STUDENTS

The term "irregular student" indicates one who is not following the regular schedule but who is not deficient and is entitled to time credit toward a medical degree.

## ADMISSION WITH ADVANCED STANDING

Honorably dismissed students of Class A medical schools may be received into advanced classes provided vacancies occur. Such students must present credentials covering pre-medical work and such part of the medical course as they have successfully completed, and must pass the comprehensive examination of the class preceding the one they desire to enter. These examinations are given at Minneapolis in June and September.

As an alternative candidates for admission to the junior class may present evidence of having passed Part I of the National Board of Medical Examiners.

For six- and seven-year combined courses in Science or Arts and Medicine, see the bulletin of the College of Science, Literature, and the Arts.

## FEES

The quarterly fee for the medical course is \$75 for residents of Minnesota and \$100 for non-residents, payable at the beginning of each quarter. No fee is charged in the Medical School for the final hospital or advanced laboratory year.

In addition to tuition, each student is charged an incidental fee of \$6 each quarter.

A matriculation deposit of \$15 (\$5 for women students) is required, payable with the tuition of the first quarter in residence, as a guarantee for the return and protection of university materials and equipment, the balance to be refunded automatically at graduation, upon the student's withdrawal, or failure to return for any succeeding quarter.

Students who take less than the regular course of study may arrange their fees at the rate of \$3.25 (non-residents \$4.50) for each weekly clock hour per quarter.

Repetition of work in course demands the repetitional payment of fees.

A graduation fee of \$10 is charged for each degree conferred.

*Registration penalties.*—A penalty fee for late registration, late change of registration, or late payment of fees shall be \$2 prior to the day classes begin, on and after which the penalty increases at the rate of \$1 per day, provided that no student shall pay more than \$10 of penalty in any given quarter.

Certain changes in fees have been recommended and, when approved, will be enforced without further notice.

#### MICROSCOPES AND OTHER PROFESSIONAL EQUIPMENT

Each student must be provided throughout the entire four-year course, with a microscope of approved quality and equipment.

In the fifth and sixth years each student is required to provide himself with a hemacytometer, a head mirror, a stethoscope of approved form.

#### THE SUMMER QUARTER

A full summer quarter is conducted in the Medical School. Courses offered in summer include senior schedules, and also a repetition of most of the freshman and sophomore courses given in the regular year.

For courses of instruction offered and schedule of fees for special courses see bulletin of the summer quarter.

#### PHYSICAL EXAMINATIONS AND PROPHYLACTIC INOCULATION

Registration in the Medical School in particular quarters is not complete until the student has undergone certain physical examinations, tests, and vaccinations. See bulletin boards for rules on this subject.

#### CLINICAL OPPORTUNITIES

##### THE UNIVERSITY HOSPITAL AND DISPENSARY

The University Hospital includes the Elliot Memorial Building, the Cancer Institute, the Todd Memorial Hospital, the Eustis Children's Hospital, the Out-Patient Building, and the Students' Health Service Building, and has a capacity of 450 beds.

##### AFFILIATED HOSPITALS

The Minneapolis General Hospital is closely affiliated with the Medical School, the principal services being under direction of full time members of the faculty. This hospital has about 700 beds.

The Ancker Hospital of St. Paul city and county is used for important bedside teaching and operates about 700 beds.

The Gillette State Hospital for Crippled Children, of 250 beds, at Phalen Park, St. Paul, and the Hennepin County Tuberculosis Sanatorium at Glen Lake, an institution of 700 beds, are used for clinical instruction.

The Wilder Dispensary, St. Paul, is used for elective section clinics.

Certain elective section clinics are held in other institutions, as Pillsbury House, Margaret Barry House, Wells Memorial House, Emanuel Cohen Community Center, the South Town Clinic, the Salvation Army Rescue Home, and the Shriners' Hospital.

## MILITARY SCIENCE AND TACTICS

There is a Medical Reserve Officers' Training Corps in connection with the Medical School to which the surgeon general of the army details an officer to serve as professor. See the statement of this department.

## THE GRADUATE SCHOOL IN MEDICINE

The Graduate School includes the opportunities for study and research offered by the Medical School in Minneapolis and by the Mayo Foundation for Medical Education and Research, at Rochester, Minnesota.

Further information may be found in the announcement of the Graduate School or in the circular of information on graduate work in medicine.

Fellowships in the pre-clinical sciences pay \$900 the first year, \$1,200 the second year, and \$1,500 the third year. A Bachelor's degree is prerequisite to these fellowships. In the clinical departments the stipends are \$800 the first year, \$900 the second year, and \$1,000 the third year, with a deduction of \$300 if the fellow is a resident of a hospital. The M.D. degree and a year of internship are prerequisite to clinical fellowships. About 200 fellowships are available each year at Rochester and Minneapolis.

## OTHER COURSES

The School of Nursing and courses in public health, including work for public health nurses, are conducted in the Medical School. Short courses for physicians both at Minneapolis and at various points in the state, and a course for embalmers are conducted through the Extension Division by the Medical School. A course in medical technology is conducted jointly by the College of Science, Literature, and the Arts and the Medical School. A course for dietitians is conducted in the University Hospital. Circulars descriptive of any of these courses will be sent on request. Courses in hospital social service are conducted by the Department of Sociology, the practical work being in the University Hospital. Two nurse anesthetists can be trained each year at the University Hospital.



# CURRICULUM

## THE CURRICULUM FOR THE M.B. DEGREE

### OPTIONAL COURSES OF STUDY

Candidates for the M.B. degree may:

- a. Pursue the regular curriculum outlined below, or
- b. Follow the regular curriculum with modifications in the direction of special work in some particular department. Such students may register, if desired, during certain quarters in the Graduate School; and such registration, if major work is done in a Medical School department, may be transferred later to the Medical School to count toward a medical degree. Such students may qualify for advanced degrees such as M.S. and Ph.D. See paragraph on irregular course students. Substitutions in the regular curriculum are made on petition.

### REGULAR CURRICULUM

#### DEPARTMENTAL HOURS

	Clock hours		Clock hours
Physical Chemistry .....	33	Medicine .....	940
Anatomy, gross and microscopic..	693	Surgery .....	457
Bacteriology .....	176	Obstetrics .....	411
Physiology, including Physiologic		Pediatrics .....	350
Chemistry and Biophysics.....	429	Ophthalmology and Oto-Laryngology	118
Pathology .....	363	Roentgenology .....	33
Preventive Medicine and Public			—
Health .....	54	Total .....	4,233
Pharmacology .....	176		

### COMPREHENSIVE EXAMINATIONS

Progress in the Medical School and graduation therefrom are determined by annual comprehensive examinations. For seniors such examinations are held quarterly; for other classes, in June and September. Dr. A. T. Rasmussen is chief examiner, and the examination of each class is set and read by a committee of the faculty. Students should make themselves familiar with the examination rules which will be found posted on bulletin boards.

### PLAN OF CLINICAL CURRICULUM: SENIOR YEAR

In order to utilize the clinical facilities of the school throughout the year the senior class is divided into four divisions of not more than 32 students each, known as A, B, C, and D.

Divisions A, B, and D begin senior work in the summer quarter after the junior year. Division A attends continuously the summer, fall, and winter quarters and graduates in March. Division B attends the summer,

fall, and spring quarters; Division C, the fall, winter, and spring quarters; Division D, the summer, winter, and spring quarters. Divisions B, C, and D graduate in June.

The membership of divisions of the senior class is fixed during the spring quarter of the junior year, by student choice in the order of scholarship at the end of the sophomore year. This choice of divisions is subject to the right of the Students' Work Committee, for sufficient reason, to place a given student in such division as will best foster his educational interests. A student may change from one division to another only on petition approved by the Students' Work Committee.

In the senior year the course consists of clerkships and dispensary work, together with certain clinical lectures. Students interested in investigative problems in medical science or in public health may by petition approved by the proper department head and the Students' Work Committee substitute such other work as may be agreed upon.

In the senior year each student will have seven weeks' clerkship in obstetrics and gynecology, six weeks' clerkship in pediatrics, thirteen weeks' clerkship in medicine and medical specialties, and eleven weeks' clerkship in surgery and surgical specialties. The clerks are responsible for histories and physical examinations at the hospitals and for dispensary attendance during vacations between quarters. See special schedule of clerkships published each quarter.

#### IRREGULAR COURSE STUDENTS

While the course of studies in this school is arranged on the traditional four-year plan, it is believed by the faculty that a rigid class system is not desirable and that some students will find it wise to extend their medical education over a longer period. Students who are obliged to work for self-support during school attendance are especially advised to spread their medical course over a longer time than the minimum of twelve quarters.

It is to be understood that the required courses set forth only the minimum fundamental information in the various branches of medical science and only the minimum of clinical experience with which a graduate may begin to practice. Attention is directed to the elective courses scheduled in the various departments and to the opportunities offered by the Graduate School. Able students are urged to undertake advanced work and research in some chosen field, to the end alike of advancing medical knowledge and of preparing themselves to fill teaching positions or to carry the investigative spirit into their medical practice. Their attention is called to the Honors Course described below. The dean and department heads will advise with such students on the progress of their studies, and will assist ambitious students to lay out programs suitable to their needs. Petitions for reasonable substitutions in the required curriculum will be approved.

## HONORS COURSE

By honors course is meant a mechanism under which gifted students may pursue their studies with greater freedom than that granted by the regular curriculum.

The honors course applies only to the last two years of the medical curriculum, all students being required to take the comprehensive examinations at the end of the first and second years, if candidates for the M.B. degree.

Students having a "B" average or better in the sophomore comprehensive examination and who are candidates for a graduate degree may petition the Honors Course Committee to become "honors" students.

Students whose petitions are approved shall be known as "honors students" and may pursue medical studies in such order and manner as may be determined by the Honors Course Committee. Each year a program of work, approved by the committee, shall be made out and filed with the Committee on Honors Students.

When an honors student is prepared in the work of any department in accord with such program of studies he may, with written permission of the Honors Course Committee, take an examination on the work of said department. The nature of such examination is determined by the department concerned.

Satisfactory completion of the examination in any department shall entitle an honors student to tentative credit on the registrar's books for a number of hours equivalent to those assigned to such department in the regular curriculum.

Should an honors student fail to qualify for the Master's or Ph.D. degree all previously taken departmental examinations shall be cancelled and the student held for the junior and senior comprehensive examinations under the usual rules.

When an honors course student has fulfilled the legal time requirement, has attained his graduate degree, and has passed the respective department examinations, the Honors Course Committee shall consider his case; and as a result of his general work, his various examinations and his research achievements, and by vote of the Administrative Committee on recommendation of the Committee on Honors Students, the M.B. degree may be granted with any of the usual distinctions.

At any time during his course of study, by vote of the Administrative Committee, on recommendation of the Committee on Honors Students, an honors student may be required to return to the regular curriculum and previously taken departmental examinations shall be cancelled.

## REQUIREMENTS FOR THE B.S. DEGREE

a. Completion of the pre-medical college work in accordance with the requirements for admission to the Medical School and regulations of the Junior College.

b. Completion of the required courses of the first two years of the medical course and Physiology 105.

c. The passing of the comprehensive examinations of the freshman and sophomore medical years.

d. Fulfillment of Arts College requirements for B.S. degree, such as drill and gymnasium.

#### REQUIREMENTS FOR THE M.B. DEGREE

Good moral character; compliance with the admission requirements; the attainment of the degree of bachelor of arts or bachelor of science, to which one year in medicine for the Arts degree, and two years in medicine for the Science degree, may contribute; the completion of a full four-year period (12 quarters) of work in the Medical School in compliance with the scholarship rules are the essentials for the bachelor of medicine degree.

#### M.B. DEGREE WITH DISTINCTION

Students who have received the Master's degree or Ph.D. degree in the medical sciences or who, while registered in the Medical School, have produced an acceptable thesis may be recognized as candidates for the M.B. degree with distinction. The granting of the M.B. degree "with distinction," "with high distinction," or "with highest distinction" shall be determined by the Committee on Honors Course and Degrees with Distinction during the senior year of their medical course on the basis of scholastic record in their medical courses, thesis, and general attainments.

Such degrees with distinction, in the respective qualifications, shall count respectively 20, 40, and 60 honor points on the record of a student used in ranking his class for choice of internships (except in hospitals where appointments are made earlier), recommendations for fellowships and honors, or other purpose for which a ranking of students may be employed.

#### CURRICULUM FOR THE M.D. DEGREE

Students who have attained the M.B. degree may qualify for the M.D. degree:

a. By completion of one year (12 months) of internship in a hospital approved by the Internship Committee, or

b. By completion of one year's work of advanced character in an approved laboratory, or

c. By an approved year of advanced study or work in public health.

#### M.D. WITH DISTINCTION

The degree M.D. "with distinction" is granted to a student who in addition to the above requirement presents an acceptable thesis and stands high in his studies.

## COURSES FOR PHYSICIANS

Physicians who desire to attend medical lectures and clinics for a limited period of time may obtain a visitor's ticket from the dean. They may enter for regular lecture and clinical courses in the Medical School upon payment of the usual Medical School fees. They may arrange for special courses of study in anatomy, physiology, experimental surgery, cadaver surgery, pathology, bacteriology, pharmacology, etc., as the facilities of the respective departments will permit.

## LIBRARY

The medical library is among the best university medical libraries in this country. It is housed in the General Library Building.

## GIFTS AND MEMORIALS

The Elliot Memorial Hospital was built through gifts of \$120,000 from the heirs of Dr. Adolphus F. Elliot and part state funds toward the building, and \$42,000 from various Minneapolis citizens for the site.

The Memorial Cancer Institute was erected through a gift of \$250,000 from the Citizens' Aid Society of Minneapolis as a memorial to the late Mr. George Chase Christian.

The Todd Memorial pavilion for eye, ear, nose, and throat diseases, was erected in part by gifts from Mrs. F. C. Todd, Mrs. E. C. Gale, and Mrs. Emery Mapes and in part by state funds. This building is a memorial to Dr. Frank C. Todd, professor of ophthalmology and otolaryngology in the Medical School, who died while in the army medical service in 1918.

The sum of \$2,250,000 has been donated to the Medical School by the late William Henry Eustis, of Minneapolis, for the erection and endowment of a hospital and convalescent home for disabled children. The hospital proper is part of the University Hospital group on the campus. The convalescent home will be built on a site donated by Mr. Eustis on the West River Drive.

The Medical School is in need of other facilities such as a nurses' dormitory, women's hospital, urologic hospital, psychopathic hospital, and endowment funds for research and the maintenance of hospital beds.

## LOAN FUNDS

The University has loan funds available for medical students. Consult the bulletin of general information.

## PRIZES

## 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.

## MINNEAPOLIS SURGICAL SOCIETY PRIZES

The Minneapolis Surgical Society offers a first prize of \$75 and a second prize of \$25 to those members of the senior class or those serving the first year of their internships in Minneapolis hospitals who write the best papers in some field of clinical surgery. Papers are due to be in the hands of the secretary of the Minneapolis Surgical Society usually in March. For more definite information inquire at the office of the Department of Surgery.

## CHARLES LYMAN GREENE PRIZE IN PHYSIOLOGY

A certificate of merit and a prize of \$100 from the Minnesota Society of Internal Medicine are offered to an undergraduate medical student for the most meritorious thesis upon a subject in physiology which is closely related to clinical medicine.

# DESCRIPTION OF COURSES<sup>1</sup>

## ANATOMY

Departmental Office, Institute of Anatomy

Professors Clarence M. Jackson, M.S., M.D., LL.D., Head; Edward A. Boyden, Ph.D., Hal Downey, Ph.D., Andrew T. Rasmussen, Ph.D., Richard E. Scammon, Ph.D.; Associate Professor Charles A. Erdmann, Phm.G., M.D.; Assistant Professor Shirley P. Miller, Ph.D.; Instructor Raymond F. Blount, Ph.D.; Assistant Charles M. Blumenfeld, M.A.; Teaching Fellows Oliver P. Jones, B.A., Raphael J. Koff, Joseph J. Lawless, M.A., Charles E. McLennan, B.A., Grant L. Rasmussen, B.A., Sam I. Stein, M.S.

### REQUIRED COURSES

- 1w-2s. Anatomy for Embalmers. 120 hours; 8 credits.<sup>2</sup> Dr. Erdmann and assistants.
- 3f,s. Elementary Anatomy. School of Nursing. 44 hours; 3 credits. Dr. Blount.
- 4w. Elementary Anatomy. For dental hygienists. 33 hours; 3 credits. Dr. Blount.
- 5s. Human Anatomy. For students in physical education. 66 hours; 4 credits. Dr. Erdmann.
- 6f,su-7w,su. Gross Human Anatomy. Dissection, including osteology. Third year medical students. Prerequisite, Zoology 5-6-7; 330 hours; 18 credits. Enrolment limited to 100 students in the fall and winter, and to 60 students in the summer. Dr. Jackson, Dr. Erdmann, and assistants.
- 9f,su. Systematic Anatomy. Pre-junior dental students. Prerequisite, Zoology 5-6-7; 99 hours; 5 credits. Enrolment limited to 90 students in the fall quarter. Dr. Miller and assistants.
- 10s,su. Anatomy of the Head and Neck. Pre-junior dental students. Prerequisite, Course 9; 99 hours; 5 credits. Enrolment limited to 90 students in the spring quarter and 30 in the summer. Dr. Miller and assistants.
- 14w,su. Histology and Embryology. Pre-junior dental students. Prerequisite, Course 9; 132 hours; 6 credits. Enrolment limited to 90 students in the winter quarter. Dr. A. T. Rasmussen and assistants.

<sup>1</sup>The letters f, w, s, and su indicate that the corresponding courses are offered in the fall, winter, spring, and summer quarters, respectively. Numbers joined by hyphens indicate that the course is continued through more than one quarter. Letters separated by commas indicate the repetition of the course in corresponding quarters.

<sup>2</sup>Credits, as stated in this bulletin, are on the quarter system; they are comparable with semester credits upon a ratio of three to two.

- 103s,su. Human Histology. Microscopic study in the various tissues and organs. Third year medical students. Prerequisite, Course 6-7; 165 hours; 9 credits. Enrolment limited to 140 students in the spring quarter. Dr. Downey and assistants.
- 107s. Human Embryology. Development of the human body. Third year medical students. Prerequisite, Course 6-7; 99 hours; 6 credits. Enrolment limited to 140 students in the spring quarter. Dr. Boyden and assistants.
- 111f,su. Human Neurology. A study of the central nervous system and sense organs. Fourth year medical students. Prerequisites, Courses 103, 107; 99 hours; 6 credits. Enrolment limited to 132 students in the fall quarter. Dr. A. T. Rasmussen and assistants.

## ELECTIVE COURSES

In general, the elective courses are for small groups of 6 to 16 students. For registration in these courses, permission by the instructor is required, excepting Courses 43s, 45f-46w, 115w, 126f,w, and 129f-130w-131s.

- 43s. Applied Anatomy. Relationships, with reference to clinical applications. Medical students. Prerequisite, Course 6-7; 33 hours; 1½ credits. Dr. Erdmann.
- 45f-46w.<sup>1</sup> Special Dissections. Dissections of special regions, including preparation of museum specimens. Prerequisite, Course 6-7. 33 hours; 1 credit. Dr. Erdmann.
- 115w,s. History of Anatomy. Medical bibliography is included. Lectures. 22 hours; 2 credits. Dr. Miller.
- 129f-130w-131s.<sup>1</sup> Topographic Anatomy. Based upon a study of serial cross sections of the human body. Prerequisite, Course 6-7. 33 hours (or more); 2 credits (or more). Dr. Jackson
- 134f,w. 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.
- 148s.<sup>1</sup> X-Ray Anatomy. Same as Radiology 87. Lectures and demonstrations. Prerequisite, Course 6-7; 11 hours; 1 credit. Dr. Rigler.
- 149w. Experimental Neurology. A study of the morphology of the central nervous system as determined by experimental methods. Prerequisite, Course 111; 66 hours; 3 credits. Dr. A. T. Rasmussen.
- 150f,w. Seminar in Neurology. Study of the literature on selected phases of human neurology. Prerequisite, Course 111; hours and credits arranged. Dr. A. T. Rasmussen.
- 152f,w. Prosection. Preparation of special dissections to be used for demonstrations in human gross anatomy. Prerequisite, Course 6-7; hours and credits arranged. Dr. Jackson, Dr. Miller.

<sup>1</sup> These courses may be taken continuously through three or four quarters or in any one quarter.



- 153f-154w-155s-156su.<sup>1</sup> Advanced Anatomy. Advanced work, largely individual in character, in gross anatomy, histology, embryology, or neurology. Hours and credits arranged. Dr. Jackson, Dr. Boyden, Dr. Downey, Dr. A. T. Rasmussen, Dr. Miller.
- 157s. Developmental Anatomy of the Head. Prerequisites, Courses 103, 107; 66 hours; 3 credits. Dr. Boyden.
- 158s. Special Histology and Neurology of the Head Region. Prerequisites, Courses 103, 111; 66 hours; 3 credits. Dr. A. T. Rasmussen.
- 160f-161w.<sup>1</sup> Seminar in Human Growth. A study with graphic analysis of data on human physical development. Prerequisite, Course 135, or equivalent; hours and credits arranged. Dr. Boyd.
- 165f-166w. Hematology. Primarily for medical students, but open to others with proper qualifications. Normal and pathologic morphology of the blood and blood forming organs, with special emphasis on the study of the blood from the standpoint of diagnosis and prognosis. 3 credits each quarter. TTh VII, VIII, IX. Dr. Downey.
- 201f-202w-203s-204su.<sup>1</sup> Research in Anatomy. Research work in gross or microscopic anatomy, neurology, histology, or embryology. Hours and credits arranged. Dr. Jackson, Dr. Boyden, Dr. Downey, Dr. A. T. Rasmussen, Dr. Scammon.
- 205f-206w-207s. Anatomical Seminar. Presentation and discussion of research work in progress in the department, together with reviews of current anatomical literature. 11 hours; 1 credit. Dr. Jackson.

## BACTERIOLOGY AND IMMUNOLOGY

Departmental Office, Millard Hall

Professors Winford P. Larson, M.D., Head; Robert G. Green, M.A., M.D., Arthur T. Henrici, M.D.; Associate Professor H. Orin Halvorson, Ch.E., Ph.D.; Instructors Beryl S. Green, M.A., Charles E. Skinner, Ph.D.; Teaching Fellows Byron Olson, M.S., Millard Gunderson, M.S.

### REQUIRED COURSES

- 1f,w,s. Elementary Bacteriology. Nursing students and others. 66 hours; 4 credits. Mrs. Green.
- 41su,f,w,s. General Bacteriology. Culture media; methods of staining and identification; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries. Prerequisites, 10 credits in chemistry and 10 credits in biology; 99 hours; 5 credits. For medical students, winter, MWF I, II, III; for Agri-

<sup>1</sup> These courses may be taken continuously through three or four quarters or in any one quarter.

- culture and Home Economics, fall, winter, spring, MWF VI, VII, VIII. Dr. Green, Dr. Henrici, Dr. Halvorson, Mrs. Green, Dr. Skinner.
- 52w. General and Special Bacteriology for Dental Students. Pre-junior year. 66 hours; 4½ credits. Dr. Green and assistants.
- 101s,su. Special Bacteriology. The pathogenic bacteria, especially in relation to definite diseases; principles of infection and immunity. Medical students and others. Prerequisite, general bacteriology; 77 hours; 4 credits. Dr. Larson and assistants.

## ELECTIVE COURSES

- 103w. Soil Microbiology. Studies of the microscopic inhabitants of the soil. MWF I, II, III; 5 credits. Dr. Skinner.
- 114s. The Higher Bacteria. Actinomycetes, yeasts, and molds. Prerequisites: general and special bacteriology; 66 hours; 3 credits. Dr. Henrici.
- 116w. Immunity. Laws of hemolysis. Quantitative relationship between antigen and antibody. Wasserman reaction. Opsonins. Vaccines. Toxin. Antitoxin. Precipitin reactions. Blood grouping. Atopy. Anaphylaxis. Prerequisite, 101; 66 hours; 3 credits. Dr. Larson.
- 117s. Pathogenic Protozoa. Prerequisites, general and special bacteriology; Zoology 144-145-146; 66 hours; 3 credits. Dr. Larson.
- 118w. Morphology and Taxonomy of Bacteria. Cytology of bacteria; consideration of morphological, biochemical, and immunological characters as data for classification. Prerequisites, general and special bacteriology; 66 hours; 3 credits. Dr. Henrici.
- 119w. Bacteriological Chemistry. Microphysics. Chemical constituents. Permeability. Bacterial enzymes. Toxins. Bacteriolysants. Suspension stability. Chemistry of immune reactions. Prerequisites, general and special bacteriology, Physiology 100, 101, or Agricultural Biochemistry 111, 112. 66 hours; 4 credits. Dr. Green and assistant.
- 120s. Bacterial and Virus Diseases Common to Man and Animals. Prerequisites, general and special bacteriology. T VI, VII; Th VI; 3 credits. Dr. Green.
- 121w-122s. Industrial Bacteriology. Lecture and laboratory. 3 credits each quarter; TTh I-II. Dr. Halvorson.
- 150f-151w or 150w-151s. Advanced Bacteriology. Opportunity of working out special problems. Prerequisites, general and special bacteriology; credits arranged. Limited to ten students. Dr. Larson, Dr. Henrici, Dr. Green, Dr. Halvorson, Dr. Skinner.
201. Research in Bacteriology. Graduate students of the necessary preliminary training may elect research, either as majors or minors, in bacteriology. Hours and credits arranged. Dr. Larson, Dr. Henrici, Dr. Green, Dr. Halvorson, Dr. Skinner.
- 203f,w,s. Seminar in Bacteriology. 1 credit. Staff.

PATHOLOGY

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Departmental Office, 110 Institute of Anatomy

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Professors Elexious T. Bell, B.S., M.D., Head; Benjamin J. Clawson, M.D., Ph.D.; Associate Professors James S. McCartney, Jr., B.A., M.D., William A. O'Brien, M.D., John F. Noble, M.D.; Assistant Professor Kano Ikeda, M.D.; Instructors Nathaniel H. Lufkin, B.S., M.D., Charlotte C. Van Winkle, B.A., M.D., D.P.H.; Assistant Louis E. Nolan, B.S., M.D.; Teaching Fellows Edith L. Potter, B.S., M.D., Charles E. Rea, B.S., M.D.

REQUIRED COURSES

- 4f. Pathology for Students in Dentistry. 110 hours; 6 credits. Dr. Clawson and teaching fellows.
- 101w. Pathology. Part I. General Pathology. Sophomore medical students. Prerequisites, histology, embryology, and special bacteriology. 165 hours; 9 credit. Dr. Bell, Dr. Clawson; Dr. McCartney, and teaching fellows.
- 102s. Pathology. Part II. Special Pathology. Sophomore medical students. Prerequisites, Pathology, Part I. 165 hours; 9 credits. Dr. Bell, Dr. Clawson, Dr. McCartney, and teaching fellows.
- 109su,f,w,s. Clinical Pathological Conference. Presentation of clinical data and pathologic specimens from selected cases with discussion of diagnosis. 11 hours in each quarter. Required in three quarters, senior year. Elective for others. Dr. Bell and staff.

ELECTIVE COURSES

- 104su,f,w,s. Autopsies. Fifth and sixth year medical students. Dr. Bell and staff.
- 107f,w,s. Advanced Pathology. Prerequisite, Pathology 102. 107f. Surgical Pathology. Dr. Bell, Dr. McCartney. 33 hours. 107w. Diseases of the Heart. Dr. Clawson. 22 hours. 107s. Diseases of the Kidneys. Dr. Bell. 22 hours.
- 110f,w,s. Seminar in Pathology. Prerequisite, Pathology 102. Dr. Bell.
- 111su,f,w,s. Conference on Autopsies. Prerequisite, Pathology 102. Dr. Bell and staff.
201. Research. Graduate students of the necessary preliminary training may elect research either as major or minor in pathology. Hours and credits arranged. Dr. Bell and staff.

## PHARMACOLOGY

Departmental Office, Millard Hall

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

## REQUIRED COURSES

- 2s. Therapeutics and Toxicology for Students in Pharmacy. 33 hours; 3 credits. Dr. Brown.
- 4w. Dental Pharmacology. 44 hours; 4 credits. Dr. Bieter, Dr. Brown.
- 6w. Experimental Pharmacology. For dental students. 22 hours; 1 credit. Dr. Bieter, Dr. Brown.
- 7w,su. Metrology. For student nurses. Systems of weights and measures; equivalents; preparation of percentage solutions; dosage; together with appropriate laboratory exercises and problems. 22 hours; 1½ credits. Dr. Wright, Miss Gordon, and others.
- 8w,su. Elementary Pharmacology. For student nurses. A study of the history, uses, classification, and preparation of drugs; methods of administration; principles of dosage, etc., together with appropriate laboratory exercises. 33 hours; 2½ credits. Dr. Brown, Dr. Wright, and others.
- 101w. Introduction to Pharmacology. Fourth year medical students. 22 hours; 2 credits. Prerequisites, Physiology 100, 101, 103. Dr. Hirschfelder, Dr. Bieter, Dr. Wright.
- 102s. General and Experimental Pharmacology. Part I. A detailed study of drugs important in medical practice. Fourth year medical students. Prerequisite, 101; lect. 33 hours, lab. 66 hours; 6 credits. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.
- 105su,w. General Pharmacology. Part II. Same as Course 102 in continuation. Fifth year medical students. Prerequisite, 102; 22 hours; 2 credits. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.
- 106f. General Pharmacology. Part III. Same as Course 102 in continuation. Fifth year medical students. 22 hours; 2 credits. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.
- 108su,f. Prescription Writing. Fifth year. Prerequisite, 102; 11 hours; 1 credit. Dr. Brown.

## ELECTIVE COURSES

- 109f,w,su. Pharmacological Problems. Experimental study of special topics in pharmacology, with a review of the literature. Hours and credits arranged. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.

- 110f,su. Detection of Poisons. Hours and credits arranged. Dr. Brown.
- 201f,w,s.<sup>1</sup> Seminar in Physiology and Pharmacology. Reviews of recent literature. 11 hours; 1 credit. Dr. Hirschfelder.
- 203su,f,w,s.<sup>1</sup> Research in Pharmacology. Open to graduate and advanced students. Hours and credits arranged. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.
- 204w.<sup>1</sup> Advanced Pharmacology. Limited to 4 graduate students. 11 hours; 1 credit. Hours and registration arranged. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.
- 205w.<sup>1</sup> General Discussions in Pharmacology. With collateral readings. Limited to 6 advanced students. 11 hours; 1 credit. Time to be arranged. Dr. Hirschfelder, Dr. Bieter, Dr. Brown, Dr. Wright.

### PHYSIOLOGY

Departmental Office, Millard Hall

Professors Elias P. Lyon, Ph.D., M.D., LL.D., Head; Jesse F. McClendon, Ph.D., Frederick H. Scott, Ph.D., M.B., D.Sc.; Professor Emeritus Richard O. Beard, M.D.; Associate Professors Karl W. Stenstrom, Ph.D., Esther M. Greisheimer, Ph.D., M.D.; Assistant Professors Allan Hemingway, Ph.D., Joseph T. King, M.D., Ph.D.; Instructors Jesse Cavett, Ph.D., Dean A. Collins, Ph.D., Robert H. Hamilton, Jr., M.A.; Assistants Wallace D. Armstrong, M.S., L. Earle Arnow, B.S., Carl E. Nurnberger, M.A., Harold R. Street, B.A., M.S.; Teaching Fellows Carroll J. Bellis, B.S., Lawrence B. Winkelstein, B.A.

### REQUIRED COURSES

- 1f,s. Physiologic Chemistry for Nurses. 40 hours; 2 credits. Dr. Greisheimer and others.
- 2f,s. Physiology for Nurses. 70 hours; 5 credits. Dr. Greisheimer and others.
- 4f,w,s,su. Human Physiology. For academic, home economics, and pharmacy students. 4 credits; lect., rec., and dem.; MWF III, IV. Dr. King or Dr. Collins and assistants.
- 56f. Physiologic Chemistry. For physical education students and others. Lectures and demonstrations. Prerequisite, general chemistry; 33 hours; 3 credits; TThS I. Dr. McClendon.
- 57s,su.<sup>2</sup> Physiologic Chemistry. For academic, dentistry, physical education students, and others. Lectures and demonstrations. Prerequisites, zoology and organic chemistry; 44 hours; 4 credits. Dr. Hemingway and assistants.

<sup>1</sup> Written permission required.

<sup>2</sup> Courses 57 and 58 are intermediate courses intended for those who desire a less detailed consideration than that given in 100, 101, 103, 104. Students may not receive credit for both sequences, nor for Course 4 in addition to either of these sequences.

- 58s,su.<sup>1</sup> Human Physiology. For dental students and others. Prerequisites, 57 or zoology and organic chemistry; 99 hours; 6 credits. Dr. Lyon, Dr. King, Dr. Collins, and assistants.
- 60s. Physiology of Physical Exercise. For physical education students and others. Lectures and laboratory. Prerequisite, Course 4; 66 hours; 4 credits. Dr. Collins.
- 100f,su. Physiologic Chemistry. Metabolism of proteins, fats, carbohydrates. Third year medical students and others. Prerequisites, physics and organic chemistry; 99 hours; 5 credits; lect. MWF IV; lab. A, TTh I, II, III; lab. B, FS I, II, III; lab. C (non-medics) TTh VI, VII, VIII. Dr. McClendon, Dr. Hemingway, Dr. Cavett, and assistants.
- 101w,su. Physiologic Chemistry. Application of inorganic and physical chemistry to physiology. Prerequisite, Course 100 and physical chemistry; 5 credits. Schedule and staff same as 100.
- 103f,su. Physiology of Cells, Muscle, Nerve, Blood, Circulation, Respiration, Digestion. Fourth year medical students and others. Prerequisites, organic chemistry and zoology; 132 hours; 8 credits; lect. MTWThF II; lab. A, M VI, VII, VIII, F III, IV; lab. B, W III, IV, F VI, VII, VIII; rec. A, TTh III; rec. B, T IV, S II. Dr. Lyon, Dr. Scott, Dr. Greisheimer, and assistants.
- 104w,su. Physiology of the Nervous System and Special Senses, Metabolism, Nutrition, and Excretion. Fourth year medical students and others. Prerequisite, Course 103, or organic chemistry and neurology; 88 hours; 7 credits; lect. MWF IV, S III; lab. A, F, II, III, S I, II; lab. B, MW II, III; rec. A, M VI; rec. B, T II. Dr. Lyon, Dr. Scott, Dr. Greisheimer, and assistants.
- 105f. Roentgen Rays, Light, and Radium. The physical and physiological basis of physical therapy. Prerequisites, 103, 104. Fifth year medical students. 11 hours; 1 credit. Dr. Stenstrom.

## ELECTIVE COURSES

108. Seminar in Physiologic Optics. For graduate and medical students. Prerequisite, Course 104 or equivalent; 18 hours; 1½ credits. Dr. Lyon.
109. Seminar in Physiology of the Senses. For graduate and medical students. Prerequisite, Course 104 or equivalent; 18 hours; 1½ credits. Dr. Lyon.
- 113su,f,w,s. Problems in Physiology. Arranged with qualified students. Each student will be assigned a topic for special laboratory study. Conferences and reading. May be taken one or more quarters. Prerequisites, Courses 103, 104, or equivalent; 66 hours; 3 credits each quarter or arranged. Dr. Scott, Dr. Greisheimer, Dr. King.

<sup>1</sup> Courses 57 and 58 are intermediate courses intended for those who desire a less detailed consideration than that given in 100, 101, 103, 104. Students may not receive credit for both sequences, nor for Course 4 in addition to either of these sequences.

- 114w-115s. Applied Physiology. The interpretation of symptoms and signs of abnormal function. Prerequisites, Courses 103, 104, or equivalent; 3 credits each quarter. Dr. Greisheimer.
- 116f. Tissue Culture Theory. Two lectures. 2 credits; hours arranged. Dr. King.
- 117w. Tissue Culture Laboratory. Limit 4 students. Prerequisite, 116f. 3 credits; hours arranged. Dr. King.
- 135f,w,s. Conference on Physio'ogy, with qualified students. 11 hours; 1 credit. Dr. Scott.
- 153f,w,s,su. Problems in Physiologic Chemistry. Special work arranged with qualified students. May be taken one or more quarters. Prerequisite, Course 100-101; hours and credits arranged. Dr. McClendon, Dr. Hemingway, Dr. Cavett.
- 154f. Seminar in Physiological Chemistry. 11 hours; 1 credit. Dr. McClendon.
- 155f,156w,157s. Pathological Chemistry. Blood chemistry of diabetes and nephritis. Basal metabolism, deficiency diseases. Prerequisite, Course 100-101; 66 hours; 3 credits each quarter. Dr. Cavett.
- 163w,s. Physical Chemistry and Biophysics in Biology and Medicine. Prerequisite, Course 100-101 or Biochemistry 112; 3 credits per quarter. Dr. Hemingway.
- 164w,s. Laboratory Work Related to Course 163. Credits arranged. Dr. Hemingway.
- 201f,w,s. Seminar in Physiology and Pharmacology. For instructors and advanced students. Same as Pharmacology 201. 11 hours; 1 credit. Dr. Lyon, Dr. Scott, Dr. Hirschfelder, and staff.
- 202f,w,s,su. Advanced Experimental Physiology. Prerequisites, Physiology 103 and 104; hours and credits arranged. Dr. Scott.
- 203f,w,s,su. Research in Physiology. Hours and credits arranged. Dr. Scott. Dr. Greisheimer, Dr. King.
- 204f,w,s,su. Research in the Physics and Physiology of Radiation. Hours and credits arranged. Dr. Stenstrom.

For electives in the practical aspects of radiology and allied subjects offered by Dr. Stenstrom, see Hospital Department, Division of Radiology.

- 205f,w,s,su. Research in Physiologic Chemistry. Hours and credits arranged. Dr. McClendon, Dr. Hemingway, Dr. Cavett.
- 206s. Seminar in History of Physiology and Related Sciences. 11 hours; 1 credit. Dr. Lyon.

## PREVENTIVE MEDICINE AND PUBLIC HEALTH

### UNIVERSITY STAFF

Professors Harold S. Diehl, M.A., M.D., Head; J. Arthur Myers, Ph.D., M.D.; Associate Professors Ruth E. Boynton, M.S., M.D., William A. O'Brien, M.D.; Assistant Professors Eula B. Butzerin, R.N., M.A., Ellett M. deBerry, B.A., M.D., Ralph V. Ellis, M.A., M.D.; Instruc-

tors Arnold S. Anderson, B.S., M.D., Dalmon V. Boardman, M.D., Hally J. Fisher, R.N., Meredith Hesdorsfer, B.S., M.D., Robert G. Hinckley, M.D., Ruth Houlton, B.A., R.N., Helen C. Peck, R.N., Robert B. Radl, B.S., M.D., Jean Taylor, B.S., R.N., Bernard A. Watson, B.S., M.D.

## STATE BOARD OF HEALTH STAFF

Professor Albert J. Chesley, M.D.; Assistant Professors Orianna McDaniel, M.D., Harold A. Whittaker, B.A.; Professorial Lecturer Lucy Heathman, Ph.D.

## REQUIRED COURSES

- 2w. First Aid. (See bulletin of Education.)  
 3f,w,s. Personal Hygiene and Elementary Sanitation. (See Science, Literature, and the Arts bulletin.)  
 5f. Elementary Preventive Medicine for Nurses. (See Nursing bulletin.)  
 12s. Hygiene and First Aid to the Sick and Injured. (See Engineering bulletin.)  
 52f,w,s. Health Care of the Family. (See Home Economics bulletin.)  
 53f,su. Elements of Preventive Medicine. (See Education bulletin.)  
 57f. Health of Infant and Pre-school Child. (See Science, Literature, and the Arts bulletin.)  
 58w,su. Maternal and Child Hygiene. (See Education bulletin.)  
 59w. Social Hygiene. (See Education bulletin.)  
 60w. Tuberculosis and Its Control. (See Education bulletin.)  
 61w. Mental Hygiene. (See Education bulletin.)  
 62f,su. Principles of Public Health Nursing. (See Education bulletin.)  
 63w. Special Fields in Public Health Nursing. (See Education bulletin.)  
 64f,w,s,su. Field Practice in Infant Welfare Nursing. (See Education bulletin.)  
 65f,w,s,su. Field Practice in School Nursing. (See Education bulletin.)  
 66f,w,s,su. Field Practice in County Nursing. (See Education bulletin.)  
 67f,w,s,su. Field Practice in a Tuberculosis Sanatorium. (See Education bulletin.)  
 68f,w,s,su. Field Practice in Visiting Nursing. (See Education bulletin.)  
 69s. School Nursing Procedures. (See Education bulletin.)  
 70f,w,su. Home Nursing and Child Care. (See Education bulletin.)  
 74su. Health Instruction Methods and Materials. (See Education bulletin.)  
 100f. Preventive Medicine and General Hygiene. Medical students. Prerequisites, bacteriology, physiology; 36 hours; 3 credits. Dr. Diehl, Dr. Myers, Dr. O'Brien.  
 101f,w,s,su. Public Health Administrative and Field Work. Demonstrations of health agencies at work. Groups of 10 to 18 medical students for 6 weeks. Prerequisite, 100; 18 hours; 2 credits. Staff.

## ELECTIVE COURSES

- 50f,w,su. Public and Personal Health. (See Science, Literature, and the Arts bulletin.)  
 73w. Occupational Hygiene and Disease. (See Education bulletin.)



- 80w,su. Health Supervision of the School Child. (See Education bulletin.)  
 102w. Sanitation. Medical and graduate students. (See Graduate bulletin.)  
 103s. Public Health Bacteriology. Medical and graduate students. (See Graduate bulletin.)  
 104f,w,s,su. Epidemiology. Medical and graduate students. (See Graduate bulletin.)  
 106f,w,s. Public Health Administration. Medical and graduate students. (See Graduate bulletin.)  
 107s. Sanitary Surveys. For medical students. Conferences, practical field work, and report on a specified survey. Of particular value to practitioners who may be called upon to serve as local health officers. Prerequisite, 53 or 100; 48 hours; 2 credits. Medical and graduate students. Dr. Diehl.  
 200. Research. (See Graduate bulletin.)  
 210. Seminar in Preventive Medicine and Public Health. (See Graduate bulletin.)

### MEDICINE

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Departmental Office, University Hospital

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#### DIVISION OF GENERAL MEDICINE

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

S. Cohen, B.S., M.D., Clara J. Conklin, B.A., Benjamin A. Dvorak, B.S., M.D., Ejvind P. K. Fenger, B.S., M.D., Arthur C. Fortney, M.D., Victor K. Funk, B.A., M.D., H. Paul Johnson, B.S., B.A., M.D., Emmett B. Kennefick, M.D., Arthur C. Kerkhof, B.S., Rudolph C. Logefeil, B.S., M.D., Peter M. Mattil, M.S., M.D., Charles E. Merkert, B.S., M.D., Harold E. Richardson, B.S., M.D.; Teaching Fellows El'is K. Giere, B.S., M.D., Philip Hallock, B.S., M.D., Johannes K. Moen, B.S., M.D., Howard A. Vogel, B.S., M.D.

#### DIVISION OF NERVOUS AND MENTAL DISEASES

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

#### DIVISION OF DERMATOLOGY

Professors Henry E. Michelson, B.S., M.D., Director; Samuel E. Sweitzer, M.D.; Associate Professors John Butler, M.D., Harry G. Irvine, M.D.; Assistant Professor Charles D. Freeman, M.D.; Instructors Clifton A. Boreen, B.S., M.D., Edward C. Gager, M.D., Henry N. Klein, M.D., John F. Madden, B.S., M.D., Dale D. Turna-cliff, B.S., M.D.; Assistant Elmer M. Rusten, B.A., M.D.

#### DIVISION OF GENERAL MEDICINE

##### REQUIRED COURSES

1. Courses for Nurses. (See Nursing School bulletin.)
19. Clinical Medicine for Dentists. (See Dental College bulletin.)
- 20w-21s. Introductory Physical Diagnosis. Lectures and practical work on the examination of the normal body. This is followed during the second quarter by lectures on the pathological variations and signs. Students are assigned to hospital wards for the examination of selected cases. Fourth year. Prerequisites, gross anatomy, Physiology 103; 66 hours; 6 credits. Dr. Berglund, Dr. Fahr, Dr. Myers, and others.
- 22f,w,s. Clinics in Medicine. Half divisions at Ancker Hospital, St. Paul. Fifth year. 17 hours for each student. Dr. Hall, Dr. Herrmann, Dr. Lepak, Dr. Oerting, Dr. C. B. Drake.
- 23f,w,s. Systematic studies in the field of internal medicine exclusive of neurology, guided and supervised by tutors. Osler's *Practice of Medicine* is the textbook. Other literature is assigned. Fifth year.

- Prerequisite, Med. 20-21; 11 hours a quarter; 33 hours total. Dr. M. Nathanson, Dr. Carey, Dr. McCarthy, Dr. Weisman, Dr. Borg. Dr. Logefeil.
- 24f,w,s. Divisional Clinic in Medicine. Fifth year, each division one quarter. Prerequisite, Med. 20-21; 17 hours per student. Classroom of Minneapolis General Hospital. Dr. Fahr and staff.
- 25f,w,s. Physical Diagnosis and Case Taking. Individual work, a junior and a senior work together; histories, physical examinations, and provisional diagnoses on assigned dispensary patients under supervision of instructors. In sections at University Dispensary. Fifth year. Prerequisite, Med. 20-21; 66 hours. Dr. Wetherby and others.
- 26f. Clinical Chemistry and Microscopy. Methods of laboratory examination for diagnostic purposes. Fourth year. Prerequisites, general pathology, physiologic chemistry; 66 hours. Dr. Medes.
- 27s. Mouth Infections. The typical infections of the oral cavity and their causal relations to disease. 6 hours. Dr. Hartzell.
- 28f,w,s. Dispensary Clinics. Conducted in the University Dispensary. Fifth year. Prerequisite, Med. 20-21; MWF 2:00-2:50; 80 hours per student. Dispensary staff.
- 29f,w,s. Class Clinic in Medicine. Conducted in the University Hospital. Fifth year. Prerequisite, Med. 20-21; 11 hours each quarter; 33 hours total per student. T 11:00-11:50. Dr. Berglund and others.
- 30f,w,s. Class Clinic in Medicine. University Hospital and Minneapolis General Hospital. Students on clerkship at University Hospital at any given date will attend this clinic at University Hospital; vice versa for students taking clerkship at the General Hospital. Sixth year. Prerequisite, fifth year courses in medicine; 22 hours for two quarters, 11 hours for one quarter; total per student, 55 hours; TTh 8:00-8.50. Hospital staffs.
- 35su,f,w,s. Clinical Clerkship in Medicine. Individual work in the medical wards of the University Hospital, taking and recording of case histories, making of physical examinations and of provisional diagnoses. Clerks are held responsible for history and course of disease as well as a detailed knowledge of the treatment given to patients assigned them. Sixth year. Prerequisite, clear record in all prior subjects; 400 hours. Dr. Berglund, Dr. Ulrich, Dr. Reimann, and staff.
- 35w. Admission Clerkship. Assignment to admission service, University Hospital. Part of medical clerkship. Dr. Wetherby.
- 35xsu,f,w,s. Same as 35 at the Minneapolis General Hospital. Dr. Fahr and staff.
- 35ysu,f,w,s. Physical Diagnosis and Therapy. Conducted with sections in the following dispensary clinics: (1) general medicine; (2) heart clinic; (3) chest clinic; (4) metabolism; (5) gastrointestinal clinic. Sixth year. Part of Medical Clerkship, Course 35.
- 35z. Clerkship in Tuberculosis. Two-week periods resident at Glen Lake Sanatorium. Seniors in medical clerkship quarter. Dr. Mariette and staff.

## ELECTIVE COURSES

50. Physical Signs in Pulmonary Tuberculosis. Fifth year. 17 hours per student. Tuberculosis Pavilion, Ancker Hospital, St. Paul. Dr. Geer.
53. Advanced Physical Diagnosis. Minneapolis General Hospital. Not less than 3 nor more than 6 students. Dr. Peppard.
54. Graphic Recording and Functional Diagnosis of Cardiovascular Diseases. Not less than 3 nor more than 6 students. Dr. Ziskin.
56. Clinical Studies in Metabolism. Limited to 6 students. Dr. McKinlay.
57. Advanced Physical Diagnosis of the Chest. Practical dispensary work on tuberculous patients. Not less than 3 nor more than 6 students. Dr. Weisman.
- 58s. Diagnosis and Treatment of Diseases of the Lungs. Three lectures per week. Two periods per week (hospital wards and dispensary). Lectures with or without hospital work. Sophomores, juniors, and seniors. Hours and credits arranged. Dr. Myers.
59. Physical Signs in Pulmonary Tuberculosis. Tuberculosis Pavilion, Ancker Hospital, St. Paul. 4 to 6 students. Dr. Geer.
102. The Respiratory Organs in Health and Disease. Designed for students desiring training in preparation of scientific and clinical papers for publication. One or more quarters. Limited to 6 students. Dr. Myers.
103. Chemical Problems of Disease. For specially prepared students. Sophomores, juniors, or seniors. Hours, problems, and credits arranged. Dr. Berglund.
- 105w. Problems in Pathological Physiology. Experimental work in physiology of the cardiovascular system, gastrointestinal system, respiratory and the renal systems as affected by experimental procedures simulating the common processes of disease in those organs. Laboratory of Pathological Physiology, Millard Hall. Sophomores. Hours, problems, and credits arranged. One to four students. Dr. Fahr, Dr. Davis.
- 106w. Problems in Clinical Physiology. Experimental and clinical investigations of the pathological functions in cardiovascular, renal, gastrointestinal, and respiratory diseases in the Laboratory of Pathological Physiology, Millard Hall, and in the Minneapolis General Hospital, and the University Dispensary. Juniors and seniors. Hours, problems, and credits to be arranged. One to four students. Dr. Fahr and staff.
200. Seminar in Internal Medicine. Dr. Berglund and staff.
201. Research in Clinical Medicine. Dr. Berglund, Dr. Fahr, and others.

For other courses see Graduate School bulletin.

## DIVISION OF NERVOUS AND MENTAL DISEASES

## REQUIRED COURSES

- 40w. Neurology and Neurologic Diagnosis. Lectures on methods of examination and the diseases of the nervous system. Fifth year. Prerequisite, Med. 20-21; 33 hours. Dr. Hamilton, Dr. Hammes, Dr. McKinley, Dr. Morrison.

- 41s. Psychiatry. Methods of modern psychiatry; lectures on the mental disorders. Fifth year. Prerequisite, Med. 40; 22 hours. Dr. Hamilton, Dr. Hannah, Dr. Hengstler.
- 42f,w,s. Clinical Neurology and Psychiatry. Half divisions in nervous and mental diseases at the Ancker Hospital. St. Paul. Fifth year. 17 hours. Dr. Hammes, Dr. Hengstler, Dr. Kamman, Dr. Ruhberg, Dr. Whitmore.
- 42x. Same as 42, at the Minneapolis General Hospital. Dr. Michael, Dr. Ahrens.
- 43s. Medical Jurisprudence. Principles of law, rules of evidence, and duties of physicians in medico-legal cases. 16 hours. Dr. Hamilton, Dr. Ruhberg.
- 44su,f,w,s. Clerkship Physical Diagnosis and Case Taking. Sections of the class for two-week periods in the University Hospital, Minneapolis General Hospital, and dispensaries. Part of Medical Clerkship, Course 35. Dr. Hamilton, Dr. McKinley, Dr. Michael, Dr. Ahrens, Dr. Gray, Dr. Hannah.

## ELECTIVE COURSES

81. Treatment in Nervous Diseases. Referring particularly to dementia paralytica and tabes dorsalis. Limited to six students. Dr. Hammes.
123. Pathology of the Nervous System. Not less than 5 students. Same as Pathology 111. Carries sophomore honor point credit. Dr. McKinley.
124. Advanced Neuropathology. Limited to two students. Prerequisites, Pathology 101 and 102. Dr. McKinley.
125. Problems in Neuropathology. The student will be assigned a topic for special study. Limited to 2 students. Prerequisite, Pathology 102. Dr. McKinley.

For other courses see Graduate School bulletin.

## DIVISION OF DERMATOLOGY

## REQUIRED COURSES

- 46w. Course in Dermatology. Clinical lectures upon the common skin diseases and syphilis, including diagnosis and treatment. Fifth year. Prerequisites, Med. 20, 21; 33 hours. Dr. Michelson.
- 47su,f,w,s. Physical Diagnosis and Therapy. Section of the senior class in dermatology and syphilis, in the Dispensary at the University and at the Minneapolis General Hospital. Part of Medical Clerkship, Course 35. Dr. Michelson, Dr. Sweitzer, Dr. Irvine, Dr. Boreen, Dr. Gager, Dr. Turnacliff.

## ELECTIVE COURSES

- 90f,w,s. Ward Clinics in Dermatology. Fifth year. 17 hours. Conducted in City and County Hospital, St. Paul. Dr. Freeman, Dr. Gager.

91. Night Clinics in Dermatology and Syphilis in the Out-Patient Department. Open to six students in clerkship division in each quarter. Dr. Turnacliiff.
92. Clinic in Dermatology. Th 1:30-2:30. Wilder Dispensary.
93. Assistantship, Dermatology and Syphilis. Prerequisite, medical clerkship. 1 student. WS 1:00-3:00. Minneapolis General Hospital. Dr. Sweitzer.
94. Assistantship and Conference in Dermatology. Prerequisite, medical clerkship. 1 student. Daily 1:00-3:00; University Hospital and University Dispensary. Dr. Michelson and staff.
150. Histopathology of the Skin. Clinical and pathologic phases will be exemplified. Prerequisite, Pathology 102. Same as Pathology 110. Dr. Michelson, Dr. Gager.
153. Seminar in Dermatology. Hours to be arranged. Dr. Michelson and others.

### OBSTETRICS AND GYNECOLOGY

Departmental Office, University Hospital

Professor Jennings C. Litzenberg, B.S., M.D., F.A.C.S., Head; Associate Professor John L. Rothrock, M.A., M.D., F.A.C.S.; Assistant Professors Lee W. Barry, M.D., Ph.D., F.A.C.S., Arthur E. Benjamin, M.D., William H. Condit, B.S., M.D. F.A.C.S., George E. Hudson, B.A., M.D., Rae T. LaVake, B.A., M.D., F.A.C.S., Clarence O. Maland, B.S., M.D., F.A.C.S., Jalmar H. Simons, B.S., M.D., F.A.C.S., Samuel B. Solhaug, B.A., B.S., M.D., Ph.D., F.A.C.S., Roy E. Swanson, B.S., M.D., Ph.D., F.A.C.S., John A. Urner, B.S., M.D., Ph.D., Herbert M. N. Wynne, B.S., M.D., F.A.C.S.; Instructors Duma C. Arnold, B.S., M.D., Joseph F. Bicek, B.S., M.D., James F. Hammond, M.D., C.M., Everett C. Hartley, B.A., M.D., Seymour R. Lee, M.D., Louise M. Paul, B.A., M.D., Albert G. Schu'ze, M.D., Thurston W. Weum, B.S., M.D.; Assistants E. Cornelius Andreassen, B.S., M.D., Melvin P. Baken, B.A., M.D., Claude J. Ehrenberg, B.S., M.D., Arnold Gruenhagen, B.S., M.D., Jacob A. Polzak, B.S., M.D., Charles E. Proshok, B.S., M.D., William P. Sadler, B.A., M.D., Julius R. Sturre, B.S., M.D., James J. Swendson, B.S., M.D., Nora A. Winther, B.S., M.D., Teaching Fell'ows Milton Abramson, B.S., M.D., Leonard A. Lang, B.S., M.D., Alvin J. Meyer, B.S., M.D., Edward C. Maeder, B.S., M.D., Raymond A. Schwegler, B.A., M.D.

### REQUIRED COURSES

1. Obstetric Nursing. See Nursing School bulletin. Dr. Litzenberg and others.
2. Gynecologic Nursing. See Nursing School bulletin. Dr. Litzenberg and others.

- 20f. Obstetrics. The physiology of pregnancy, labor, and the puerperium. Fifth year medical students. Prerequisites, anatomy, embryology, physiology; 33 hours. Dr. Litzenberg and others.
- 21w. Obstetrics. The pathology of pregnancy, labor, and the puerperium. Fifth year medical students. Prerequisite, Course 20; 33 hours. Dr. Litzenberg and others.
- 22su,f,w,s. Division Clinic. Fifth year. 17 hrs. credit per student; Minneapolis General Hospital. Dr. Urner and staff.
- 23s. Gynecology. A study of diagnostic methods in diseases of women. Fifth year medical students. Prerequisite, Pathology; 33 hours. Dr. Litzenberg, Dr. Barry, Dr. Urner.
- 30su,f,w,s. Obstetrics and Gynecology Clinic. The pathology of pregnancy, labor, and the puerperium, and of diseases of women. Prerequisites, Courses 20, 21, 22, 23, 24. Required of seniors during three quarters; elective for others. 55 hours. Dr. Litzenberg and staff.
- 35su,f,w,s. Clinical Clerkship in Obstetrics and Gynecology. Study of assigned patients in University Hospital and out-patient service in "The District" and Salvation Army Home; case histories; physical examinations, laboratory examinations; parturition clinics; operations; manikin demonstrations and bedside clinics. Includes clinics in obstetrics and gynecology in the University Dispensary. 240 hours. Dr. Litzenberg, Dr. LaVake and staff.
- 35xsu,f,w,s. Part of 35 at Minneapolis General Hospital. Dr. Urner and staff.
- 35ysu,f,w,s. Part of 35. One week residence at the Ancker Hospital. Dr. Barry and staff.

ELECTIVE COURSES<sup>1</sup>

50. Gynecologic Clinic. Diagnosis and treatment of diseases of women. Wilder Dispensary, St. Paul. Four students. Dr. Barry, Dr. Bicek, Dr. Hartley.
51. Venereal Diseases. Night clinic. Minneapolis General Hospital Dispensary T 7:00-9:00 p.m. Dr. Urner, Dr. Proshok.
- 51a. Venereal Diseases. Night Clinic. Same as 51. F 7:00-9:00 p.m. Dr. Urner, Dr. Proshok.
52. Obstetrics and Gynecology Clinic. (See 30 above.) Dr. Litzenberg and others.
54. 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.
55. Prenatal Clinics. Antepartum care of pregnant women at the various prenatal stations; limited to one student at each station. Dr. Maland, Dr. Simons, and others.
201. Advanced Obstetrics and Gynecology. Required of first year fellows. Dr. Litzenberg, Dr. Barry, Dr. Urner, and associates.

<sup>1</sup> Elective courses in this department are usually repeated each quarter. See quarterly programs for hours and credits.

202. More Advanced Subjects. Required of second year fellows. Dr. Litzenberg, Dr. Barry, Dr. Urner, and associates.
203. Still More Advanced. Third year fellows. Dr. Litzenberg, Dr. Barry, Dr. Urner, and associates.
204. Seminar. A staff conference. Dr. Litzenberg and 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.

## OPHTHALMOLOGY AND OTO-LARYNGOLOGY

Departmental Office, Todd Hospital

Professors Frank E. Burch, M.D., F.A.C.S., Head; Horace Newhart, B.A., M.D., F.A.C.S., Director of Division of Oto-Laryngology; Professor Emeritus John Farquhar Fulton, M.D., Ph.D.; Assistant Professors Walter E. Camp, M.A., M.D., F.A.C.S., Howard S. Clark, B.S., M.D., F.A.C.S., Charles E. Connor, M.A., M.D., F.A.C.S., C. Alford Fjeldstad, M.S., M.D., Erling W. Hansen, B.S., M.D., F.A.C.S., Laura A. Lane, B.A., M.D., John S. Macnie, B.A., M.D., F.A.C.S., Kenneth A. Phelps, M.D., F.A.C.S., Fred J. Pratt Jr., M.D., F.A.C.S., John A. Pratt, M.D., F.A.C.S., G. Elmer Strout, M.D., F.A.C.S.; Instructors Paul D. Berrisford, M.D., Lawrence R. Boies, M.A., M.D., John C. Brown, B.S., M.D., Walter Fink, M.D., M.S., F.A.C.S., Hendrie W. Grant, M.D., M.S., F.A.C.S., Albert J. Herbolzheimer, M.D., M.S., Charles Hymes, M.D., M.S., F.A.C.S., Henry P. Rosenberger, M.D., Charles W. Rucker, M.D., M.S., Virgil J. Schwartz, B.S., M.D.; Assistant Frank T. Cavanor, B.A., M.D.; Teaching Fellows Stanley S. Chunn, B.S., M.D., Nelson Young, B.S., M.D.

### REQUIRED COURSES

- 20f. Ophthalmology. Lectures and demonstrations. Fifth year. Prerequisites, anatomy, physiology, pathology; 18 hours. Dr. Burch.
- 21w. Laryngology and Rhinology. Lectures and demonstrations. Fifth year. Prerequisites, anatomy, physiology, pathology; 15 hours. Dr. Phelps, Dr. F. J. Pratt.
- 22w. Otology. Lectures and demonstrations. Fifth year. Prerequisites, anatomy, physiology, pathology; 15 hours. Dr. Newhart.
- 36su,f,w,s. Clinic in Diseases of the Eye. Diagnosis and treatment of cases. University Dispensary. Part of required section clinics, surgical clerkship period. 35 hours. Dr. Camp, Dr. Clark, Dr. Hansen, Dr. Macnie, Dr. Hymes.
- 37su,f,w,s. Clinic in Diseases of the Ear. Diagnosis and treatment of cases. University Dispensary. Part of required section clinics, surgical clerkship period. 18 hours. Dr. Newhart, Dr. Fjeldstad, Dr. Rosenberger, Dr. Rucker.



38su,f,w,s. Clinic in Diseases of the Nose and Throat. Diagnosis and treatment of cases. University Dispensary. Part of required section clinics, surgical clerkship period. 18 hours. Dr. Boies, Dr. Rosenberger, Dr. Cavanor.

## ELECTIVE COURSES

52. Clinic in Diseases of the Eye. 50 hours credit. TThS 1:00-2:30; Wilder Dispensary, St. Paul. Dr. Fulton.
53. Clinic in Diseases of the Ear, Nose, and Throat. 50 hours credit. TThS 1:00-2:30; Wilder Dispensary, St. Paul. Dr. Connor.
54. Didactic and Practical Instruction in Refraction. Credits arranged. MTThF 8:00-9:30; University Dispensary. Dr. Herbolsheimer, Dr. Hymes.
- 121a. Operative Clinic in Eye. 13 hours credit. Limited to six students. Th 3:00-4:30. University Hospital. Dr. Burch, Dr. Camp, Dr. Clark, Dr. Hansen, Dr. Macnie, Dr. Hymes.
- 121b. Operative Clinic in Ear, Nose, and Throat. 13 hours credit. Limited to six students. F 3:00-4:30. University Hospital. Dr. Newhart, Dr. Phelps, Dr. Rosenberger.
122. Medical and Neurologic Ophthalmoscopy. 22 hours credit. Limited to 12 students. Th 3:00-4:00. Todd Memorial Room. Dr. Berrisford, Dr. Rucker.

## PEDIATRICS

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Departmental Office, 202 Eustis Hospital

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Professor Irvine McQuarrie, Ph.D., M.D., Head; Associate Professors James T. Christison, M.D., Edgar J. Huenekens, B.A., M.D., Walter R. Ramsey, M.D., Frederick C. Rodda, M.D., Max Seham, M.D., Chester A. Stewart, Ph.D., M.D., Rood Taylor, M.D., Ph.D.; Assistant Professors Tobias L. Birnberg, M.D., Naboth O. Pearce, M.D., Erling S. Platou, B.S., M.D., Lawrence F. Richdorf, M.D., Ph.D., W. Ray Shannon, M.S., M.D., Mildred R. Ziegler, Ph.D.; Lecturers Herbert E. Chamberlain, B.A., M.D., Hyman S. Lippman, M.D., Ph.D.; Instructors Edward D. Anderson, B.A., M.D., Woodard L. Colby, B.S., M.D., Lyman R. Critchfield, B.S., M.D., George K. Haganman, M.D., Arild E. Hansen, B.S., M.D., Frank G. Hedenstrom, B.S., M.D., Cecile R. Moriarty, B.S., M.D., Lillian L. Nye, M.A., M.D., Edwin F. Robb, B.A., M.D., Robert Rosenthal, M.D., David M. Siperstein, M.A., M.D., Alexander R. Stewart, M.D., C.M., Albert V. Stoesser, B.S., M.D., Ph.D., Robert L. Wilder, B.S., M.D.; Assistants Aaron Friedell, B.A., B.S., M.D., Hermina Hartig, B.S., M.D., Hursel G. Manauagh, B.A., M.D., Glenn R. Matchan, M.D., Thomas Myers, B.S., M.D., Daniel F. Noonan, B.A., Willis H. Thompson, B.S., M.D., Isabelle M. Zanger, B.S., M.D.; Teaching Fellows

Philip H. Bray, B.A., B.S., M.D., Rafael C. Harris, M.D., Edward L. Tuoy, M.D., Ross W. Weisiger, M.D., Honorary Research Fellow Rudolf Engel, M.D.

#### REQUIRED COURSES

##### *Junior Year*

- 21af. Clinical Diagnosis in Infancy and Childhood. Eleven informal amphitheater lectures with demonstrations of the special methods used in pediatrics for differential diagnosis and for the appraisal of the general status of the child's physical and mental health. Supplemented by bedside observation and practice in the hospital. Junior medical students; TTh 8:00-9:00 a.m.; Eustis Amphitheater. Dr. McQuarrie and staff.
- 21bf. The Normal Child and His Care. The characteristics of normal infants and children are considered from the viewpoint of growth and development in a series of eleven informal class discussions. Prevention of diseases of childhood and the feeding and general care of both infants and older children are included. Illustrative cases are presented. Follows Course 21a. TTh 8:00-9:00 a.m.; Eustis Amphitheater. 21a,b, 22 hours credit. Dr. McQuarrie and staff.
- 22w.s. The Diseases of Infancy and Childhood. The various congenital abnormalities and the diseases peculiar to infancy and childhood receive special attention. 44 hours credit. Amphitheater lectures, supplemented by Courses 23 and 24; TTh 8:00-9:00 a.m. Eustis Amphitheater. Dr. McQuarrie and staff.
- 23f,w.s. Divisional Demonstration Clinic on Non-Contagious Diseases. Junior medical students. One quarter, 17 hours, for each student. Ancker and Minneapolis General Hospitals.
- 24f,w.s. Divisional Demonstration Clinic on Contagious Diseases. Junior medical students. One quarter, 17 hours, for each student. Ancker and Minneapolis General Hospitals.

##### *Senior Year*

- 30f,w,s,su. Amphitheater Clinic. Detailed consideration of diagnosis, prognosis, prophylaxis, and treatment in individual clinical cases representing all phases of pediatric practice. S 8:00-9:00 a.m. Eustis Amphitheater. Dr. McQuarrie and senior staff.
- 35f,w,s,su. Clinical Clerkship in Pediatrics. Patients in the pediatric wards, dispensaries, and well-baby clinics are assigned to individual students for history taking, complete examination, treatment, and "follow-up" observation under supervision. Bedside clinics for one hour daily. One sixth of class on pediatric clerkship at one time, part of work at the University Hospital, the other part at the Minneapolis General Hospital. Required time, daily from 9:00 a.m. to 5:00 p.m. for 6 weeks. 200 hours credit. Dr. McQuarrie, Dr. Huenekens, Dr. Platou, and staffs.

ELECTIVE COURSES<sup>1</sup>

- 101f,w,s. Advanced Study of Contagious Diseases. Group conferences and demonstrations of special diagnostic and therapeutic procedures.
- 102f,w,s. Advanced Study of Nutritional or Other Non-Contagious Diseases. Both clinical and experimental subject-matter included.
- 103f,w,s. Weekly Seminar for Detailed Discussion of Fundamental Subjects Related to Pediatrics.
- 104f,w,s. Common Behavior Disturbances in Childhood—Their Recognition and Management.
- 205f,w,s,su.<sup>1</sup> Pediatric Research. Special problems in the various subdivisions of the pediatric field may be selected for study. Students may collaborate with members of the staff or with other students where suitable arrangements can be made.

For other courses see Graduate School Medical bulletin.

## RADIOLOGY

Departmental Office, University Hospital

Professor Leo G. Rigler, B.S., M.D., Head; Associate Professor Karl W. Stenstrom, Ph.D. (Dept. of Physiology); Assistant Professor Robert G. Allison, M.D.; Instructors Malcolm B. Hanson, M.D., Cyrus O. Hansen, B.A., B.S., M.D., Walter H. Ude, B.S., M.D.; Assistants J. Richard Aurelius, B.S., M.D., Oscar Lipschultz B.S., M.D.; Teaching Fellows John B. Eneboe, B.S., M.D., Lester G. Erickson, B.S., M.D., Frederick B. Exner, B.A., M.D.

## REQUIRED COURSES

- 21f. Roentgenology and Radiation Therapy. Lectures and demonstrations. Fifth year medical students. Prerequisites, anatomy, physiology, pathology; 22 hours. Dr. Rigler, Dr. Stenstrom.
- 30f,w. Roentgen Diagnostic Clinics. Sixth year. 11 hours credit. Prerequisite, Radiology 79. Dr. Rigler.
- 35su,f,w,s. Radiation Therapy for Surgical Clerks. Part of Surgery 35. Dr. Stenstrom.
- 35xsu,f,w,s. Medical-Roentgenologic Conference for Medical Clerks. Part of Medicine 35. Dr. Rigler.
- 35ysu,f,w,s. Surgical-Roentgenologic Conference for Surgical Clerks. Part of Surgery 35. Dr. Rigler.
- 35zsu,f,w,s. Pediatric-Roentgenologic Conference for Pediatric Clerks. Part of Pediatrics 35. Dr. Rigler.

## ELECTIVE COURSES

- 85f,w,s,su. Plate Reading. Fifth or sixth year. 11 hours credit. Prerequisite, Radiology 79. Dr. Rigler.

<sup>1</sup> To be arranged for with Dr. McQuarrie and staff.

- 86f,w,s. X-Ray Technique. Fifth or sixth year. 22 hours credit. Dr. Rigler.
- 87a,f,s,su. X-Ray Anatomy of Bones and Joints. 11 hours credit. Prerequisites, Anatomy 6 and 7. Same as Anatomy 148. Dr. Lipschultz.
- 87bf,s. X-Ray Anatomy of Viscera. 11 hours credit. Prerequisites, Anatomy 6 and 7. Dr. C. O. Hansen.
- 88af,w,s,su. X-Ray Diagnosis of Diseases of Bones and Joints. 11 hours credit. Prerequisite, Radiology 79. Dr. C. O. Hansen.
- 88bf,w,s,su. X-Ray Diagnosis of Diseases of the Thorax. 11 hours credit. Prerequisite, Radiology 79. Dr. M. B. Hanson.
- 88cf,w,s. X-Ray Diagnosis of Diseases of Abdominal Viscera. 11 hours credit. Prerequisite, Radiology 79. Dr. Aurelius.
- 89af,w,s. Clinic in X-Ray Diagnosis. 11 hours credit. Prerequisite, Radiology 79. University Hospital. Dr. Rigler.
- 89bf,w,s,su. Clinic in X-Ray Diagnosis. 11 hours credit. Prerequisite, Radiology 79. Minneapolis General Hospital. Dr. Ude.
- 90f. Fundamentals of Radiology. Same as Physiology 105. 11 hours credit. Dr. Stenstrom.
- 95f,w,s,su. Clinic in X-Ray Therapy. Fifth or sixth year. 11 hours; 1 credit. Dr. Stenstrom.
- 101f,w,s,su. Surgical-Roentgenologic Conference. Same as Radiology 81. Fifth and sixth year and graduates; 11 hours credit. Prerequisite, Radiology 79. Dr. Rigler.
- 102f,w,s. X-Ray Conference. Fifth and sixth year and graduates. 11 hours credit. Prerequisite, Radiology 79. Dr. Rigler, Dr. Ude.
- 103f,w,s,su. Physical Therapy Treatment Clinic. Fifth and sixth year and graduates. 22 hours; 1 credit. Dr. Stenstrom.
- 104w. Roentgen and Radium Therapy. Fifth and sixth year and graduates. 11 hours credit. Dr. Stenstrom.
- 106s. Physical Therapy Lectures. 11 hours credit. Dr. Stenstrom.
- 107f,w,s,su. Medical-Roentgenologic Conference. Same as Radiology 22. Fifth and sixth year and graduates. Prerequisite, Radiology 79. Dr. Rigler.
- 108f,w,s,su. Pediatric-Roentgenologic Conference. Same as Radiology 25. Fifth and sixth year and graduates. Prerequisite, Radiology 79. Dr. Rigler.
- 200f,w,s,su.<sup>1</sup> Research in Roentgenology. Hours and credits arranged. Dr. Rigler.
- 201f,w.<sup>1</sup> X-Ray Diagnosis of Diseases of the Skull and Upper Respiratory Tract. 11 hours; 1 credit. Dr. Rigler.
- 202f.<sup>1</sup> X-Ray Diagnosis in Pediatrics. 11 hours; 1 credit. Dr. Rigler.
- 205f,w,s,su.<sup>1</sup> Research Related to Radiation Therapy. Hours and credits arranged. Dr. Stenstrom.
- 208f,w,s.<sup>1</sup> Radiology Seminar (Bimonthly). Hours and credits arranged. Dr. Rigler, Dr. Stenstrom.

<sup>1</sup> Written permission for registration required.

SURGERY

Departmental Office, University Hospital

DIVISION OF GENERAL SURGERY

Professors Owen H. Wangensteen, M.D., Ph.D., F.A.C.S., Head; Charles H. Mayo, M.D., M.A., LL.D., F.A.C.S., D.Sc., Arthur C. Strachauer, M.D., F.A.C.S.; Associate Professors Alexander R. Colvin, M.D., F.A.C.S., J. Frank Corbett, M.D., F.A.C.S., James A. Johnson, M.D., F.A.C.S., Arthur T. Mann, B.S., M.D., F.A.C.S., Harry P. Ritchie, Ph.B., M.D., F.A.C.S., John T. Rogers, M.D., F.A.C.S., Arthur A. Zierold, M.D., Ph.D.; Assistant Professors John S. Abbott, B.A., M.D., Louis E. Daugherty, M.D., F.A.C.S., George R. Dunn, Ph.B., M.D., F.A.C.S., Walter A. Fansler, M.A., M.D., F.A.C.S., James M. Hayes, M.D., M.S., F.A.C.S., E. Mendelssohn Jones, M.D., F.A.C.S., Ralph T. Knight, B.A., M.D., F.A.C.S., Frank S. McKinney, B.A., M.D., Stanley R. Maxeiner, M.D., F.A.C.S., Edward Moren, M.D., William T. Peyton, M.D., Ph.D., Emil C. Robitshek, M.D., F.A.C.S., Roscoe C. Webb, B.A., M.D., F.A.C.S., Archa E. Wilcox, M.D., F.A.C.S., Harry Zimmerman, M.D., F.A.C.S.; Professorial Lecturer Arnold Schwyzer, M.D., F.A.C.S.; Instructors Arthur F. Bratrud, B.S., M.D., F.A.C.S., Orwood J. Campbell, B.S., M.D., Richard R. Cranmer, M.D., F.A.C.S., C. Donald Creevy, M.D., M.S., Philip F. Donohue, B.S., M.D., L. Haynes Fowler, B.A., M.D., William A. Hanson, B.S., M.D., Victor P. Hauser, B.A., B.S., M.D., Harold E. Hullsiek, B.S., M.D., Thomas J. Kinsella, B.S., M.D., F.A.C.S., Frederick A. Olson, M.D., M.S., F.A.C.S., Olof A. Olson, M.D., Edward A. Regnier, B.S., M.D., Willard D. White, B.S., M.D., Oswald S. Wyatt, B.S., M.D.; Research Assistant Rudolph W. Koucky, B.S., M.D.; Assistants James Kerr Anderson, B.A., M.D., John M. Culligan, Litt.B., M.D., M.S., F.A.C.S., D. Greth Gardiner, B.A., B.S., M.D., Leo T. Murphy, B.S., M.D., Warner Ogden, B.A., M.D.; Teaching Fellows Herbert A. Carlson, B.S., M.D., Harold J. Dvorak, M.S., M.D., Earl C. Henrikson, B.S., B.A., M.D.; N. Logan Leven, B.A., B.S., M.D.; Melville H. Manson, B.S., M.D., Charles H. Mead, M.A., M.D., Carl O. Rice, M.D., Horace G. Scott, B.A., B.S., M.D.

DIVISION OF ORTHOPEDIC SURGERY

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

## DIVISION OF UROLOGY

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

## DIVISION OF ANESTHESIA

Assistant Professor Ralph T. Knight, M.A., M.D., Director.

## DIVISION OF GENERAL SURGERY

## REQUIRED COURSES

- 21f. Principles of Surgery. A study of the basic principles of surgery, including anesthesia, antiseptics, a sepsis, hemostasis, inflammations, and the process of the repair in tissues. Lectures and demonstrations. Fifth year.<sup>1</sup> 33 hours. Dr. Peyton, Dr. Creevy.
- 22f,w,s. Fracture Divisional Clinic. Fifth year. 17 hours per student. Dr. Zierold, Dr. Robitshek, Dr. Campbell, Dr. Regnier, Dr. White.
- 26f,w. Orientation Course in General Surgery. A series of clinical lectures on regional surgery (exclusive of urologic and orthopedic surgery), emphasizing pathology, diagnosis, and essentials of treatment. These lectures attempt to orient the student in his study and reading. Fifth year. 44 hours. Surgical staff.
- 28f,w,s. Diagnostic and Operative Clinic. Fifth year. 17 hours for each student. Ancker Hospital. Dr. Colvin and associates.
- 29f,w,s. Surgery Clinic for Juniors. Amphitheater clinic demonstrating surgical conditions in hospital patients. Fifth year. 33 hours. Required three quarters. Dr. Wangenstein and others.
- 30su,f,w,s. Surgery Clinic for Seniors. Amphitheater clinic demonstrating surgical conditions in hospital patients. Sixth year. 55 hours required of each student. Dr. Wangenstein and others.
- 35su,f,w,s. Clinical Clerkship. The personal study of assigned patients; case histories, laboratory examinations, provisional diagnoses with suggestions as to therapy; attendance at operation of such studied cases and observation of postoperative management. Participation in operations of assigned classes as third assistant. Sixth year, 300 hours. University Hospital. Surgical staff.
- 35usu,f,w,s. Reading Course. A weekly recitation during the clerkship period on assigned surgical reading, with a standard textbook of surgery as a guide. Quiz and lecture. Part of Course 35. Surgical staff.
- 35vsu,f,w,s. Anesthetics and Dressings. Administration of anesthetics under supervision and dressing of wounds of hospital patients under

<sup>1</sup> Fourth year, beginning 1932-33.

supervision of hospital staff. Part of Course 35. University Hospital. Dr. Knight, and others.

- 35wsu,f,w,s. Minor Surgery Clinic, Including Proctology. Sections daily in the Out-Patient Department; a part of Course 35. Sixth year. Dr. Hayes, Dr. McKinney, Dr. Bratrud, Dr. J. K. Anderson.
- 35xsu,f,w,s. Clinical Clerkship. The personal study of assigned patients: case histories, laboratory examinations, provisional diagnoses with suggestions as to therapy; attendance at operation of such studied cases and observation of postoperative management. Participation in operations of assigned cases as third assistant. Part of Course 35. Minneapolis General Hospital. Surgical staff.
- 35ysu,f,w,s. Clerkship on Fractures. Under the supervision of the hospital staff the student participates in the care of fractures. Part of Course 35. General Hospital. Staff.
- 35zsu,f,w,s. Tumor Clinic. Diagnosis and demonstration of malignancies removed at operation and autopsy. Sixth year. One division each quarter. Part of Course 35. Staffs of the Departments of Surgery and Pathology.

#### ELECTIVE COURSES

(Fifth or Sixth Year)

- 52su,f,w,s. Tumor Diagnosis. Personal study of patients who come to the Out-Patient Department. 22 hours. Dr. Peyton and others.
- 53su,f,w,s.<sup>1</sup> Problems in Clinical Investigation. A study of special case records correlated with literature study. Hours and credits arranged. Dr. Wangenstein, Dr. Peyton, Dr. Creevy.
- 56f,w,s. Bedside Clinic. 11 hours. General Hospital. Dr. Robitshek.
- 59s. Traumatic Surgery Clinic. 11 hours. General Hospital. Dr. Zierold.
- 67su,f,w,s.<sup>1</sup> Problems in Experimental Surgery. Students under supervision will investigate problems assigned them. As their experience increases they are permitted to do a major portion of the operations incident to their problems. Prerequisite, Surgery 53. Hours and credits arranged. Dr. Wangenstein, Dr. Peyton, Dr. Creevy.
- 68s. Applied Surgical Anatomy. Application of anatomy to diagnosis; operative procedures done on cadavers. Dr. Peyton, Dr. Evans, Dr. Fowler.

For other courses see Graduate School Medical bulletin.

#### DIVISION OF ORTHOPEDIC SURGERY REQUIRED COURSES

- 40f,w,s. Orthopedic Surgery. A course of clinical lectures, demonstrations, and operations conducted in each quarter. Fifth year. 22 hours. Gillette State Hospital, Phalen Park. Dr. Cole, Dr. Chatterton, and others.
- 41su,f,w,s. Orthopedic Clinic. Conducted in the Out-Patient Department; a

<sup>1</sup> Student must obtain permission of department before registering.

part of required section clinics. Sixth year. Part of Course 35. Dr. Evans.

- 42s. Orthopedic Surgery. A course of lectures covering orthopedic conditions in the adult; lantern slides and demonstrations. Fifth or sixth year. 11 hours. Dr. Cole, Dr. Geist, Dr. Reed, Dr. Evans.

#### DIVISION OF UROLOGY

##### REQUIRED COURSES

- 46w. Genitourinary Diseases. The etiology, diagnosis, and treatment of this group of diseases. A course of lectures. Fifth year. 18 hours. Dr. Wright.
- 47su,f,w,s. Urologic Diagnosis and Cystoscopy. Half division clinic. Fifth year. 17 hours. Ancker Hospital, Dr. Foley; University Hospital, Dr. Wright and others.
- 49su,f,w,s. Genitourinary Clinic. The observation, examination, and treatment of patients in the Out-Patient Department. Sixth year. Part of Course 35. Dr. Wethall, Dr. Creevy.

##### ELECTIVE COURSES

- 60f,w,s. Urologic Clinic. Fifth or sixth year. 17 hours. Minneapolis General Hospital. Dr. Owre.
- 64su,f,w,s. Night Clinic in Urology. (Venereal Diseases.) 33 hours. University Dispensary. Dr. Wethall.

#### DIVISION OF ANESTHESIA

##### REQUIRED COURSE

- 35v. Individual Instruction in Anesthesia. Part of surgical clerkship. Surgery 35. Dr. Knight, and others.

#### UNIVERSITY HOSPITAL

(With Departmental Status)

Paul Fesler, Superintendent, with rank of Department Head.

#### DIVISION OF NURSING INSTRUCTION

See School of Nursing.

#### DIVISION OF DIETETICS

Gertrude I. Thomas, Director.

For courses see Nursing School bulletin and special circular.

#### DIVISION OF HOSPITAL SOCIAL SERVICE

Instructors Frances M. Money, Ph.B., M.S., Director; Annie L. Baker, M.A., Lydia B. Christ, B.A., Grace Gardner, M.S., Mathilda Mathisen,



M.S., Mary A. Stites, M.A.; Staff Workers Helen Eaves, B.S., Carmen Frazee, B.S.

The Hospital Social Service Department provides field work for medical-social students in the Training Course for Social and Civic Work. Field work is given to a few undergraduates but mainly to graduate students.

For a statement of courses see bulletin of the College of Science, Literature, and the Arts, and special bulletin of the Training Course for Social and Civic Work.

### SCHOOL OF NURSING

(With Departmental Status)

Professor Katharine J. Densford, M.A., R.N., Head and Director; Assistant Professors Dorothy Kurtzman, R.N., O'ena Ordahl, R.N., Elizabeth Reynolds, B.S., R.N., Barbara Thompson, R.N.; Instructors Phoebe Gordon, B.A., Ethel Gough, B.S., Eva Gregerson, Mildred Hagstrom, B.S., Cecilia Hauge, B.S., R.N., Melda Korfhage, B.S., R.N., Mabel Larson, R.N., Julia Miller, R.N., Sena Peterson, R.N., Lucile Petry, M.A., R.N., Mary C. Sands, B.S., R.N., Esther Thompson, M.A., R.N., Helen Torgerson, B.S., R.N.

For courses for nurses see bulletin of the School of Nursing.

### ELECTIVE COURSE

60. Nursing Practice for Medical Students. Demonstrations and conferences on the more common nursing procedures and their adaptation in the home.

### THE SCHOOL OF CHEMISTRY

For faculty, see Science, Literature, and the Arts bulletin

#### DEPARTMENT OF PHYSICAL CHEMISTRY

(Required course in the Medical School)

- 110f. Physical Chemistry. Designed chiefly for medical and biological students. 3 credits. Prerequisite, 7. Mr. Taylor.

For other courses in chemistry which may be elected for credit in the Medical School see bulletin of the School of Chemistry.

### DEPARTMENT OF MILITARY SCIENCE AND TACTICS, R.O.T.C.

Assistant Professor Major William G. Guthrie, M.D., U.S.A. (Medical Corps), Head.

This department contributes elective courses to the Medical School and leads to a certificate of proficiency in military science and tactics—medical, which qualifies for appointment and commission in the Medical Officers Reserve Corps, U. S. Army. The course is progressive and as a whole is intended also to aid the student in his preparation for citizenship. B stands for basic, A for advanced courses.

- B-1f. Elements of Military Science. An introductory course to familiarize the student with the more necessary fundamentals of military science and organization of the Medical Department. For freshmen only. 33 hours; 3 credits. Major Guthrie.
- B-2s. Medical Tactics. A theoretic course in organization and tactics, preparatory to completion of this training by practical work in camp. For sophomores only. 33 hours; 3 credits. Major Guthrie.
- A-1w. Military Hygiene and Sanitation. A theoretic course in the essentials of military hygiene and sanitation, to supplement the practical training in camp and in the Department of Public Health and Preventive Medicine. For juniors only. 33 hours; 3 credits. Major Guthrie.
- A-2s. Medical Administration. A theoretic and practical course to train the student in medico-military administration with special reference to hospitals and hospitalization methods and also includes surgical and medical diseases peculiar to war, methods of gas defense, and miscellaneous medico-military subjects. For seniors only. 33 hours; 3 credits. Major Guthrie.
- A-1su. Field Service. A practical course at an army camp in hygiene and sanitation, medical tactics, administration, drill command, of six weeks' duration. Summer quarter following sophomore year. 180 hours. Major Guthrie.

### INTERDEPARTMENTAL INSTRUCTION

In charge of Dr. W. A. O'Brien, Associate Professor of Pathology

#### CORRELATION CLINICS

Recognizing the trend in educational practice of correlating fundamental and applied knowledge, the Medical School offered one hour weekly clinics in applied anatomy in the winter quarter of the freshman year in 1920. Since then, regular weekly clinics have been held for both the freshman and sophomore classes. The aim is to emphasize the condition of various patients in terms of the fundamental sciences. During the coming year, the program will be as follows:

Freshman year: Fall quarter, General Introduction, Dr. O'Brien; Winter, Anatomy, Dr. W. T. Peyton; Spring, Physiologic Chemistry, Dr. O'Brien.

Sophomore year: Fall quarter, Neurology, Dr. J. C. McKinley; Winter, Physiology and General Pathology, Dr. O'Brien; Spring, Special Pathology, Dr. M. Barron.

These courses, one hour a week respectively; no credit.

#### COURSE IN MEDICAL ETHICS AND ECONOMICS

Through the courtesy and efforts of the Medical Alumni Association a course of lectures on ethics, economics, and related subjects is offered yearly. Members of the profession particularly informed on these important

aspects of practice offer the benefit of their experience. The course includes about ten lectures, and is unofficial and without credit. Attendance is, however, expected on part of all senior students. Dr. S. B. Solhaug is in charge.

### AGRICULTURAL BIOCHEMISTRY

(Contributing elective courses to the Medical School)

Professors Ross A. Gortner, Ph.D., Chief; Leroy S. Palmer, Ph.D.; Associate Professor Cornelia Kennedy, Ph.D.; Assistant Professor W. Martin Sandstrom, Ph.D.

111f-112w. Biochemistry. Advanced course dealing with the colloidal state, and the chemistry of proteins, carbohydrates, glucosides, tannins, fats, acids, enzymes, and pigments, and their physicochemical relations to the vital processes involved in growth and nutrition. Prerequisites, organic chemistry and zoology (1 year) or botany (1 year). 3 credits each quarter; lect. MWF III; Th VI. Dr. Gortner.

113f-114w-115s. Biochemical Laboratory Methods. A laboratory course paralleling the lectures in 111-112, using recent methods for the investigation of biologically important compounds, with especial reference to the detection and estimation of such compounds in cells or tissues. Prerequisite, Quantitative Analysis, parallel 111-112. 2 credits each quarter; T VI, VII, VIII; Th VII, VIII, IX. Dr. Sandstrom.

116w. Advanced Animal Nutrition. Lectures and assigned readings on recent developments in animal nutrition, covering the field of proteins, mineral metabolism, vitamins, and the relation of nutrition to disease. Prerequisite, 111 or physiologic chemistry; 3 credits. TThS III. Dr. Palmer, Dr. Kennedy.

206f. Colloids. Lectures dealing with the colloidal state, the preparation and properties of colloidal solutions, and the relation of these to biochemical processes. Prerequisites, Course 111-112, or physical chemistry. 3 credits; MWF II. Dr. Gortner.

207s. Enzymes. Lectures dealing with the nature of enzyme action, including methods of preparation and investigation of enzymes, their physical and chemical properties and their methods of action. Prerequisites, Course 111-112, or physiologic chemistry. 3 credits; MWF III. Dr. Sandstrom.

208w.<sup>1</sup> Proteins. Lectures on the composition, structure, biochemical reactions, and functions of the protein and amino acids. Prerequisite, Course 111-112, or physiologic chemistry. 3 credits; MWF III. Dr. Gortner.

### DEPARTMENT OF ZOOLOGY

For faculty, see Science, Literature, and the Arts bulletin

(Contributing elective courses to the Medical School)

107f-108w. Protozoology. Lectures, reference, and laboratory work on the structure and life history of Protozoa. Special reference is paid to the

<sup>1</sup> Offered in alternate years. Offered in 1931-32.

- relations of the Protozoa to diseases of animals. 3 credits each quarter. TThS I, II. Dr. Sigerfoos.
- 144f,s-145w-146s. Animal Parasites and Parasitism. Lectures and laboratory work. Origin and biological significance of parasitism, and the structure, life-history, and economic relations of representative parasites. Second term devoted primarily to relations of insects to diseases of man and animals. 3 credits each quarter. WF VI, VII, VIII. Dr. Riley.
- 181f-182w. Embryology. A survey of the principles of animal development dealing with fundamental invertebrate and vertebrate types. Lectures, reference and laboratory work. 3 credits each quarter. TTh VI, VII, VIII. Dr. Ringoen.
- 183s. Genetics and Eugenics. Facts and theories of heredity and application to man. 3 credits. TThS III. Dr. Wodsedalek.

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

*Course in Medical Technology*  
*for*  
*Laboratory Technicians*  
**1930-1932**



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## COURSE IN MEDICAL TECHNOLOGY

The University of Minnesota offers a four-year course in Medical Technology. Graduates of accredited high schools may enter at the beginning of any quarter. The rules for admission and registration are those of the College of Science, Literature, and the Arts. The first two years are essentially the same as the pre-medical requirement. The last two years are spent in the Medical School and laboratories of the University Hospitals. No short course is offered. Opportunities for practical work are limited to regularly enrolled students at the University who have completed the prerequisites as outlined in this bulletin.

*Credits and honor points.*—At least 90 credits, including physical education and military drill with an average of one honor point per credit, shall be earned in the first two years (Science, Literature, and the Arts), and 90 credits and 90 honor points in the last two years (Medical School).

*Degrees.*—Upon satisfactory completion of the prescribed course the degree of bachelor of science will be conferred by the Board of Regents.

*Requirements.*—Well-trained laboratory technicians are in demand. Positions may be secured in physicians' offices, clinics, hospitals, research laboratories, and medical schools. As a general rule a student, who is able to do things with her hands, likes routine work, and excels in scientific subjects, will make a good technician. Ability to cook and sew is an excellent asset for would-be technicians. Men are not advised to take the course because of limited opportunities for employment at the present time. The regular course in medicine, followed by graduate study, is advised for men and women who wish to become pathologists. Students desiring to specialize in bacteriology, anatomy, parasitology, hematology, or chemistry are advised to do graduate work as fellows (see bulletin of Graduate School) after completion of the course in medical technology.

*Course.*—The following guide has been prepared for the assistance of the student in registering. The committee in charge consists of William A. O'Brien, M.D., chairman, W. P. Larson, M.D., and S. Marx White, M.D. Further information may be obtained by addressing the chairman at the University Hospitals, University of Minnesota, Minneapolis, Minnesota.

*Advanced standing.*—Students who have completed required subjects elsewhere may receive advanced standing. Transcripts of such records should be sent to the university examiner, University of Minnesota, for approval before attempting to register.

*Abbreviations.*—(S.L.A.) Science, Literature, and the Arts College, (M.S.) Medical School refer to special school bulletins where detailed information is to be found. Consult the bulletin of general information for fees, estimated living expenses, registration details, etc.

Before registering be sure to note prerequisites.

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

The required courses are listed below. High school physics is a prerequisite, but Physics 11, Survey of Physics, may be taken after admission.

- |   |   |
|---|---|
| 1. English A-B-C, or Composition 4-5-6, or exemption from requirement | 5. Organic Chemistry 1-2                              |
| 2. Zoology 5-6-7 or 1-2 and 3-4, 24 <sup>1</sup> , 25 <sup>1</sup>    | 6. A reading knowledge of Scientific French or German |
| 3. Inorganic Chemistry 1-2-3 or 4-5; 11                               | 7. Bacteriology 41 <sup>1</sup>                       |
| 4. Analytical Chemistry 7   | 8. Human Physiology 4 <sup>1</sup>                    |
1. (S.L.A.) English: Freshman Composition 4f-5w-6s, 9 credits, or Freshman English Af-Bw-Cs, 15 credits, or exemption from requirement. (See special announcement.)
  2. (S.L.A.) Zoology: General Zoology 1f-2w (3f-4w) 10 credits, or 5f-6w-7s, 12 credits.
  3. (S.L.A.) Chemistry: (a) General Inorganic Chemistry 1f-2w-3s, 12 credits, or 4f-5w, 8 credits; (b) Qualitative Chemical Analysis 11f,s, 4 credits; (c) Quantitative Analysis 7f,w,s, 4 credits; (d) Elementary Organic Chemistry 1f-2w, or 1w-2s or 1s-2f, 8 credits.
  4. (S.L.A.) Physics: High school physics is a prerequisite, but Physics 11s, 3 credits, may be taken as a substitute after admission.
  5. (S.L.A.) Foreign Language: French or German, reading knowledge of medical literature, scientific French 8, 9, and 10 (any two) or by transfer of credits from elsewhere (15 credits of French, grade C) followed by special examination; German 31-32, or two years of college German or equivalent.
  6. (S.L.A.) *Electives*.—  
Sociology and Social Work: Introduction to Sociology 1f,w,s, 5 credits.  
Psychology: German Psychology 1f-2w or 1w-2s, or 1s-2s, 6 credits.  
Anatomy: Human Anatomy 5s, 4 credits, and others.
  7. (S.L.A.) Physical education and military drill, swimming tests, etc. (See special requirement.)
  8. (S.L.A.) The following subjects in the Medical School should be taken in the sophomore year if possible: (1) Zoology 24f, (2) Zoology 25w, (3) General Bacteriology 41f,w,s, (4) Human Physiology 4f,w,s. This allows the student to spend the entire senior year in practical work which is very desirable. Electives may be postponed until the junior year if they interfere with this program.

<sup>1</sup> Need not be taken during the first two years.

## THE MEDICAL SCHOOL

1. (S.L.A.) Zoology: Introduction Animal Parasitology 24f, 5 credits.
2. (S.L.A.) Zoology: Histology 25w, 5 credits. (Prerequisite to Hematology.)
3. (M.S.) Bacteriology: General Bacteriology 41f,w,s, 5 credits.
4. (M.S.) Physiology: Human Physiology 4f,w,s, 4 credits.
5. (M.S.) Anatomy: Hematology 165f-166w, 6 credits.
6. (M.S.) Bacteriology: Special Bacteriology for Medical Students 101f, 4 credits.
7. (M.S.) Bacteriology: Immunity 116w, 3 credits.
8. (M.S.) Human Physiology: Physiological Chemistry 100w-101s, 10 credits.
9. (M.S.) *Electives*.—  
Preventive Medicine and Public Health: Public and Personal Health 50f,w,s, 3 credits.  
Physiology: Pathological Chemistry 155f, 156w, 157s, 3 credits a quarter.
10. (M.S.) Practical Work: Blood, urine, feces, gastric analysis, blood chemistry, spinal fluid, tissues, electrocardiography, bacteriology, serology, basal metabolism, radiology in the laboratories of the University Hospitals. Arrange with Dr. O'Brien. 3 quarters, 45 credits.



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

*The School of Mines and Metallurgy*  
*Announcement for the Years*  
**1932-1934**



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## FACULTY

### ADMINISTRATION

Lotus Delta Coffman, Ph.D., LL.D., President  
William R. Appleby, M.A., Dean of the School of Mines and Metallurgy  
Elting H. Comstock, M.S., Chairman of Students' Work and Advanced Standing Committees

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### DRAWING AND DESCRIPTIVE GEOMETRY

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### ELECTRICAL ENGINEERING

Professor John M. Bryant, M.S., E.E.; Assistant Professor Milo E. Todd, B.A.(E.E.)

### EXPERIMENTAL ENGINEERING

#### *Mathematics and Mechanics*

Professor William E. Brooke, B.C.E., M.A.; Assistant Professor Forrest E. Miller, M.S.(Agr.E.)

#### *Mechanical Engineering*

Professors Frank B. Rowley, B.S., M.E., Charles F. Shoop, B.S., B.S.(M.E.)

### GEOLOGY AND MINERALOGY

Professors William H. Emmons, Ph.D., Frank F. Grout, Ph.D., Clinton R. Stauffer, Ph.D.; Associate Professors John W. Gruner, Ph.D., George M. Schwartz, Ph.D., George A. Thiel, Ph.D.; Instructor Carl E. Dutton, M.S.

### MECHANICAL ENGINEERING

Professor John R. DuPriest, B.S.(E.E.), M.E., M.M.E.; Associate Professor Charles A. Koepke, M.S.(M.E.)

### METALLURGY

Professors William R. Appleby, M.A., Peter Christianson, B.S., E.M., Ralph L. Dowdell, Met.E., Ph.D., Levi B. Pease, M.S.; Assistant Professor John N. Searles, E.M., M.S.; Instructors Arthur C. Forsyth, Met.E., M.S., Myron W. Griswold, E.M.; Henry S. Jerabek, M.S., Assistants Walter Guleson, Met.E., Donald H. Ruhnke, Met.E.

## MILITARY SCIENCE AND TACTICS

Professor John H. Hester, Major, Infantry; Assistant Professors William G. Guthrie, Major, Medical Corps, Willis Shippam, Major, Coast Artillery Corps, Theron G. Methven, Major, Infantry, William C. Webb, Jr., Major, Dental Corps, William A. Ellis, Captain, Infantry, Porter P. Wiggins, Captain, Infantry, Hammond D. Birks, Captain, Infantry, Murray T. Davenport, Captain, Infantry, Emil Krause, Captain, Infantry, Rex W. Minckler, Captain, Signal Corps, Richard A. Ericson, 1st Lieutenant, Coast Artillery Corps, Vincent J. Conrad, 1st Lieutenant, Infantry, Hewitt W. Richmond, 1st Lieutenant, Coast Artillery Corps, Harlan N. Hartness, 1st Lieutenant, Infantry; Instructors Alfred Brandt, Master Sergeant, Infantry, Retired, Harry E. Strider, Master Sergeant, Signal Corps, Aubrey R. Dunkum, Technical Sergeant, Coast Artillery Corps, Roy Cunningham, Staff Sergeant, Infantry, Ernest R. Mylk, Sergeant, Coast Artillery Corps, Arley V. Buckner, Sergeant, Infantry, Clayton A. Peterson, Sergeant, Infantry

## MINE PLANT AND MECHANICS

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

## MINING

Professor Walter H. Parker, E.M.; Instructor Stanley A. Trengove, E.M.

## MINING ENGINEERING

Professor Edwin M. Lambert, M.E.

## PETROLEUM ENGINEERING

Professors Walter H. Parker, E.M., Peter Christianson, B.S., E.M., Elting H. Comstock, M.S.; Instructor Stanley A. Trengove, E.M.

## PHYSICS

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

## GENERAL INFORMATION

The School of Mines and Metallurgy was established by the Board of Regents in 1888, upon recommendation of the general faculty of the University. The buildings and laboratories of the school are located on the main campus of the University. The mining districts of Minnesota are within a few hours, by rail, of Minneapolis. The heartiest co-operation exists between the various mine managements and the school, so that the mining properties are at all times open to parties from the school for observation and study trips. Practical surveying, geological field work, and underground work are carried on in one or more of the districts. Students in the School of Mines and Metallurgy have, therefore, all the advantages afforded by a large university combined with ample opportunity for field observation and experience.

The School of Mines and Metallurgy occupies the building provided by the Legislature of 1913. In the basement are the assay and electro-metallurgical laboratories, together with machinery room, instrument room, balance room, furnace rooms, and necessary storerooms. On the first floor are the administrative offices, the offices and lecture rooms of the departments of Metallurgy and Mine Plant and Mechanics. On the second floor are the lecture rooms and drafting rooms of the Department of Mining, the ore dressing laboratory, and the library of the school. On the third floor are the offices, laboratories, and lecture rooms of the Department of Metallography, Department of Mining Engineering, junior drafting room, dark rooms, blue printing room, and offices and computing rooms for the branch of the experiment station serving the Tax Commission.

### DEGREES

In the School of Mines and Metallurgy there are four regular courses of study, viz., Mining Engineering, Mining Engineering specializing in Geology, Mining Engineering specializing in Petroleum, and Metallurgy, leading to the degrees of engineer of mines (E.M.), engineer of mines in geology (E.M.[Geology]), engineer of mines in petroleum (E.M.[Petroleum]), and metallurgical engineer (Met.E.), respectively.

Students in the College of Science, Literature, and the Arts, in the College of Engineering and Architecture, and in the School of Chemistry, who contemplate taking a degree in this school after completing their course, are recommended to select their electives with reference to as full a preparation as possible for the technical work of the course they propose to enter.

### CLASSIFICATION OF SUBJECTS

The work falls under the following subdivisions, supplemented by thoro courses in mathematics, mechanics, surveying, physics, chemistry, and the necessary theory and practice of structural, mechanical, and electrical engineering.

(a) *Geology*—to determine the location of the ore. (b) *Mineralogy*—to determine its nature. (c) *Assaying*—to determine whether or not it has

value for treatment. (d) *Mining engineering*—to furnish material for treatment. (e) *Mine plant*—to provide the physical equipment for mining and treating the ore. (f) *Ore testing*—to determine best methods of treatment. (g) *Ore dressing*—to furnish products for metallurgical treatment. (h) *Metallurgy*—to smelt and refine ores and ore dressing products; reduction to metals. (i) *Metallography*—to study metals and their alloys.

#### EXPERIMENT STATION

The School of Mines and Metallurgy Experiment Station was established in 1911 and is maintained to promote the development of the mining and mineral resources of the state; to assay specimens of ores, rocks, clays, and minerals; to make such assays free of charge for private parties subject to such regulations as the Board of Regents may deem necessary; to make mining and metallurgical experiments in the treatment of such substances and in the utilization of mining and metallurgical by-products; to investigate methods of mining and the use of explosives; to undertake such other mining and metallurgical problems as may seem desirable; to make all ore estimates for the Tax Commission, and to do such other work along the lines above outlined as may be requested by other state departments. Co-operation has been effected with the United States Bureau of Mines, the United States Geological Survey, the Minnesota Geological Survey, and the School of Chemistry.

The experiment station is prepared to assist citizens interested in these lines of work and to assay specimens of ore, rocks, clays, and minerals found within the state, free of charge.

In submitting samples the sender must state the exact location in which each sample was found, giving all possible additional information. This information, together with results of any test or analysis, will be on file and available to the public at the office of the station. Citizens desiring free assay privileges must agree to give accredited representatives of the School of Mines and Metallurgy Experiment Station and of the Geological Survey access to the property should they desire to visit the same for purposes of examination and geological study.

Correspondence will receive prompt attention, but consultations generally prove more satisfactory.

Each sample should be numbered for identification and bear the name and address of the sender. All shipments must be delivered to the Minnesota School of Mines and Metallurgy, charges prepaid. Shipping tags will be furnished upon request.

Address all communications to William R. Appleby, Director, Minnesota School of Mines and Metallurgy Experiment Station, the University of Minnesota, Minneapolis, Minnesota.

#### ADMISSION

The courses leading to the degrees of engineer of mines, engineer of mines (in geology), engineer of mines (in petroleum), and metallurgical engineer may be completed in four years.

Freshmen will be divided into two sections as follows:

- a. Those entering with credits in higher algebra and solid geometry.
- b. Those entering without credits in higher algebra and solid geometry.

Students in section b will carry a special course in mathematics during their freshman year.

Details as to admission and entrance requirements, description of subjects accepted for admission, and list of fees and expenses will be found in the bulletin of general information, which will be sent to any address upon application to the registrar, University of Minnesota, Minneapolis.

#### UNCLASSED STUDENTS

No unclassified students will be admitted to the School of Mines and Metallurgy.

#### ADMISSION TO ADVANCED STANDING

Students who desire to obtain advanced standing must present their applications and certificates to the department concerned, obtain a written statement from the department, showing the exact credit allowed, and present this to the Advanced Standing Committee of the School of Mines and Metallurgy.

#### CREDIT FOR OUTSIDE WORK

Credit for certain courses, as a result of work done outside of the regular classes, may be obtained by satisfactorily passing comprehensive examinations.

Work done outside of class includes work done by correspondence, by the aid of a private tutor, by individual study, through practical experience, or otherwise.

The comprehensive examination will be conducted by a committee appointed by the head of the department in which the course is given.

Permission to take the examination must be obtained from the Students' Work Committee, and the usual fee of \$5 for a special examination must be paid unless it be taken within six weeks after first entering the University.

#### FEEES

Tuition fee (per quarter)	
Residents of Minnesota .....	\$30.00
Non-residents .....	40.00
Incidental fee (per quarter) .....	6.00
Matriculation deposit* (first quarter only) men .....	15.00
Special fees	
Examination for removal of condition .....	1.00
Examination for credit (after the first six weeks in residence) .....	5.00
Special examination .....	5.00
Chemistry deposit .....	5.00
Graduation fee .....	10.00

Certain courses have laboratory fees. Such fees are indicated in the Description of Courses later in this bulletin.

\* Such charges as may be incurred for lockers, library penalties, laboratory breakage, etc., will be deducted from the amount of this deposit and the balance will be refunded by mail upon graduation or after the beginning of the first quarter the student fails to return to the University.

*Penalty Fees*

A penalty fee for late registration, late change of registration, or late payment of fees shall be \$2 prior to the day classes begin, on and after which the penalty increases at the rate of \$1 per day, provided that no student shall pay more than \$10 of penalty in any given quarter.

## COST OF FIELD TRIPS

The approximate cost of the field trips is \$125 for the northern trip taken at the end of the sophomore year and \$200 for the western trip taken at the end of the junior year.

## FIELD WORK

## MINE SURVEYING

The work in surveying is given in the sophomore year and is designed primarily for mining engineers. The work begins with the elements of plane surveying, with special reference to the computations necessary, followed by the higher theoretical work in plane surveying and its application to the problems met in underground surveying. Beginning about May 1, the class devotes seven weeks to field work at some convenient point on the Mesabi, Cuyuna, or Vermilion Range. The exact location will be announced in March of each year. The expenses for this trip are estimated at \$125.

The students will be divided into squads of two to four. Each student will be required to complete satisfactorily a practical course in plane and underground surveying including exercises in chaining and taping; adjustment and use of surveying instruments, solar and stellar observations; laying out railroad tangents and curves; making earthwork estimates; solving three-point problem by use of a plane table; and other problems. In addition each squad will be required to make a yardage estimate of the stripping of an open-pit mine; to transfer a meridian, from the surface, underground and make a complete survey of an underground mine.

The data obtained will be used in the course in mine mapping during the winter quarter of the junior year, and credit for field work is withheld until maps of the underground survey are satisfactorily completed.

A full equipment of surveying instruments of the latest and best types is furnished each squad for this work.

## SOPHOMORE GEOLOGY

At the end of the sophomore year mining students are required to devote about two weeks to geologic mapping. This course usually comes after a seven-week course in surveying and the fields chosen are the Vermilion and Mesabi iron ranges of Minnesota. This work is intended to train the students in the interpretation of field relations and the preparation of geologic maps and cross sections.

## JUNIOR MINING, METALLURGY, AND PETROLEUM ENGINEERING

At the end of the junior year students are required to study plants and operations in one or more districts under the direction of members of the faculty. This work begins about May 15, and not over three weeks will

be devoted to it. The work in mining and metallurgy is carried on in the leading western metal mining districts, that in petroleum engineering in the leading oil fields. The exact location will be announced in March of each year. The expenses for the trip are estimated at \$200. A deposit of \$50 must be made before starting on the trip to cover board and lodging and necessary side trips. Any balance will be returned at the close of the work in the field.

All notes, data, and sketches, necessary for a complete report on the field work, must be fully and neatly recorded in notebooks. These notebooks will be collected at the close of the trip and returned to the student at the reopening of field work at the school. In judging the character of the student's field work, equal importance will be attached to the completed report and to the original field notes. The departments reserve the right to reject notebooks considered below the standard that should be demanded of candidates for senior work. During the months of June, July, and August, the student is urged to spend at least six weeks in actual work in some district for which he may receive wages. The department will render all possible assistance in locating students in districts of their choice.

Field work will reopen at the School of Mines and Metallurgy on Monday of Freshman Week for a period of three weeks. No senior will be registered after that date. A limited program will be carried in addition to field work after the regular university class work starts.

The final reports covering field work must be prepared at the School of Mines and Metallurgy under the direct supervision of the department concerned. This report must be typewritten and contain drawings, to scale, made from the field sketches, covering operations, and details of plant and equipment. These reports shall become the property of the school. Class work in the remaining subjects of the first quarter, senior year, will begin when the final field work reports are accepted.

#### JUNIOR GEOLOGY

The second field course in geology is required only of those students who are candidates for the engineer of mines (in geology) degree. The course begins early in May and is completed in June. The course requires altogether about six weeks' work, and the field chosen is the Black Hills region of South Dakota or some other western region. The expenses of the trip are estimated at \$200. The student is trained in interpretation of field data; in detailed mapping, underground and on the surface; in the preparation of geologic cross sections through mines; and he may gather material which will serve as a basis for future study in advanced courses the following year. The work conforms to the standards of official surveys as nearly as practicable. In preparation for the trip a lecture of one hour per week will be scheduled for part of the third quarter preceding the trip. At the close of the field season the students are expected to obtain positions with mining companies either as miners or as engineers, or if openings are available, they may enter geological surveys for the season's work.

The completion of sophomore and junior field work is a requisite for graduation, and satisfactory evidence thereof must be submitted to the



department. Should a student, for sufficient reason, fail to complete this work in regular course, he may, with the consent of the department, be permitted to pursue his regular studies. In all such cases, however, the degree will be withheld until all field work is completed.

#### THESIS

The thesis work is intended to bring in review and connect the work in mining and metallurgy, geology and mineralogy, mechanical and electrical engineering, mathematics and mechanics.

It has been found that this purpose is most satisfactorily accomplished by assigning to each student a project, embracing the prospecting, development, and equipment of a group of mining claims, for candidates for the degree of engineer of mines; the investigation of a problem in mining geology, for candidates for the degree of engineer of mines (in geology); the investigation of an oil field problem, for candidates for the degree of engineer of mines (in petroleum); and the investigation of a metallurgical or metallographic problem, for candidates for the degree of metallurgical engineer.

As much latitude as possible will be allowed the student in the choice of his problem. He must select a suitable problem during the summer preceding the senior year. Outlines are furnished setting forth the lines of investigation necessary to obtain the required data. The junior field work affords opportunity therefor.

Prior to October 25 each student is required to submit to the department concerned an outline embodying the principal features of the problem. Unless this outline is submitted when due and is accepted by the department, registration for the first semester, senior year, may be cancelled.

All preliminary work must be done and final work on the project must be under way by December 1. On April 7 the text of the thesis must be completed and submitted for final approval. Completed work (typewritten and bound) together with all tracings and one set of clear blue prints therefrom must be in and accepted not later than April 27. Theses will not be accepted or examined after these dates. Unless the above conditions are complied with no student can expect to graduate with his class.

These theses shall become the property of the school.

#### GRADUATION

Students completing courses of study to the satisfaction of the faculty are entitled to receive the appropriate degrees. Any person may undergo, at suitable times, examination in any subject. If such person pass in all the studies and exercises of a course, he is entitled to the appropriate degree, provided that at least the full year be spent at the University before such degree shall be granted, and provided the examination in every case be held before a committee of the faculty appointed for that purpose.

Seniors must be in regular attendance at all classes until after the final examination for the third quarter. Irregular attendance will debar a student from entering all final examinations.

## SPECIAL NOTES

Students failing to receive a quarter mark of 75 per cent in any subject shall have the privilege of a supplementary examination before the opening of the following year.

Each student must obtain from the registrar his average in all subjects and present himself for supplementary examinations, according to the program to be found in a booklet on examinations issued during the summer.

Failure of the registrar to notify a student of deficiencies will not be accepted as a reason for neglecting to report for necessary supplementary examinations. Students failing to report for supplementary examinations will be compelled to take work over in class as in case of failures.

Students having deficiencies in any subject will become members of the class in which such subject is a part of the program for the year and must register for all deficiencies. They may take in addition certain other subjects not more than one year in advance of their class. Students having deficiencies can be registered for mining, mining engineering, and metallurgical courses only by special vote of the faculty.

Students failing to receive a quarter mark of 65 per cent in any subject shall not be allowed to pursue any dependent subject except by permission of the faculty. A student may be permitted to take the dependent subject conditionally for six weeks, at the end of which time he must have a passing grade in the subject if he is to continue it for the remainder of the quarter.

The faculty may exclude students from attending classes in any subject upon recommendation of the department concerned.

All students must report in time to make suitable arrangements with departments concerned in case of conflicts in program.

Students failing to present themselves for final examination for any quarter will be given zero on the examinations, unless satisfactory excuse is presented.

Students whose absences in any quarter exceed 20 per cent of the scheduled class hours will not be permitted to take examinations without special permission of the faculty.

Sophomores and juniors who, at the end of the winter quarter, are deficient in 15 hours or more of any subject, or who, at the end of the spring quarter examination period for sophomores and juniors, are deficient in any subject of the preceding year will not be eligible to take the spring field trip unless declared eligible by a special vote of the faculty. Sophomores who are deficient in one or more quarters of surveying will not be eligible for the sophomore field trip unless recommended for the trip by the Department of Mining Engineering and declared eligible by the faculty.

During the academic year students will be held responsible for the receipt of official communications sent to them through the university post-office. During the summer vacation they will be held responsible for the receipt of such communications sent to the home address given on registration blank for the preceding academic year, unless formal notification of their correct address is filed with the registrar and the dean.

## COURSES OF STUDY

### UNIFORM CURRICULUM TO END OF SOPHOMORE YEAR

The courses leading to the degrees of engineer of mines, engineer of mines (in petroleum), engineer of mines (in geology), and metallurgical engineer are uniform for the first two years.

Freshmen will be divided into two sections as follows:

- a. Those entering with credits in advanced algebra and solid geometry.
- b. Those entering without credits in advanced algebra and solid geometry.

Subjects with the prefix a are to be taken by freshmen in section a; those with the prefix b are to be taken by freshmen in section b; and those without prefix are to be taken by students of both sections.

#### FRESHMAN YEAR

##### *First Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Chemistry	14f*	General Inorganic	3†	6†	.....
Drawing	11f	Eng. Drawing	..	10	.....
Geology	1f	General Geology	3	2	.....
a. Mathematics	2f	Algebra	6	..	.....
b. Mathematics	1f	Alg. and Solid Geom.	6	..	.....
Military Science	1	Basic Course, R.O.T.C.	3	..	.....

##### *Second Quarter*

Chemistry	15w	General Inorganic	3	6	Chem. 14f
Drawing	12w	Eng. Drawing	..	4	Draw. 11f
Geology	23w	Elements of Mineralogy	3	4	Geol. 1f
Mathematics	4w	Trigonometry	6	..	Math. 1f or 2f
Metallurgy	1w	Assaying	4	..	Chem. 14f, Geol. 1f
Metallurgy	2w	Assaying Laboratory	..	8	Chem. 14f, Geol. 1f
Military Science	1	Basic Course, R.O.T.C.	3	..	.....

##### *Third Quarter*

Chemistry	16s	Qualitative Analysis	3	6	Chem. 15w
Drawing	13s	Eng. Drawing	..	8	Draw. 12w
Geology	24s	Elements of Mineralogy	3	4	Geol. 23w
Mathematics	5s	Analytical Geometry	6	..	Math. 4w
b. Mathematics	3s	Algebra	4	..	Math. 1f
Military Science	1	Basic Course, R.O.T.C.	3	..	.....

\* The suffixes f, w, or s, after the course number indicate the quarter in which a course is offered—fall, winter, or spring quarter, respectively. Two or three suffixes indicate that a course is offered in each of the corresponding quarters.

† Figures following the descriptive name of a course indicate number of hours per week. Course names following indicate prerequisite courses.

## SOPHOMORE YEAR

*First Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Drawing	14f	Descriptive Geometry	3	..	Draw. 13s
Geology	105f	Rock Study	..	4	Geol. 24s
Mathematics	6f	Calculus	4	..	Math. 5s
Metallurgy	3f	General	3	..	Met. 1w, 2w, Chem. 16s
Mining Engineering	1f	Mine Surveying	3	..	Math. 4w
Physics	3f	Elements of Mechanics	3	..	Math. 5s
Physics	4f	Mechanics Laboratory	..	2	Math. 5s
or Mechanics	51f	Elementary Tech. Mech.	4	..	Math. 5s
Mil. Sci.	2a, 2b, or 2c	Basic Course, R.O.T.C.	3	..	.....

*Second Quarter*

Anal. Chemistry	9w	Quantitative Analysis	1	7	Chem. 16s
Drawing	15w	Drafting	..	4	Draw. 14f
Geology	2w	Historical	3	..	Geol. 1f
Geology	106w	Petrography	..	4	Geol. 105f
Mathematics	7w	Calculus	3	..	Math. 6f
Metallurgy	4w	Met. of Pig Iron	3	..	Met. 3f
Mining Engineering	2w	Mine Surveying	3	..	Min. Eng. 1f
Physics	23w	Heat	3	..	Phys. 3f
Physics	24w	Heat Laboratory	..	2	Phys. 4f
or Mechanics	52w	Elementary Tech. Mech.	4	..	Mech. 51f
Mil. Sci.	2a, 2b, or 2c	Basic Course, R.O.T.C.	3	..	.....

*Third Quarter*

Geology	84s	Field Methods	..	4	Geol. 2w, 105f
Mathematics	8s	Calculus	6	..	Math. 7w
Metallurgy	5s	Wrought Iron and Steel	3	..	Met. 4w
Mining	21s	Introductory Mining	4	..	.....
Mining Engineering	3s	Mine Surveying	3	4	Min. Eng. 2w
Physics	43s	Magnetism & Electricity	3	..	Phys. 3f
Physics	44s	Magnetism & Elec. Lab.	..	2	Phys. 4f
or Mechanics	53s	Elementary Tech. Mech.	4	..	Mech. 52w
Mining Engineering	4s	Field Work beginning about May 1	7	weeks	Soph. year
Geology	85s	Field Work beginning about June 20	2	weeks	Soph. year

## JUNIOR AND SENIOR YEARS

## COURSES LEADING TO THE DEGREE OF ENGINEER OF MINES

## JUNIOR YEAR

*First Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Exp. Eng., M.E.	36f	Elementary Lab.	..	4	With Mech. 112f
Geology	73f	Economic	3	..	Geol. 2w, 105f
Mechanics	109f	Mechanics	5	..	Math. 8s
Mechanics	112f	Mine Plant	6	..	Math. 8s
Metallurgy	106f	Base Metals	4	..	Met. 3f
Metallurgy	110f	Ore Dressing	3	..	Geol. 24s
Mining	131f	Exploration	5	..	Mining 21s

COURSES OF STUDY

*Second Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Exp. Eng., M.&M.	144w	Materials Testing Lab.	..	4	With Mech. 110w
Mechanics	110w	Mechanics of Materials	5	..	Mech. 109f
Mechanics	113w	Mine Plant	6	..	Mech. 112f
Metallurgy	107w	Base Metals	4	..	Met. 106f
Metallurgy	111w	Ore Dressing	3	..	Met. 110f
Mining	132w	Development	5	..	Min. 131f
Mining Eng.	105w	Mine Mapping	..	6	Min. Eng. 4s

*Third Quarter*

Mechanics	111s	Mechanics	5	..	Mech. 110w
Mechanics	114s	Mine Plant	6	..	Mech. 113w
Metallurgy	108s	Precious Metals	4	..	Met. 107w
Metallurgy	115s	Ore Dressing Lab.	..	6	Met. 111w
Mining	130s	First Aid	1	week	.....
Mining	140s	Mine Rescue	1	week	.....
Mining	134s	Mining Methods	5	..	Min. 132w
Mining Eng.	107s	Mine Mapping	..	6	Min. Eng. 105w
Metallurgy	116s	Field Work in Metallurgy beginning about May 1	10	days	Junior year
Mining	135s	Field Work in Mine Plant and Mining beginning about May 1	2	weeks	Junior year

SENIOR YEAR

*First Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Electrical Eng.	41f	Electric Power	2	3	Phys. 43, or Mech. 53s
Geology	111f	Ore Deposits	3	..	Geol. 73f, 106w
Mechanics	117f	Water Power	5	2	Mech. 111s
Mechanics	118f	Eng. Construction	..	8	Mech. 111s
Metallurgy	119f	Ore Testing	2	..	Met. 108s
Metallurgy	120f	Ore Testing Lab.	..	8	Met. 108s
Mining	141f	Mine Examinations and Contracts	5	..	Min. 134s
Mining	146f	Thesis	..	2	Min. 134s

*Second Quarter*

Exp. Eng., M.E.	147w	Advanced Lab.	..	4	Exp. Eng. 36f
Geology	112w	Petroleum	3	..	Geol. 111f
Geology	115w	Applied Geology	3	..	Geol. 73f, 111f
Mechanics	119w	Mine Plant Design	..	9	Mech. 118f
Metallurgy	121w	Special Problems	..	4	Met. 119f
Mining	143w	Coal Mining and Mining Law	5	..	Min. 141f
Mining	147w	Thesis	..	12	Min. 146f

*Third Quarter*

Geology	113s	Problems in Ore Dep's	..	4	Geol. 112w
Mechanics	120s	Mine Plant Design	..	12	Mech. 119w
Metallurgy	122s	Special Problems	..	8	Met. 121w
Mining	145s	Placers and Quarries	5	..	Min. 143w
Mining	148s	Thesis	..	12	Min. 147w

## DEPARTMENT OF MINING

The department is well supplied with samples of the smaller mine equipment, models, drawings, photographs, lantern slides, and mine maps. The lectures treat of prospecting, development, support of excavations, mining methods, mine administration, mining law, and the necessary allied subjects. The courses in mining extend through the sophomore, junior, and senior years.

## COURSES LEADING TO THE DEGREE OF ENGINEER OF MINES IN GEOLOGY

## JUNIOR YEAR

*First Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	61f	Blowpipe Analysis	2	4	Geol. 24s
	or 65f	or Crystallography	2	4	Geol. 24s
Geology	73f	Economic	3	..	Geol. 2w, 105f
Geology	131f	Advanced Petrology	3	3	Geol. 2w, 106w
Geology	151f	Advanced General	3	..	Geol. 73f
Mechanics	109f	Mechanics	5	..	Math. 8s
Mining	131f	Exploration	5	..	Min. 21s
Elective	....	.....	3	..	.....

*Second Quarter*

Geology	124w	Struct. & Metamorphic	3	..	Geol. 73f, 105f
Geology	132w	Advanced Petrology	3	3	Geol. 2w, 106w
Geology	144w	Geologic Maps	..	6	Geol. 73f
Geology	152w	Advanced General	3	..	Geol. 73f
Mechanics	110w	Mechanics of Materials	5	..	Mech. 109f
Mining	132w	Development	5	..	Min. 131f
Mining Eng.	105w	Mine Mapping	..	6	Min. Eng. 4s
Elective	....	.....	3	..	.....

*Third Quarter*

Geology	125s	Struct. & Metamorphic	6	..	Geol. 73f, 105f
Geology	133s	Advanced Petrology	3	3	Geol. 2w, 106w
Geology	145s	Geologic Maps	..	12	Geol. 73f
Geology	153s	Advanced General	3	..	Geol. 73f
Mechanics	111s	Mechanics	5	..	Mech. 110w
Mining	134s	Mining Methods	5	..	Min. 132w
Geology	150s	Field Work beginning about May 1	6 weeks		Geol. 125s

## SENIOR YEAR

*First Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	91f	Paleontology	3	..	Geol. 2w
Geology	111f	Ore Deposits	3	..	Geol. 73f, 106w
Geology	137f	Testing Econ. Materials	1	4	Geol. 73f
Metallurgy	110f	Ore Dressing	3	..	Phys. 43s, Geol. 24s
Mining	141f	Mine Examinations and Contracts	5	..	Min. 134s
Thesis	....	.....	..	8	.....
Electives	....	.....	6	..	.....

*Second Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	92w	Paleontology	3	..	Geol. 2w
Geology	112w	Petroleum	3	..	Geol. 111f
Geology	140w	Applied Petrography	1	4	Geol. 111f, 133s
Geology	166w	Mineralography	..	6	Geol. 111f
Metallurgy	111w	Ore Dressing	3	..	Met. 110f
Mining	143w	Coal Mining and and Mining Law	5	..	Min. 141f
Thesis	.....	.....	..	8	.....

*Third Quarter*

Geology	93s	Paleontology	3	..	Geol. 2w
Geology	113s	Prob. in Ore Deposits	..	4	Geol. 112w
Geology	141s	Applied Petrography	1	4	Geol. 111f, 133s
Geology	167s	Mineralography	..	6	Geol. 111f
Metallurgy	115s	Ore Dressing Lab.	..	6	Met. 111w
Thesis	.....	.....	..	8	.....

## DEPARTMENT OF GEOLOGY

The department is well supplied with working collections of minerals, crystal models, rocks, thin sections, ores and economic minerals, fossils, and other illustrative material used in connection with the courses in paleontology, stratigraphy, and historical geology. The department has large, well-lighted laboratories and classrooms located on the first, second, and basement floors of Pillsbury Hall.

## COURSES LEADING TO THE DEGREE OF ENGINEER OF MINES IN PETROLEUM

## JUNIOR YEAR

*First Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Exp. Eng.	36f	Elementary Laboratory	..	4	With Mech. 112f
Geology	73f	Economic	3	..	Geol. 2w, 105f
Geology	131f	Petrology of Sediments	3	3	Geol. 106w
Geology	151f	Advanced General	3	..	Geol. 73f
Mechanics	109f	Mechanics	5	..	Math. 8s
Mechanics	112f	Mine Plant	6	..	Math. 8s
Pet. Eng.	131f	Exploration	5	..	Min. 21s

*Second Quarter*

Geology	124w	Struct. & Metamorphic	3	..	Geol. 73f, 105f
Geology	144w	Geologic Maps	..	6	Geol. 73f
Geology	152w	Advanced General	3	..	Geol. 73f
Mechanics	110w	Mechanics of Materials	5	..	Mech. 109f
Mechanics	113w	Mine Plant	6	..	Mech. 112f
Min. Eng.	106w	Mine Mapping	..	3	M.E. 4s
Pet. Eng.	132w	Oil Field Development	5	..	Pet. Eng. 131f
Pet. Eng.	134w	Oil Field Equip.	2	..	Pet. Eng. 131f

*Third Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	125s	Struct. & Metamorphic	6	..	Geol. 124w
Geology	153s	Advanced General	3	..	Geol. 152w
Mechanics	111s	Mechanics	5	..	Mech. 110w
Mechanics	114s	Mine Plant	3	..	Mech. 113w
Pet. Eng.	138s	Oil Field Mapp.	..	12	Geol. 144w
Pet. Eng.	151s	Petroleum Refining	5	..	.....
Mining	130s	First Aid		1 week	.....
Mining	140s	Mine Rescue		1 week	.....
Pet. Eng.	135s	Field Work		3 weeks	Junior year

## SENIOR YEAR

*First Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Geology	91f	Paleontology	3	..	Geol. 2w
Geology	111f	Ore Deposits	3	..	Geol. 73f, 106w
Mechanics	117f	Hydraulics	5	2	Mech. 111s
Mechanics	118f	Engineering Const.	..	8	Mech. 111s
Pet. Eng.	141f	Administration	5	..	Pet. Eng. 132w
Pet. Eng.	144f	Thesis	..	6	Pet. Eng. 132w
Electives	....	.....		3	.....

*Second Quarter*

Chemistry	168w	Petroleum & Pet. Prod.	1	4	.....
Geology	92w	Paleontology	3	..	Geol. 2w
or Geology	102w	Micropaleontology	..	6	Geol. 91f or 111f
Geology	112w	Petroleum	3	..	Geol. 111f
Mechanics	119w	Engineering Const.	..	9	Mech. 118f
Pet. Eng.	142w	Administration	5	..	Pet. Eng. 141f
Pet. Eng.	145w	Thesis	..	6	Pet. Eng. 144f
Elective	....	.....		2	.....

*Third Quarter*

Geology	93s	Paleontology	3	..	Geol. 2w
Geology	103s	Micropaleontology	..	6	Geol. 102w
Mechanics	121s	Plant Design	..	12	Mech. 119w
Pet. Eng.	137s	Pipe Lines	3	..	Mech. 117f
Pet. Eng.	143s	Production Technology	5	..	Pet. Eng. 142w
Pet. Eng.	146s	Thesis	..	12	Pet. Eng. 145w

## DEPARTMENT OF PETROLEUM ENGINEERING

The department is well supplied with samples of the smaller oil field equipment, well logs, drill cores, models, maps, photographs, lantern slides, and samples of petroleum products. The lectures treat of location, prospecting, development, production, distribution, administration, leasing, mineral law, and allied subjects affecting oil and gas production. The courses in petroleum production extend through the junior and senior years.



COURSES OF STUDY

COURSES LEADING TO THE DEGREE OF METALLURGICAL ENGINEER

JUNIOR YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Mech. Eng.	76f	Survey of Shop Practice	3	..	.....
Mechanics	109f	Mechanics	5	..	Math. 8s
Mechanics	112f	Mine Plant	6	..	Math. 8s
Metallurgy	106f	Base Metals	4	..	Met. 3f
Metallurgy	110f	Ore Dressing	3	..	Geol. 24s
Metallurgy	112f	Ore Dressing Lab.	..	4	Geol. 24s
Metallography	153f	Metallography	3	4	.....

Second Quarter

Mechanics	110w	Mechanics of Materials	5	..	Mech. 109f
Mechanics	115w	Metallurgical Plant	3	..	Mech. 112f
Metallurgy	107w	Base Metals	4	..	Met. 106f
Metallurgy	111w	Ore Dressing	3	..	Met. 110f, 112f
Metallurgy	113w	Ore Dressing Lab.	..	4	Met. 110f, 112f
Metallurgy	123w	Electrometallurgy	5	..	Met. 5s
Metallography	154w	Metallography	3	4	Met. 153f
Mining Eng.	106w	Mine Mapping	..	3	Min. Eng. 4s

Third Quarter

Mechanics	111s	Mechanics	5	..	Mech. 110w
Mechanics	116s	Metallurgical Plant	3	..	Mech. 115w
Metallurgy	108s	Precious Metals	4	..	Met. 107w
Metallurgy	114s	Ore Dressing Lab.	..	6	Met. 111w, 113w
Metallography	155s	Metallography	3	4	Met. 154w
Mining	133s	Elementary Mining	5	..	Min. 21s
Mining Eng.	107s	Mine Mapping	..	3	Min. Eng. 4s
Mining	130s	First Aid		1 week	.....
Mining	140s	Mine Rescue		1 week	.....
Metallurgy	116s	Field Work in Metallurgy beginning about May 1		2 weeks	Junior year
Mining	139s	Field Work in Mine Plant and Mining beginning about May 1		10 days	Junior year

SENIOR YEAR

First Quarter

Dept.	No.	Title	Lect.	Lab.	Prereq.
Electrical Eng.	41f	Electric Power	2	3	Phys. 43s or Mech. 53s
Mechanics	117f	Water Power	5	2	Mech. 111s
Metallurgy	119f	Ore Testing	2	..	Met. 108s
Metallurgy	120f	Ore Testing Lab.	..	8	Met. 108s
Metallurgy	124f	Thesis	..	8	.....
* Electives	....	.....	9	..	.....

\* It is recommended that electives be taken from the following courses: Chem. 101f, 102w, 103s, Phys. Chem.; Met. 130f, 131w, 132s, Special Problems; Met. 163f, 164w, 165s, Advanced Metallography; Mech. 118f, 119w, 121s, Engineering Construction.

*Second Quarter*

Dept.	No.	Title	Lect.	Lab.	Prereq.
Metallurgy	117w	Advanced Metallurgy	4	6	Met. 108s
Metallurgy	121w	Special Problems	..	4	Met. 119f
Metallurgy	125w	Thesis	..	18	Met. 124f
*Electives	....	.....	9	..	.....

*Third Quarter*

Metallurgy	118s	Advanced Metallurgy	4	6	Met. 117w
Metallurgy	122s	Special Problems	..	8	Met. 121w
Metallurgy	126s	Thesis	..	18	Met. 125w
*Electives	....	.....	6	..	.....

## DEPARTMENT OF METALLURGY

This department is well supplied with representative ores of all the most important metals, models and drawings of furnaces, and samples of all the different furnace products. The lectures treat of all the principal methods now in use. The practical work consists in visits to smelting and refining works which are accessible. The work in metallurgy extends through four years.

## ASSAYING

The lectures treat of, and describe, apparatus, reagents, assay furnaces, fuels, etc., in connection with this subject. The principles of assaying and sampling are fully explained. A collection of representative ores of various metals with a collection of corresponding slags is shown, and instruction is given as to nature and quality of fluxes. Special and rapid methods of testing slags and metallurgical products as employed in western smelting works are emphasized.

The laboratory course includes preparing and testing reagents, making cupels, etc., and assaying samples of ores, furnace and mill products, and bullion; different charges are tried and practical conclusions drawn.

Great importance is attached to the work of the laboratory. A large, well-ventilated furnace room in which are located muffle and crucible furnaces, and another room of similar dimensions equipped with desks, pulp and bead balances, afford accommodations to a large number of students. Ores of various metals of known value are given the students who are required to make up the necessary charges and submit their report in detail. This work is offered to students completing the necessary course in mineralogy and chemistry.

## ORE DRESSING

The lectures and recitations in ore dressing extend through the junior year, and comprise a detail study of ore dressing and concentrating machinery, together with a study of typical combinations of dressing machines as found in the various mining districts of the United States. In connection with the theoretical work, the ore dressing laboratory and testing plant of

\* It is recommended that electives be taken from the following courses: Chem. 101f, 102w, 103s, Phys. Chem.; Met. 130f, 131w, 132s, Special Problems; Met. 163f, 164w, 165s, Advanced Metallography; Mech. 118f, 119w, 121s, Engineering Construction.

the school are utilized for illustration, and practical use of ore dressing machinery.

#### ORE TESTING

The lectures treat of the problems in ore testing such as extraction and losses in roasting, concentration, and other milling operations. Both the ore dressing laboratory and the Mines and Metallurgy Experiment Station laboratory are available for working out practical problems. The Mines and Metallurgy Experiment Station laboratory is maintained to aid the mining interests of the state of Minnesota in solving problems connected with concentration and conservation of the iron and manganiferous ores in the state.

The School of Mines and Metallurgy laboratories therefore serve both educational and commercial needs.

*Educational.*—The student becomes familiar with the use of the various types of machines such as crushers, rolls, classifiers, concentration and flotation machinery.

*Commercial.*—The laboratories are used by the Mines and Metallurgy Experiment Station to determine the best methods of treatment to produce a commercial product at the lowest cost. Recently additional commercial machinery has been obtained and new appliances are constantly being developed. Commercial samples varying from 500 pounds to carload lots can be treated by various methods.

#### METALLOGRAPHY

Courses in metallography are offered to candidates for the degree of metallurgical engineer in the School of Mines and Metallurgy, to students in the Colleges of Dentistry, Engineering and Architecture, Science, Literature, and the Arts, in the School of Chemistry, and in the Graduate School.

These courses deal with the study of metals and alloys. The lectures treat of, and describe, the apparatus used in connection with this subject, the method of preparing specimens, physical and metallographic principles involved, and the interpretation of the results of microscopic examination and thermal analysis. There is an elaborate file of references and abstracts relating to the whole field of metallography, furnishing up-to-date information on the various phases of the work. A collection of specimens, photomicrographs, and lantern slides covering wrought iron, low carbon, structural, rail, and tool steels, brasses, bronzes, and other industrial alloys is available for study and comparison. The laboratory course includes the microscopic and pyrometric study of metals and alloys as related to their mechanical and physical properties. The laboratories are equipped with grinding and polishing apparatus, microscopes, photomicrographic apparatus, vacuum electric furnace, carbon resistance furnaces, nichrome and platinum resistance furnaces of various designs, gas furnaces, heat treating furnaces, pyrometers, and testing apparatus of the latest and improved type. This department has a special dark room for the preparation of photomicrographs.

## DESCRIPTION OF COURSES

### EXPLANATION OF COURSE NUMBERS

All undergraduate courses are numbered from 1 to 100. All courses open to undergraduates and graduates are numbered from 101 to 200. Strictly graduate courses are numbered from 201 up.

### CHEMISTRY

9. Quantitative Analysis. A short introductory course covering the general principles and methods of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention given to proper laboratory practice. \$2 laboratory fee.
14. General Inorganic Chemistry. A study of the general laws of chemistry and of the non-metals, the metals, and their compounds. \$2 laboratory fee.
15. General Inorganic Chemistry. A continuation of Course 14. \$2 laboratory fee.
16. Qualitative Analysis. Laboratory work in systematic qualitative analysis with lectures on solutions, ionization, chemical and physical equilibrium, oxidation and reduction, etc. \$2 laboratory fee.
- 101-102-103. Physical Chemistry. A general survey of the subject. \$2 laboratory fee per quarter.
168. Petroleum and Petroleum Products. Examination and testing of petroleum products. \$2 laboratory fee.

### DRAWING

11. Engineering Drawing. Sketching, lettering, representation, elements of drafting, details of machines and structures, interpretation of working drawings.
12. Engineering Drawing. Continuation of Course 11. The elements of general drafting, mechanical drawing as a language. Lines, views, dimensions, standards, signs, abbreviations, and explanatory notes.
13. Engineering Drawing. Continuation of Course 12. The elements of general drafting. Maps and sketches. Brush and pen conventions.
14. Descriptive Geometry. Projection; central and special cases, principles and application, representation of lines, planes, and solids, and of their relations; tangencies, intersections, and developments. Recitations, lectures, and solution of problems.
15. Drafting. Graphics, machine drafting, and structural drafting. Instruction in drafting room methods.

### ELECTRICAL ENGINEERING

41. Electric Power. Elementary principles of continuous currents. Continuous current generators and motors. Elementary principles of alternating currents. Alternating current generators, transformers,

and motors. Measurement of power. Elementary principles of transmission and distribution. Lectures, recitation, laboratory work.

## EXPERIMENTAL ENGINEERING

### MATHEMATICS AND MECHANICS

144. Materials Testing Laboratory. Investigation of physical properties of metals and engineering materials; wood, cement, ropes, etc., supplemented by lectures and materials of construction and methods of testing.

### MECHANICAL ENGINEERING

36. Elementary General Laboratory. Calibration of gages, anemometers, and gas meters. Physical tests of lubricating oils. Calibration of transmission dynamometer. Properties of steam; separating and throttling calorimeters; indicator and planimeter practice; valve setting. Tests of simple steam engine and steam pump.
147. Advanced General Laboratory. Tests of steam engines, steam turbines, gas engines, air compressors, fans, and blowers. Steam boiler trial. Calibration of V-notch weir. Tests of centrifugal pump, Pelton wheel, and hydraulic reaction turbine.

## GEOLOGY AND MINERALOGY

1. General Geology. A synoptical treatment of materials of the earth and of geological processes. Physiographic, dynamic, and structural geology.
2. Historical Geology. The sequence of events in geologic history, with special reference to North America.
- 23-24. Elements of Mineralogy. Morphological, physical, chemical characters of minerals; occurrence, genesis, and uses of minerals; classification and description of common minerals, rock minerals, and common rocks. Determinative work in the laboratory, blowpipe analysis, sight identification.
61. Blowpipe Analysis. The determination of minerals by systematic blowpipe analysis.
65. Crystallography. Study of crystal models and space groups. Crystal drawings and measurements. Projections and mathematical calculations.
73. Economic Geology. Study of non-metallic minerals of economic value, and discussions of geologic guides to prospecting for these deposits.
84. Field Methods. General methods of field work necessary for Course 85.
85. Field Work. About two weeks in June are spent in geologic mapping of selected areas in the iron district of Minnesota. Involves preparation of geologic maps and written reports.
- 91-92-93. Index Fossils of North America. A study of fossil forms with special reference to those of geologic importance; faunas and their correlation.

101. Sedimentation. Origin and structure of sedimentary deposits; the interpretation of these in relation to paleogeography. Lectures and assigned readings.
- 102-103. Micropaleontology. A study and classification of Foraminifera, diatoms, and other small fossil organisms, and their use for purposes of correlation.
105. Rock Study. The occurrence and genesis of igneous, sedimentary, and metamorphic rocks; their mineral and chemical composition; their structure, texture, and alteration. The classification and methods of identification and description of rocks.
106. Petrography. The identification and study of minerals and rocks by optical methods; the study of igneous rocks, crystalline schists, and metamorphic rocks. The origin and classification of rocks.
111. Ore Deposits. The nature, distribution, and genesis of ore deposits of the United States; relations of ore deposits to geologic structure; the deformation and superficial alteration of ore deposits.
112. Geology of Petroleum. The nature, origin, and accumulation of petroleum; discussion of the various oil fields of the world.
113. Problems in Ore Deposits. Field excursions, map work, lectures on field and laboratory methods.
115. Applied Geology. The application of methods to laboratory, library, and field problems in geology.
- 124-125. Structural and Metamorphic Geology. A study of the principles and application of structural geology. The conditions, processes, and results of metamorphism.
127. Geology of the Lake Superior Region. Structure and correlation of districts. Interpretation of field notes and survey reports. Practical problems. The use of geologic bibliographies and literature.
- 131-132-133. Advanced Petrology. Advanced optical methods. Criteria for rapid identification of minerals and rocks. The uses of schedules and tables. Standard rock types. Regional and genetic studies. Petrographic reports.
137. Testing Economic Minerals. Methods of determining quality of mineral deposits, described and illustrated by laboratory tests of coal, clay, oil, building stone, and metallic ores.
- 140-141. Applied Petrography. Determination of ores and gangue minerals. Microscopic studies of paragenesis of ores and other mineral associations. Practical problems in mining and geology settled by microscopic and optical examinations.
- 144-145. Interpretation of Geological Maps. Study and problems in construction and interpretation of geologic maps; recognition of structural and stratigraphic relations. Geology 124 should precede or accompany this course.
150. Field Geology. Detailed, systematic work conforming with standards of official surveys. Preparation of geologic maps, structure sections, reports; paragenesis of ores and their relations to geologic structures. Field, Black Hills, South Dakota. Reports to be written week before college opens in fall.

- 151-152-153. Advanced General Geology. Geologic processes and their results; development of the North American continent.
- 166-167. Mineralography. Methods of studying opaque minerals and the application of the methods to problems in ore genesis and history.
246. Pre-Cambrian Geology. The problems of pre-Cambrian correlation and structure; the pre-Cambrian stratigraphy of North America. (Given in alternate years.)

## GERMAN

- 24-25-26. Beginning for Miners. Pronunciation, grammar, conversation; selected reading in easy prose.
27. Narrative Prose for Chemists. Reading, grammar review.
- 28-29. Chemical German. Selections from more difficult works on chemistry.

## MECHANICAL ENGINEERING

76. Survey of Shop Practice. Technique of pattern making, molding, forging, and machining.

## METALLURGY

1. Assaying. The determination of values of ores, metallurgical products by the fire method. Lectures and recitations.
2. Assay Laboratory. Practical determination of gold, silver, lead, and tin by the fire method.
3. General Metallurgy. Combustion, fuels, refractory materials, furnaces and fluxes. Lectures and recitations.
4. Metallurgy of Pig Iron. General principles of iron blast furnace practice. Construction of furnace, handling of stock, and products; principles of regulation. Lectures and recitations.
5. Metallurgy of Wrought Iron and Steel. General principles involved in the production of wrought iron and steel. Lectures and recitations.
9. Introductory Metallurgy. General principles of furnace practice.
106. Metallurgy of Base Metals. Lead, copper, zinc, and mercury. Consideration of smelting methods and principles involved in refining. Lectures and recitations.
107. Metallurgy of Base Metals. Continuation of Course 106.
108. Metallurgy of the Precious Metals. Principles involved in methods used in the extraction of gold, silver, and other precious metals. Lectures and recitations.
109. Metallurgy of Base Metals. Short course for mechanical engineers. Special consideration is given to the mechanical appliances.
109. Metallurgy of Base Metals. Short course for electrical engineers. Special consideration is given to electrical appliances. Lectures and recitations.
110. Ore Dressing. Crushing, sizing, classification, and concentration of ores. Lectures and recitations.
111. Ore Dressing. Continuation of Course 110.
112. Ore Dressing Laboratory. Practical examination of ores and the use of ore dressing machinery.

113. Ore Dressing Laboratory. Practical problems in ore dressing.
114. Ore Dressing Laboratory. Continuation of Course 113.
115. Ore Dressing Laboratory. Short course in the laboratory use of ore dressing machinery.
116. Field Work in Metallurgy. Study of metallurgical operations at smelters and mills. Detail reports are required covering plants visited.
117. Advanced Metallurgy. Metallurgical calculations to determine heat balance and heat distribution. Lectures and laboratory work.
118. Advanced Metallurgy. Design of furnaces. Conferences and laboratory work.
119. Ore Testing. General principles involved in determining the best method of extraction, including amalgamation, concentration, cyanidation, roasting, etc. Lectures and recitations.
120. Ore Testing Laboratory. Practical determination of extraction and distribution of values in mill and metallurgical products. Methods of calculation.
121. Special Problems in Ore Testing. Continuation of Course 120. Practical determinations for regulating metallurgical operations.
122. Special Problems in Ore Testing. Continuation of Course 121.
123. Electrometallurgy. Application of electricity to production of heat for smelting ores and refining metals. Costs of fuel and electricity for heating, relative efficiencies of electric and fuel furnaces. Construction of high temperature furnaces and commercial plants.
124. Thesis in Metallurgy. Conferences to select suitable problem together with preliminary laboratory work on problem selected.
125. Thesis in Metallurgy. Continuation of Course 124.
126. Thesis in Metallurgy. Continuation of Course 125.
- 130-131-132. Special Problems in Metallurgy. Seminar work on metallurgical problems. Credits and hours to be arranged.
150. Metallography for Electrical Engineers. Principles of metallography, including pyrometry, thermal analysis, constitution diagrams, microscopic and photomicrographic technique; study of typical alloys with special reference to electrical resistance, conductivity, magnets, etc. Laboratory work and demonstrations.
151. Advanced Metallography for Electrical Engineers. Continuation of 150. Study of iron and steel, alloy steels, metals and alloys used in electrical engineering practice. Special problems for outside reading and for research. Laboratory work.
152. Metallography for Senior Aeronautical Engineers. Principles of metallography; metallography of iron and steel with special reference to alloy steels, and light alloys used in airplane construction. Laboratory work and demonstrations.
- 153-154-155. Metallography. (Long course for metallurgical engineers.) Theory of metallic alloys. Metallographic technique. Properties of metals and alloys. Metallography of iron and steel and commercial alloys. Technical metallography. Laboratory work.



156. Metallography for Mechanical Engineers. Principles of metallography, including pyrometry, thermal analysis, constitution diagrams, microscopic and photomicrographic technique; metallography and heat treatment of iron and steel. Laboratory work.
157. Advanced Metallography for Mechanical Engineers. Continuation of 156. Metallography of alloy steels, tool steels, high speed tool steels, and important non-ferrous alloys; metallography applied to engineering practice and specifications. Outside reading and special reports. Laboratory work.
159. Dental Metallography. Study of the dental alloys from the standpoint of metallography. Lectures, recitations, and demonstrations, taking up the most important metals and alloys, with special reference to those used in dentistry.
160. Metallography for Chemical Students. Metallography, including constitution diagrams, preparation and standardization of thermocouples, preparation and thermal analysis of alloys, their microscopic examination and making photomicrographs; typical alloy systems such as iron-carbon (steel and cast iron); some non-ferrous alloys. Laboratory work.
161. Advanced Metallography for Chemical Students. Metallography and heat treatment of iron and steel, including alloy steels, commercial uses of various steels, and engineering specifications. Laboratory work.
162. Advanced Metallography for Chemical Students. Metallography of the non-ferrous metals with a study of the constitution diagrams, properties, and uses of important commercial alloys. Laboratory work.
163. Advanced Metallography. Seminar work on recent advances in metallography. Lectures and recitations, with outside reading and special reports. May be accompanied by laboratory work.
164. Advanced Metallography. Advanced consideration of the structures, properties, and uses of metals and alloys. May be accompanied by laboratory work.
165. Advanced Metallography. Technical metallography as applied to the automotive industry. Lectures and special reports. May be accompanied by laboratory work.
- 166-167-168. Laboratory. Laboratory work on special problems in ferrous, non-ferrous, and X-ray metallography.
- 201-202-203. Advanced Metallography for Graduate Students. Intended primarily for research work.
- 204-205-206. Special Problems in Advanced Metallurgy. Intended primarily for research work. Credits and hours to be arranged.
- 210-211-212. Thesis courses for graduate students. Intended primarily for research work. Credits and hours to be arranged.

#### MILITARY SCIENCE AND TACTICS

1. First Year Basic Course, R.O.T.C.
- 2a, 2b. Second Year Basic Course, R.O.T.C., Infantry and Coast Artillery.
- 3a, 3b. First Year Advanced Course, R.O.T.C., Infantry and Coast Artillery.

4a, 4b. Second Year Advanced Course, R.O.T.C., Infantry and Coast Artillery.

Students who have completed the Basic Course, R.O.T.C., may be selected for advanced work by the professor of military science and tactics. Those who pursue the Advanced Course are required to sign an agreement with the government to continue the two years' course to completion. This includes attendance at a training camp, held normally during the summer following the first year's advanced work. The camp is conducted free of cost to the student, and in addition, while actually in camp, the student receives the pay prescribed for the seventh grade in the army. Students pursuing the Advanced Course are also furnished a special uniform and receive a fixed allowance per day. The total government compensation for the two years' advanced work amounts to something over \$200. Students who satisfactorily complete the Advanced Course will be commissioned in the Officers' Reserve Corps of the United States Army.

#### MINE PLANT AND MECHANICS

1. Algebra and Solid Geometry. Equations, involution and evolution, theory of exponents, surds, quadratic equations, theory of logarithms, determinants. Demonstrations of most important theorems of solid geometry. Volumes, approximate volumes, prismoidal formula, etc.
2. Algebra. Functions, functional notation, factor and remainder theorems, factors and values of functions, development of functions, progressions, series, theory of equations, permutations and combinations, theory of logarithms, determinants.
3. Algebra. Continuation of Course 1. Functions, functional notation, factor and remainder theorems, factors and values of functions, development of functions, progressions, series, theory of equations, permutations and combinations.
4. Trigonometry. Trigonometric ratios, right triangles, definitions of trigonometric functions, analytic relations, trigonometric equations, etc., solution of spherical triangles.
5. Analytical Geometry. Systems of co-ordinates, loci, equations, properties of straight lines, transformation of co-ordinates, equations and properties of conics, equations of second degree, higher plane curves, space co-ordinates, point, plane, quadric surfaces, etc., empirical equations, graphic algebra.
- 6-7-8. Calculus. Differentiation, elementary forms, geometric applications, rates, successive differentiation, maxima and minima, expansion of functions, intermediate forms, partial derivatives, change of variable, elementary integration, undetermined coefficients, rationalization, formulas of reduction, some differential equations of mechanics.
- 51, 52, 53. Elementary Technical Mechanics. Elementary principles of mechanics and their application to technical problems of mining.
- 109-111. Mechanics. Composition and resolution of forces, laws of equilibrium, practical applications, rectilinear motion, circular motion.

- curvilinear motion in general, dynamics of rigid bodies, impact, work, and energy.
110. Mechanics of Materials. Mechanical and elastic properties of materials of construction; beams, columns, shafts, hollow cylinders and spheres, rollers, plates; theory of internal stress; reinforced concrete.
- 112-113-114. Mine Plant. Discussion of the machinery and appurtenances employed in the equipment of mines. Air compression, rock drills, mechanical features of hoisting, pumping, ventilation, underground transportation. Electricity applied to mining.
- 115-116. Metallurgical Plant. Power, air, and water supply for metallurgical plants.
117. Hydraulics and Water Power. Laws of the equilibrium, pressure, and flow of liquids, hydrographs and mass diagrams, estimate of power to be developed at a power site, design of dams and hydroelectric plants, theory of water wheels and turbines, speed control, power house equipment, transmission.
118. Engineering Construction. Theory of structures, loading, analytic and graphic resolution of stresses in framed structures, stresses in ore bins, headframes, etc.
119. Engineering Construction. Design of structures for mining and metallurgical plant.
120. Mine Plant Design. A study of power possibilities, costs, etc., and design of a power plant, surface equipment, and structures for a mine.
121. Plant Design. A study of power possibilities, costs, etc., and design of a power plant, and structures for a metallurgical or oil field plant.

## MINING

21. Introductory Mining. Introductory mining course, preparatory to sophomore field trip.
130. First Aid. Course in first aid to the injured given by the staff of the United States Bureau of Mines.
140. Mine Rescue. Course in mine rescue given by the staff of the United States Bureau of Mines.
131. Exploration. Location of mineral lands, prospecting, exploration, boring, explosives, drilling blasting, and timber treating.
132. Tunneling. Tunneling, drifting, shaft sinking, raising, and mining methods.
133. Elementary Mining. Short course in mining for metallurgists.
134. Mining Methods. Underground mining methods and support of underground excavations.
135. Practical Mining. Study of mining operations. Mine plant and mining work in one or more mining camps.
139. Practical Mining. Study of mining operations, mine plant and mining work in one or more mining camps for metallurgists.
141. Mine Examination and Contracts. Mine examinations, sampling, and mining reports. Amortization. Contracts and specifications. Corporations, capitalization, stocks, and bonds.

143. Coal Mining and Mining Law. Coal mining methods. Mechanization and coal preparation. Mine gases. Accident prevention. State mining codes. Compensation laws. Mining law and court interpretations. Taxation.
145. Placer and Quarries. Placer, hydraulic mining and dredging. Quarries.
146. Thesis. Preparatory work on the mining thesis.
147. Thesis. Preparation of an original thesis on some mining project, covering the exploration and development of a mining property.
148. Thesis. Completion of thesis project.
- 151-152-153. Special Problems in Mining. Seminar work on mining problems. Credits and hours to be arranged.

### MINING ENGINEERING

- 1-2-3. Mine Surveying. Theory and problems in mine surveying, including land subdivision, stadia measurements, triangulation, railroad curves and cross sections, computation of areas by co-ordinates; differential leveling, plane table surveying, topographic map reading, solar observations, shaft plumbing, underground traversing and leveling.
4. Field Work. Practice in general plane surveying during the month of May. Practice in underground surveying during the first three weeks of June. This work is given on the iron ranges of Minnesota.
- 105-106-107. Mine Mapping. Mine mapping in accordance with prevalent practice in mining districts. Ore and stripping estimates and mine maps based on Mesabi Range practice.

### PETROLEUM ENGINEERING

131. Exploration. Location of oil lands, methods of drilling, explosives, blasting, timber treating.
132. Oil Field Development. Aerial surveys, geophysical prospecting, oil and gas production.
134. Oil Field Equipment. Mechanical features of drilling equipment, gas lift, pumping, natural gasoline extraction. Special devices for abnormal conditions.
135. Field Work. Study of equipment and operations in one or more oil fields.
137. Pipe Lines. Mechanical features of transmission lines for oil and gas. Flow formulas, soil corrosion and prevention.
138. Oil Field Mapping. Oil and gas well logs, peg models, records, contour and subsurface maps.
141. Administration. Reports, amortization, corporations, capitalization, stocks and bonds, leases, contracts and specifications.
142. Administration. Accident prevention, state codes, compensation laws, taxation, proration and unitization, production decline.
143. Production Technology. Special problems in oil and gas production.
144. Thesis. Preparation of an original thesis on the exploration and development of an oil property.

145. Thesis. Continuation of thesis project.
146. Thesis. Completion of thesis project.
151. Petroleum Refining. Distillation and purification processes used in the production of commercial products from crude petroleum.
- 155-156-157. Special Problems in Petroleum Engineering. Seminar work on petroleum problems. Credits and hours to be arranged.

## PHYSICS

3. Elements of Mechanics and Sound. Mechanics of solids, fluids, wave motion, and sound. A study of the simpler fundamental principles. First part of the general course, 3, 23, 33, 43. Course 4 should be taken in conjunction with this course.
4. Elements of Mechanics and Sound Laboratory. Measurements in the mechanics of solids, fluids, wave motion, and sound; the laboratory part supplementing Course 3. One two-hour session in the laboratory a week. \$2 laboratory fee.
23. Heat. A study of the principles underlying heat phenomena. Course 24 should be taken in conjunction with this course.
24. Heat Laboratory. The laboratory part supplementing Course 23. One two-hour session in the laboratory a week. \$2 laboratory fee.
43. Magnetism and Electricity. A study of the principles underlying magnetic and electric phenomena. Course 44 should be taken in conjunction with this course.
44. Electrical Laboratory. The laboratory part supplementing Course 43. One two-hour session in the laboratory a week. \$2 laboratory fee.

## ROMANCE LANGUAGES

## FRENCH

- 1-2. Beginning French.
- 3-4. Intermediate French.
- 21-22-23. General Survey of French Literature. Outline of French literature from 1600 to the present. Reading of representative texts.

## SPANISH

- 1-2. Beginning Spanish.
- 3-4. Intermediate Spanish.
- 65-66-67. Spanish Literature. Outline of Spanish literature from 1500 to the present. Reading of representative texts.

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

*Department of Music*  
*Announcement for the Year*  
**1931-1932**



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*Minneapolis, Minnesota*

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*Act of October 3, 1917, authorized July 12, 1918*

## DEPARTMENT OF MUSIC

### FACULTY

Carlyle M. Scott, Professor and Chairman of the Department of Music  
Donald N. Ferguson, M.A., Professor of Music  
Gertrude Hull, Associate Professor of Music  
Earle G. Killeen, M.Mus., Professor of Music  
William Lindsay, Associate Professor of Music  
George H. Fairclough, F.A.G.O., M.Mus., Assistant Professor of Music  
Archie N. Jones, B.S., Assistant Professor of Education  
Blanche Kendall, Assistant Professor of Music  
Abe Pepinsky, B.A. Assistant Professor of Music  
Gertrude Reeves, Assistant Professor of Music  
Clyde W. Stephens, Assistant Professor of Piano  
Harold Ayers, Instructor in Violin  
Cecil Birder, LL.B., Instructor in Voice  
Alexandre Duvoir, Instructor in Oboe  
Christian Erck, Instructor in Cello  
Roger Gauthier, Instructor in English Horn  
Rudolph Goranson, B.S., Instructor in Public School Music  
Georges Grisez, Instructor in Clarinet  
Michael Jalma, Director of Band  
Paul Lemay, Instructor in Viola  
Richard Otto Lindenhahn, Instructor in French Horn  
Karl Scheurer, Instructor in Violin  
Miles Sery, Instructor in Tuba and Cornet  
Agnes Rast Snyder, Instructor in Voice  
George Stump, B.A., Instructor in Voice  
Kate Mork Twichell, Instructor in Piano  
Henry J. Williams, Instructor in Harp  
Mary Malcolm, B.S., Assistant

## COURSES OF STUDY

Two major courses of study are offered to the student of music as follows:

1. Course in Arts and Music leading to the degree of bachelor of arts with a major in music.

2. Course in Public School Music leading to the degree of bachelor of science in education and the state teacher's certificate.

Students desiring to follow the first course of study will register in the College of Science, Literature, and the Arts. Those desiring to follow the course in Public School Music will register in the College of Education.

Opportunities are also offered through registration in the General Extension Division to those who desire to take special work in practical and theoretical music without qualifying for a degree.

The Department of Music also offers its courses as electives to the students of any school or college of the University subject to the rules of the school or college in which the student is registered, and subject to satisfying the general requirements for admission to practical courses in music as stated below.

### ADMISSION

1. *Admission to the freshman year.*—Admission to the University is either by certificate (for graduates of accredited secondary schools) or by examination. Candidates must have completed the equivalent of a four-year high school course and must present:

- a. 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.
- b. One unit of algebra and one unit of plane geometry or two units of unified mathematics.
- c. 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.

2. *General requirements for admission to the work of the Music Department.*—All students wishing to register in one of the four-year courses of study listed above must, upon matriculation, choose a major subject in practical music and pass an examination in that subject before a committee of the faculty of the Music Department. Entrance requirements for a major, according to instrument are:

- a. Piano: Any major or minor scale in octaves, thirds, sixths, or tenths, M.M. quarter notes = 108; Bach Invention or dance from one of the suites; a sonata by Haydn or Mozart; a modern composition of equal difficulty with the sonata.
- b. Voice: Good natural equipment and 2 years of piano.
- c. Violin: Major and minor scales, arpeggios; the simpler Kreutzer Etudes; a sonata by Handel, Haydn, Mozart, or Schubert; a more modern work displaying special technic peculiar to the violin.
- d. Organ: Same as piano.

Also, all public school music students *not majoring* in piano and all Science, Literature, and the Arts students *majoring* in voice will be examined concerning requirements to be met in piano. (See I and II regarding practical music requirements for graduation.)



Students from other departments or colleges electing courses in practical music must take simple preliminary examinations in those courses.

3. *Admission to extension courses.*—Any student who meets the general requirements under 2, above, may register for extension courses in music. Such courses, however, will not carry credit toward a university degree until entrance requirements under 1, above, have been met.

## FEES

### DEGREE COURSES OF STUDY

Tuition fee (per quarter)	
Residents of Minnesota .....	\$20.00
Non-residents .....	30.00
Credit hour tuition fee (unclassified students, auditors, and others carrying less than full work)	
Residents of Minnesota .....	1.75
Non-residents .....	2.50
Incidental fee (per quarter) .....	6.00
Matriculation deposit (first quarter only) .....	15.00
(\$5.00 for women)	
Special fees	
Examination for removal of condition .....	1.00
Examination for credit (after the first quarter in residence) .....	5.00
Special examination .....	5.00
Special methods and practice teaching fee*	
Laboratory fee†	
Graduation fee .....	10.00
Music fees, per quarter (for piano, organ, voice, violin)	
Two lessons per week (one-half hour) .....	65.00
One lesson per week .....	35.00
Music fees, per quarter (for all courses except piano, organ, voice, and violin)	
Two lessons per week (one-half hour) .....	75.00
One lesson per week .....	40.00
Practice fees	
Organ (per hour)	
Small .....	.20
Large .....	.40
Piano (six hours per week) per quarter .....	5.00
(\$5.00 per quarter for each additional hour per week)	

\* The following courses carry the special methods and practice teaching fee of \$1 per credit hour:

Mu.Ed. 50. Elementary Methods	Mu.Ed. 58. Choral Conducting
Mu.Ed. 51. Comparative Methods	Mu.Ed. 59. Advanced Conducting
Mu.Ed. 52. Technique of Teaching Appreciation	Mu.Ed. 60. Supervision
Mu.Ed. 53. High School Methods	Mu.Ed. 61. Practice Teaching
Mu.Ed. 54. Operetta Conducting	Mu.Ed. 65. Instrumentation
Mu.Ed. 57. Orchestra Conducting	

† The following courses carry the special laboratory fee of \$1 per credit hour:

Mu.Ed. 1-2-3. Applied Instrumental Technique	
Mu.Ed. 55-56. Survey of Materials (Vocal, Instrumental)	

## EXTENSION COURSES

Tuition fee per credit hour ..... \$3.33  
 Music fee (for each course in practical music) same as above.

*Students in other schools and colleges of the University* are required to pay the music fees for each course in practical music in addition to the regular fees of the curriculum in which they are registered.

### I. GENERAL COURSES LEADING TO DEGREE OF BACHELOR OF ARTS WITH A MAJOR IN MUSIC

The four-year course leading to the degree of bachelor of arts combines the theoretical and practical work in music with the study of psychology, modern languages, English literature, and history. The object is to provide a well-rounded cultural course for those whose major interest is music.

To secure the degree of bachelor of arts with a major in music, students must fulfill the requirements of both the Junior and Senior colleges as stated in the bulletin of the College of Science, Literature, and the Arts, securing 144 credits in courses other than practical music (piano, voice, etc.). They must earn 36 credits in practical music, the number of credits required in their major subject to be determined by the department. Students majoring in voice must, before graduation, meet the entrance requirement for a major in piano. (See 2a under Admission.)

## SCIENCE, LITERATURE, AND THE ARTS

### FRESHMAN AND SOPHOMORE YEARS

	Credits
English A-B-C or equivalent .....	15
Foreign language to fulfill the requirements for admission to Senior College .....	0 to 20*
History 11-12-13, Medieval History .....	10
Psychology 1-2 and 4-5 or 7, General Psychology with laboratory .....	10
Ear Training 1 .....	3
Harmony 2-3-4 .....	9
Counterpoint 5-6 .....	6
Introduction to Music 7-8-9 .....	6
Practical Music under the direction of an adviser .....	24
Physical Education .....	3
Electives to make a total of 90.	

### JUNIOR AND SENIOR YEARS

A major sequence .....	27 or 30
A minor sequence (9 credits in senior college courses in one department) .....	9
Practical Music .....	12-24
Electives to make a total of 183 credits.	

\* A student must present for entrance four years of one foreign language, or he must complete twenty credits of 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
One year of one language	15 credits in same language
Less than a year of one language	20 credits in one language

## FIRST YEAR

FALL	Credits	WINTER	Credits	SPRING	Credits
English*	—	English	—	English	—
History 11	3	History 12	3	History 13	4
Music 1	3	Music 2	3	Music 3	3
Music 7	2	Music 8	2	Music 9	2
Practical Music	4	Practical Music	4	Practical Music	4
Physical Education	1	Physical Education	1	Physical Education	1
Electives		Electives		Electives	

## SECOND YEAR

Psychology 1	3	Psychology 2	3	Psychology 7†	4
Language	0 or 5	Language	0 or 5	Language	0 or 5
Music 4	3	Music 5	3	Music 6	3
Practical Music	4	Practical Music	4	Practical Music	4
Physical Education	1	Physical Education	1	Physical Education	1
Electives		Electives		Electives	

## THIRD YEAR§

<i>Major Sequence A</i>	<i>Major Sequence B</i>	<i>Major Sequence C</i>			
Ensemble	6	Advanced Harmony	6	Ensemble	6
History of Music	9	Ensemble	6	History of Music	9
Analysis	3	History of Music	9	Normal Piano	6
Practical Music	6 or 12	Practical Music	6 or 12	Practical Music	6 or 12

## FOURTH YEAR§

<i>Major Sequence A</i>	<i>Major Sequence B</i>	<i>Major Sequence C</i>			
Bach-Beethoven	9	Bach-Beethoven	9	Advanced Normal Piano	6
Romantic Movement	6	Composition-Orchestration	6	Bach-Beethoven	9
Practical Music	6 or 12	Practical Music	6 or 12	Practical Music	6 or 12
Electives		Electives		Electives	

## II. FOUR-YEAR COURSE IN PUBLIC SCHOOL MUSIC LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

The Public School Music Course is a four-year course leading to the degree of bachelor of science, in which the theoretical, practical, and methods courses in music are combined with the study of English composition, psychology, and such subjects as the College of Education demands as a definite requirement. The object is to provide a well-rounded course for candidates for the bachelor of science degree in public school music.

For graduation, students must earn 185 credits and 185 honor points for women and 186 credits and 186 honor points for men and a C+ average in their major instrument with a C average in the rest of the work. They must earn 24 credits in Practical Music, 18 of which shall be the minimum requirement for their major subject and six of which must be in a second field other than the major. Either the major or minor must be in voice. (Students not majoring in piano shall be required to take one year of Piano A, B, C, 2 credits per quarter, exemption dependent upon entrance examination.) (See 2 under Admission.)

\* English A, B, C, or 4, 5, 6, or exemption from requirement. See Composition program.

† General Psychology and laboratory may be taken concurrently.

‡ Credits in each case are for one year's work.

A teaching minor in one academic secondary school subject is required, English, history or languages are suggested.

Pending the development of a specialized curriculum in instrumental music, elective credits to the extent of 7, may be used.

An academic minor is required for graduation of all public school music students. For advice concerning a minor, see departmental adviser.

### FIRST YEAR

FALL		WINTER		SPRING	
	Credits		Credits		Credits
English*	3	English	3	English	3
Practical Music	2 or 4	Practical Music	2 or 4	Practical Music	2 or 4
Music 7	2	Music 8	2	Music 9	2
Music 1	3	Music 2	3	Music 3	3
Physical Education	1	Physical Education	1	Physical Education	1
Electives		Electives		Electives	

### SECOND YEAR

Practical Music	2	Practical Music	2	Practical Music	2
Music Education 1	2	Music Education 2	2	Music Education 3	2
General Psychology	3	General Psychology	3	Educational Psychology	3
Chorus or Orchestra†	1	Chorus or Orchestra†	1	Chorus or Orchestra†	1
Physical Education	1	Physical Education	1	Physical Education	1
Medieval History	3	Medieval History	3	Medieval History	4
Electives		Electives		Electives	

### THIRD YEAR

Practical Music	2	Practical Music	2	Practical Music	2
Music Education 50	3	Music Education 51	2	Music Education 52	1
Music 63	2	Music Education 53	3	Music Education 54	3
Music 60	2	Music Education 70‡	2	Music Education 65	3
Chorus or Orchestra†	1	Chorus or Orchestra†	1	Chorus or Orchestra†	1
Electives		The High School Ed.Ad. 65	3	Technic of High School In-	
		Electives		struction Ed.T. 15	3
				Music 59	2
				Electives	

### FOURTH YEAR

Music 76	3	Music Education 55	1	Music Education 56	1
Music Education 57	2	Music Education 58	2	Music Education 59	2
Music Education 60	3	Music Education 61§	6	Special Methods—Academic	
Special Methods—Academic		Special Methods—Academic		Minor	2
Minor	2	Minor	2	Electives	
Electives		Electives			

## COLLEGE OF SCIENCE, LITERATURE, AND ARTS

### *A New Course*

Mu.7f,8w,9s. Introduction to Music. Analytical and historical discussion of the elements, principles of structure, and various forms of music, designed to give a general survey of musical literature and the foundations of an appreciative attitude. Extensively illustrated. No prerequisite.

\* Unless exempted by placement tests. See all three quarters Composition program.

† Three credits in chorus required, plus three credits in either chorus or orchestra.

‡ Elective.

§ See instructor for assignments.

## COLLEGE OF EDUCATION

### *New Courses*

- Mu.Ed.51. Comparative Methods. An analysis of the various techniques of music teaching and supervision, stressing the learning processes, psychology of method, and standards of attainment of each.
- Mu.Ed.52. Technique of Teaching Appreciation. A practical course in the teaching of appreciation of music to children in the elementary grades. Materials and methods of presentation will be discussed and demonstrated, using the class as a laboratory.
- Mu.Ed.55. Survey of Materials (Vocal). A laboratory course in materials used by the music departments of the public schools, paying particular attention to the psychology of program building. A survey of the well-known and newer publications in the field of public school music.
- Mu.Ed.56. Survey of Materials (Instrumental). A laboratory course in materials used by instrumental ensembles, paying particular attention to the psychology of program building. A survey of the well-known and newer publications in the field of public school music.
- Mu.Ed.59. Advanced Conducting. A study of the techniques of conducting, interpretation, and expression, the art of program making, rehearsals, organization, and the essentials of musical leadership.
- Mu.Ed.70. Accompanying and Sight Reading. A laboratory course aimed to develop proficiency in the art of accompanying and sight reading.

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

*The School of Nursing*  
*Announcement for the Year*  
**1932-1933**



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1932							1933													
<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	1	2	3	4	5	6	7	..	..	..	..	..	..	1
3	4	5	6	7	8	9	8	9	10	11	12	13	14	2	3	4	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	28	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
7	8	9	10	11	12	13	5	6	7	8	9	10	11	..	..	1	2	3	4	5
14	15	16	17	18	19	20	12	13	14	15	16	17	18	6	7	8	9	10	11	12
21	22	23	24	25	26	27	19	20	21	22	23	24	25	13	14	15	16	17	18	19
28	29	30	31	..	..	..	26	27	28	..	..	..	..	20	21	22	23	24	25	26
..	..	..	..	..	..	..	..	..	..	..	..	..	..	27	28	29	30	31	..	..
<b>SEPTEMBER</b>							<b>MARCH</b>							<b>SEPTEMBER</b>						
..	..	..	..	1	2	3	..	..	..	1	2	3	4	..	..	..	..	1	2	3
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	2	..	..	..	..	..	1	2	1	2	3	4	5	6	7
3	4	5	6	7	8	9	3	4	5	6	7	8	8	9	10	11	12	13	14	
10	11	12	13	14	15	16	9	10	11	12	13	14	15	15	16	17	18	19	20	21
17	18	19	20	21	22	23	16	17	18	19	20	21	22	22	23	24	25	26	27	28
24	25	26	27	28	29	30	23	24	25	26	27	28	29	29	30	31	..	..	..	..
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>						
..	..	..	..	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	13	14	15	16	17	10	11	12	13	14	15	16
18	19	20	21	22	23	24	18	19	20	21	22	23	24	17	18	19	20	21	22	23
25	26	27	28	29	30	31	25	26	27	28	29	30	..	24	25	26	27	28	29	30
..	..	..	..	..	..	..	..	..	..	..	..	..	..	31	..	..	..	..	..	..

# UNIVERSITY CALENDAR

1932-33

1932

## *Fall Quarter*

September	19	Monday	Extension registration first semester begins. Postgraduate students, School of Nursing register
September	26	Monday	Entrance tests
September	26-27		Registration for Freshman Week for all new students entering the freshman class <sup>2</sup>
September	26-30		Physical examinations
September	27-30		Registration period <sup>1</sup>
September	28-October 1		Freshman Week
September	30	Friday	Payment of fees for new students closes
October	3	Monday	Last day for extension registration without penalty
			Fall quarter classes begin, 8:30 a.m.
			First semester extension classes begin <sup>3</sup>
October	20	Thursday	Senate meeting, 4:30 p.m.
October	29	Saturday	Homecoming Day
November	8	Tuesday	General Election Day; a holiday (except for extension)
November	9	Wednesday	Mid-quarter grades due
November	11	Friday	Armistice Day Convocation
November	24	Thursday	Thanksgiving Day; a holiday
December	1	Thursday	State Day Convocation
December	15	Thursday	Senate meeting, 4:30 p.m.
December	17 & 19-23		Final examination period
December	22	Thursday	Commencement Convocation
December	23	Friday	Fall quarter ends, 6:00 p.m.

1933

## *Winter Quarter*

January	2	Monday	Postgraduate students, School of Nursing register
January	6	Friday	Entrance tests
January	6-7		Registration days <sup>1</sup> for new students <sup>2</sup>
			Registration and payment of fees close at 12 m. on January 7
January	9	Monday	Winter quarter classes begin, 8:30 a.m.
January	23	Monday	Extension registration second semester begins
February	4	Saturday	First semester extension classes close
February	6	Monday	Last day for extension registration without penalty
			Second semester extension classes begin

<sup>1</sup>For footnotes, see page 4.



## SCHOOL OF NURSING

February	14	Tuesday	Mid-quarter grades due
February	16	Thursday	Charter Day Convocation Senate meeting, 4:30 p.m.
February	22	Wednesday	Washington's Birthday; a holiday (except for extension)
March	20-25		Final examination period
March	23	Thursday	Commencement Convocation
March	25	Saturday	Winter quarter ends, 6:00 p.m. Post-graduate students, School of Nursing, register

*Spring Quarter*

March	31	Friday	Entrance tests
March 31 & April 1			Registration days <sup>1</sup> for new students <sup>2</sup> Registration and payment of fees close at 12 m. on April 1
April	3	Monday	Spring quarter classes begin, 8:30 a.m.
April	14	Friday	Good Friday; a holiday (except for extension)
May	10	Wednesday	Mid-quarter grades due
May	11	Thursday	Cap and Gown Day Convocation
May	18	Thursday	Senate meeting, 4:30 p.m.
May	30	Tuesday	Memorial Day; a holiday
June	2	Friday	Second semester extension classes close
June	10 & 13-17		Final examination period
June	11	Sunday	Baccalaureate service
June	12	Monday	Sixty-first annual commencement
June	17	Saturday	Spring quarter closes, 6:00 p.m.

*Summer Quarter*

June	19-20		Registration, first term
June	21	Wednesday	Summer quarter classes begin, 8:00 a.m.
July	4	Tuesday	Independence Day; a holiday
July	27	Thursday	Commencement Convocation
July	29	Saturday	Registration and payment of fees for second term closes at 12 m.
July	31	Monday	Second term classes begin, 8:00 a.m.
September	2	Saturday	Second term closes

<sup>1</sup> Registration subsequent to the date specified will necessitate the approval of the college concerned. Late registration will necessitate the usual penalty fees. No student will be allowed to register in the University after one week from the beginning of the quarter excepting in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

<sup>2</sup> Students entering three-year course, School of Nursing, must register by 10:00 a.m. on the first date mentioned.

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

## FACULTY

Lotus Delta Coffman, Ph.D., LL.D., President  
Richard E. Scammon, Ph.D., Dean of Medical Sciences  
Eliás P. Lyon, Ph.D., M.D., LL.D., Dean of the Medical School and Head  
of the Department of Physiology  
Katharine J. Densford, M.A., R.N., Director of the School of Nursing and  
Professor of Nursing  
Dorothy S. Kurtzman, R.N., Superintendent of Nurses (a)<sup>1</sup> and Assistant  
Professor of Nursing  
Olena Ordahl, R.N., Superintendent of Nurses (d) and Assistant Professor  
of Nursing  
Elizabeth Reynolds, R.N., B.S., Superintendent of Nurses (b) and Assistant  
Professor of Nursing  
Barbara Thompson, R.N., Superintendent of Nurses (c) and Assistant  
Professor of Nursing  
Lucile Petry, R.N., M.A., Instructor in Nursing  
Phoebe Gordon, B.A., Instructor in Nursing  
Esther M. Thompson, R.N., M.A., Instructor in Nursing (a)  
Cecelia Hauge, R.N., B.S., Instructor in Nursing (a)  
Almyra Hoppe, R.N., B.S., Instructor (a)  
Elisabeth C. Phillips, R.N., B.S., Instructor in Nursing (a)  
Mary C. Sands, R.N., B.S., Instructor in Nursing (b)  
Julia Miller, R.N., Instructor in Nursing (c)  
Myrtle P. Hodgkins, B.S., R.N., Instructor in Nursing (c)  
Melda Korfhage, R.N., B.S., Instructor in Nursing (c)  
Mable Larson, R.N., Instructor in Nursing (c)  
Evelyn H. Schoen, B.A., B.S., R.N., Instructor in Nursing (c)  
Helen Torgerson, R.N., B.S., Instructor in Nursing (c)  
Helen Erickson, R.N., Instructor in Nursing (d)  
Gertrude Thomas, Instructor in Dietetics (a)  
Mabel Netz, B.S., Instructor in Dietetics (a)  
Eva Gregerson, Instructor in Dietetics (b)  
Mary Gaugh, Instructor in Dietetics (c)  
Mildred Hagstrom, Instructor in Dietetics (d)  
Gertrude Carlsrud, R.N., Assistant (a)  
Agnes Fleming, R.N., Assistant (a)  
Helen Nelson, R.N., Assistant (a)  
Jennie Schey, R.N., Assistant (a)  
Melva Blackburn, R.N., Assistant (b)  
Eva Burggren, R.N., Assistant (b)  
Gladys Scheibe, R.N., Assistant (b)

<sup>1</sup> The letters in parentheses indicate the particular hospital in which the instructor serves: (a) University Hospital; (b) Miller Hospital; (c) Minneapolis General Hospital; (d) Northern Pacific Beneficial Association Hospital.

Jean Taylor, B.A., R.N., Assistant (b)  
 Catherine Withrow, R.N., Assistant (b)  
 Emma Arntson, R.N., Assistant (c)  
 Lucille Baer, R.N., Assistant (c)  
 Grace Brunner, R.N., Assistant (c)  
 Ethel Koelzer, R.N., Assistant (c)  
 Theresa Krostue, R.N., Assistant (c)  
 Ellen Rasmussen, R.N., Assistant (c)  
 Lois Shaffer, R.N., Assistant (c)  
 Hulda Humola, R.N., Assistant (d)  
 Marie House, R.N., Assistant (d)  
 Katherine McElroy, R.N., Assistant (d)  
 Apolonia Zettel, R.N., Assistant (d)

#### LECTURERS AND INSTRUCTORS IN CLINICAL AND SCIENTIFIC SUBJECTS

(For list of Medical School faculty members giving instruction in the School of Nursing see Medical School bulletin.)

Those giving voluntary service for the School of Nursing, not on the Medical School faculty are

Max Alberts, M.D.	J. H. Jesion, M.D.
H. G. Collie, M.D.	C. G. Nordin, M.D.
B. I. Derauf, M.D.	Burton Rosenholtz, M.D.
E. J. Engberg, M.D.	M. A. Shillington, M.D.
George K. Hagaman, M.D.	

### COMMITTEES

#### ADMINISTRATIVE COMMITTEE

Lotus D. Coffman, Ph.D., LL.D., President  
 Richard E. Scammon, Ph.D., Dean of Medical Sciences  
 Elias P. Lyon, Ph.D., M.D., LL.D., Dean of Medical School  
 Katharine J. Densford, M.A., R.N., Director of the School of Nursing and Professor of Nursing  
 Jennings C. Litzenberg, B.S., M.D., F.A.C.S., Professor of Obstetrics and Gynecology  
 Esther M. Greisheimer, Ph.D., M.D., Associate Professor of Physiology  
 Dorothy S. Kurtzman, R.N., Superintendent of Nurses, University Hospital, and Assistant Professor of Nursing  
 Eula B. Butzerin, R.N., M.A., Director of Public Health Nursing Course  
 Barbara Thompson, R.N., Superintendent of Nurses, Minneapolis General Hospital, and Assistant Professor of Nursing

#### ADVISORY COMMITTEE

Superintendent of University Hospital (To be appointed)  
 Charles Remy, M.D., Superintendent of the Minneapolis General Hospital  
 H. B. Smith, President, Northern Pacific Beneficial Association  
 Peter D. Ward, M.D., Superintendent of the Charles T. Miller Hospital  
 Administrative Committee  
 Students' Work Committee

## GENERAL INFORMATION

### HISTORICAL STATEMENT

The University of Minnesota School of Nursing, authorized by the Board of Regents October 1, 1908, was actually established March 1, 1909, as a result of the efforts of Dr. Richard Olding Beard. It was the first university school of nursing in the world and, as such, led the way for other university schools which followed. This first university school carried a three-year undergraduate curriculum leading to the degree of graduate in nursing until June 9, 1919, at which time it established a five-year program leading to the degree of bachelor of science and graduate in nursing. Since that time it has carried both a three- and a five-year course, and, up to January 1, 1932, has graduated 847 with a diploma in nursing of which 84 have also received a bachelor of science degree. A distinctive feature of the five-year course has been the requirement of seventy-five university credits before the student matriculates in the School of Nursing proper. As a result, the entire clinical program is made more meaningful than would otherwise be possible.

Another first step was taken December 14, 1920, when the plan of a central school was approved by the University. From the beginning, the University had felt that it should offer the courses it was developing for its own nursing students to other hospitals. The hospitals wishing to take part in such a venture were the Minneapolis General Hospital, the Charles T. Miller Hospital, and the Northern Pacific Beneficial Association Hospital of St. Paul. It was felt that the inclusion of these hospitals would introduce desirable practice fields for the University School of Nursing and would make possible a uniform standard of preparation for the nurses in these hospitals of a higher level than they could achieve individually. The arrangements were completed, therefore, in 1921. Tho no formal contract was made, a memorandum of agreement was drawn and agreed upon by the University and the allied hospitals. On March 30, 1921, the first students in this first central school of nursing were admitted to the University.

On February 19, 1925, the curriculum of clinical experience was further enriched by means of an agreement with the Hennepin County Sanatorium Commission whereby university nurse students were to receive six weeks' clinical experience at the Glen Lake Sanatorium in the care and treatment of tuberculous patients. The arrangement is still continued in the school.

From its inception, the school has maintained high standards for the professional and personal preparation of its students and for the nursing care of patients in its charge. Graduates of the school have made fine contribution not only to their own school, but also to the profession of nursing both in this country and abroad.

The earlier years of the school's existence were devoted to the establishment of this new type of university education while the later ones have been used for the perfecting of the plan made necessary by the merging of the

University with other schools of nursing. Future years should see continued utilization of these early foundations with increasing emphasis on the preventive phases of the nurse's preparation that she may continue to meet adequately the ever increasing and ever broadening demands made upon her.

### ORGANIZATION

The School of Nursing is a part of the Medical School, the director of the school being responsible to the dean of the Medical School and the dean of medical sciences. The administration of the school is conducted largely through three committees, as follows:

1. The Administrative Committee, composed of four representatives from the Medical School faculty and four representatives from the Nursing School faculty, decides all matters of educational policy and general conduct of the School of Nursing.

2. The Students' Work Committee, composed of the director of the school and the superintendents of nurses of the four associated hospitals, determines the policy as regards the individual student, her acceptance into the school, continuance, discipline, graduation, etc.; and makes recommendations concerning the curriculum and general conduct of the school.

3. The Advisory Committee, composed of the Administrative Committee, Students' Work Committee, and the superintendent or executive officer of each associated hospital, decides matters involving the expenditure of hospital funds.

### UNIVERSITY PRIVILEGES

Nurse students enjoy the same university privileges in so far as their nursing practice will permit as do other students.

They have free access to the University Library which is located in the main quadrangle of the University. In this library are about 685,000 volumes of books and some 2,300 current periodicals. The nursing library proper is located on the second floor of the building as a part of the biological medical library. Library hours are from 8:00 a.m. to 10:00 p.m.

Shevlin Hall, the center of women's activities on the campus, is open to nurse students as to others. Its recreation rooms are frequently reserved by the nurses for parties, dances, or entertainments.

Nurse students are entitled to make use of university tennis courts, golf course, and swimming pool and may buy student tickets at reduced rates for all athletic events.

Perhaps the greatest privilege accorded the students is that of attending lectures and concerts in the University either free or at markedly reduced student rates. Among these are the symphony concerts given by the Minneapolis Symphony Orchestra in the Cyrus Northrop Auditorium; the University Artists Course; and the Thursday morning convocation lectures as well as special lectures in the various departments. Student dramatic organizations present several worth while plays on the campus each year.

## SCHOLARSHIPS, LOANS, PRIZES

Students in either the five- or three-year course are eligible, after two quarters of satisfactory work in the University, to apply for loans from the university loan funds. Graduate nurses working for their degrees are also eligible for the loan after two quarters of satisfactory work. For information regarding the loans see bulletin of general information.

The following special awards are made to students in the graduating classes of the School of Nursing:

## LOUISE M. POWELL PRIZE

A gift of \$50 annually from the Alumnae Association of the School of Nursing for the establishment of the Louise M. Powell Prize of \$25 to be awarded to that member of the March and June graduating classes in the School of Nursing of the University of Minnesota who has attained the highest degree of efficiency in practical work.

## MARION L. VANNIER SCHOLARSHIP

A gift of \$100 annually from the Nurses' Self-Government Association of the University of Minnesota for the establishment of the Marion L. Vannier Scholarship. The recipient of this scholarship must be a graduate of the School of Nursing of the University of Minnesota. The scholarship is to be used for the purpose of higher education only, within two years after her graduation.

## OTHER SCHOLARSHIPS AND LOAN FUNDS

Many of the district and state nursing associations have established scholarships and loan funds for graduate nurses wishing to take up university work. Certain graduate nurses are also eligible for scholarships of the national nursing organizations.

## NURSES' RESIDENCES

Nurse students in the three-year course are housed in the various hospital residences from the date of admission even tho they do not have any nursing experience during the first three months. During the past year the Miller Hospital has added an attractive new residence housing 135 persons, all in single rooms. The University Hospital houses its students in separate homes near the campus altho building is soon to be started on a new residence for nurses to be built near the University Hospital on ground overlooking the Mississippi River. This building will house approximately 300 persons. The nurses in the Northern Pacific Hospital have the upper floor of the hospital reserved for their use and those at the Minneapolis General have a residence adjoining, but apart from, the hospital. The students take their meals in the nurses' dining rooms which are under the direction of trained dietitians.

Students in the five-year course provide their own maintenance during the first five quarters. They may secure rooms in Sanford Hall, the girls' dormitory, or in approved rooming houses near the University, by request to

the Housing Bureau, Shevlin Hall, University of Minnesota. During the two and one-half years that the student is in the School of Nursing she has maintenance provided for her on the same basis as the three-year student. In her last three quarters of combined academic and nursing work she provides her own maintenance as in the first five quarters.

Assignment of students in the three- and five-year courses for residence in the various hospitals is made by the Students' Work Committee.

Students in affiliating and postgraduate courses are provided maintenance in the nurses' residences during their period of enrolment in the school.

The rules governing the residences are made and carried out with the joint approval of the faculty of the School of Nursing and the Council of the Nurses Self-Government Association.

### STUDENT ACTIVITIES

The leading student organization of the School of Nursing is the Nurses Self-Government Association. This organization assists the faculty in practically all such student affairs as pertain to off duty hours. Nurse students are admitted to membership at the end of the first six months in the school by passing an examination conducted by the association on their constitution, a copy of which is furnished every student when she enters. Students continue in membership so long as they remain in good standing in the school and pay the very nominal dues of the organization. They elect a president and a governing council of officers so chosen that there are representatives of the council in each of the hospitals. This organization usually sends a representative to the meetings of the American Nurses Association, the National League of Nursing Education, and the Minnesota State Registered Nurses Association.

One of the activities of the student government is to appoint upper classmen to act as "big sisters" for all entering students to assist them in adjusting themselves to their new environment.

The hospitals have frequent informal teas and parties for the students and the students themselves are encouraged to plan any form of recreation that they are interested in and that can be wisely undertaken in addition to their nursing duties.

The school is non-sectarian tho students are urged to form church affiliations in accordance with their choice and custom. Churches of various denominations are within walking distance of the residences so that it is possible for all students to attend either morning or evening service.

Daily chapel service (non-sectarian in character) is held in the respective hospitals.

The Y.W.C.A. of the University is open to all students and there are student religious organizations sponsored by churches of different denominations.

Affiliating and postgraduate students are urged to participate in student activities. Both of these groups make "big sister" appointments to assist

incoming students. The postgraduate students are at present working out a form of organization for their group.

### SCHEDULE OF HOURS

During the first quarter of residence in the School of Nursing proper, regular undergraduate students carry approximately twenty-four hours of class but have no practical experience in the nursing care of patients. With the beginning of the second quarter they receive approximately twenty-three hours of clinical experience weekly and carry approximately twenty-one hours of class. From the beginning of the third quarter and throughout the remainder of the three years (in the case of five-year students, two and one-half years) the hours of clinical experience are fifty-four per week. The hours of class during this same period are approximately six per week with the exception of the summer quarters when the class program is either reduced or omitted. Beginning with the spring quarter, 1932, an attempt is being made to make the clinical experience of the student not exceed forty-eight hours per week. Except in the case of emergencies, students on full time duty have an eight-hour day or an eight-hour night. Assignment of night duty for regular students is for approximately four months (of not more than one month consecutively) during the entire course.

Affiliating students carry fifty-four hours per week of clinical experience (as do the undergraduate students) and from four to six hours of correlating class work.

Postgraduate students carry forty-two hours of clinical experience in all services except that of the operating room in which they have a thirty-hour week during the academic year and a forty-eight hour week at other periods (the students in the operating room do not receive the allowance given the other postgraduate students). Hours of class carried depend upon the individual student, ranging usually, however, from five to ten per week.

### VACATION

Nurse students in the three-year course receive a little over nine weeks of vacation at their own living expense. Students entering at the beginning of the fall quarter will have one to two weeks at Christmas time, two weeks during the succeeding summer, four weeks the following summer, and two weeks during the last summer. Students entering at the beginning of the spring quarter will have two weeks the first summer, four weeks during the second summer, and four weeks during the third year.

Five-year students have vacations as do other university students during their first five quarters and during the last three quarters. During their hospital residence their vacation schedule is practically the same as that of the three-year students.

Affiliating students enrolled for less than one year and postgraduate students receive no vacation.

Affiliating students enrolled for one year receive two weeks vacation.



## SUGGESTED HIGH SCHOOL SUBJECTS

Students in high school who are considering the study of nursing are urged so to arrange their high school subjects that they meet the entrance requirements of the College of Science, Literature, and the Arts of the University of Minnesota, (see page 15) whether they elect the three- or five-year course. By meeting these requirements, students who take the three-year course may later apply their credits in nursing toward a Bachelor's degree, a privilege not open to students who meet only the minimum university requirements. Beginning September, 1934, students in the three-year course *must* meet the requirements of the College of Science, Literature, and the Arts.

In the matter of elective subjects, students should choose subjects in which they are particularly interested, with the guidance of high school advisers. It is well to avoid "vocational units" so far as possible. Students intending to enter the three-year course are advised to take chemistry in high school. Students planning on entering the five-year course are advised to elect other sciences in high school as their university program will include a chemistry course. *Mathematics is desirable as it is essential that the student have a good working knowledge of arithmetic.* English, history, and social science subjects are all to be recommended, and a foreign language, provided two units can be completed.

## PREPARATION AND OPPORTUNITIES

The profession of nursing entails much the same type of requirements and preparation for successful practice as do other professions. Like other professions, only in greater degree, nursing is at present overcrowded. To a greater extent than in other professions the overcrowding is mostly in the lower level positions, whereas in fields requiring advanced preparation it is extremely difficult to find well-qualified personnel. To the good student who is willing to prepare herself rightly, many satisfying opportunities are open in the various fields. Some of these opportunities are for the positions of general duty, head nurse, supervisor, instructor, private duty, industrial nurse, visiting nurse, infant welfare nurse, and school nurse.

# GENERAL REGULATIONS

## ADMISSION

### GENERAL REQUIREMENTS

Admission to the schools and colleges of the University which accept students directly from the high school is either by certificate or examination. These methods are described below.

### ADMISSION BY CERTIFICATE

The applicant must present a certificate of graduation from an accredited preparatory school, or certificates showing that he has passed examinations in high school subjects as given by the Minnesota State Board, or corresponding examinations in another state provided these examinations are recognized by the state university in that state. Certificates representing examinations given by the College Entrance Board or the New York Regents are likewise accepted.

Graduates of senior high schools must present twelve units of work, at least nine of which must be from Groups A, B, C, D, E (see page 14). These nine units must include a major of three units, and two minors of two units each, or preferably two majors and one minor, of which either one major or one minor must be from Group A. In Group B or D applicants may present a maximum of one unit of work from grades below the senior high school as fulfilling one of these requirements. This unit, however, may not be counted in the twelve which are required. In addition to these requirements, applicants must fulfill such others as the particular college which they desire to enter may specify.

Graduates of four-year high school courses, and candidates who offer state board or other examination certificates must present evidence to show that they have completed sufficient work in the last three years of their course to satisfy the requirements specified for graduates of senior high schools.

### ADMISSION BY EXAMINATION

Applicants for admission to the University who are high school graduates, or who are at least nineteen years of age and are unable to meet the requirements for entrance by certificate will be admitted provisionally and subject to one year of satisfactory work at the University, upon passing the following tests:

- a. College aptitude test
- b. Test of proficiency in English
- c. Such special placement tests as the school or college to which the candidate desires admission, may prescribe.

Applicants failing to pass tests (b) or (c) may apply for a subsequent examination at any scheduled date on payment of a fee of five dollars. Those failing to pass test (a) may enter only upon satisfactorily meeting the entrance requirements by the certificate method.

## LIST OF ENTRANCE SUBJECTS

Below is shown the minimum and maximum number of units in any one subject accepted by the various colleges of the University. The term "unit" means not less than five recitations of forty minutes each week for a school year of 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

Composition and literature one to three units

## Group B: Foreign languages

French, one, two, three, or four units

German, one, two, three, or four units

Greek, one, two, three, or four units

Latin, one, two, three, or four units

Scandinavian languages, one, two, three, or four units

Spanish, one, two, three, or four units

Requirements for a major in this group, three units in one language; for a minor, two units in one language.

## Group C: History and social sciences

## History—

American, one-half or one unit

English, one-half or one unit

European, one or two units

## Social sciences—

American government, one-half or one unit

Commercial geography, one-half or one unit

Elementary economics, one-half unit

History of commerce, one-half or one unit

Sociology, one-half unit

Requirements for a major in this group include at least two units in history; for a minor, at least one unit in history.

## Group D: Mathematics

Elementary algebra, one unit

Higher algebra, one-half or one unit

Plane geometry, one unit

Solid geometry, one-half unit

Trigonometry, one-half unit

Unified mathematics, two units

## Group E: Natural sciences

Astronomy, one-half unit

Biology, one unit

Botany, one-half or one unit

Chemistry, one unit

Geology, one-half unit

Physics, one unit

Physiology, one-half unit

Zoology, one-half or one unit

For a major or minor in this group not more than two half-unit courses may be included.

Group F: Vocational and miscellaneous subjects

The three units which are not required to be in Groups A, B, C, D, E, may be in work which the superintendent certifies as being of acceptable nature and as having been counted toward the applicant's graduation.

#### SCHOLASTIC REQUIREMENTS OF INDIVIDUAL COLLEGES

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

(Required for Those Entering the Five-Year Course.)

#### I. Admission by Certificate

- a. Major in Group A.
- b. Minor in Group D.
- c. Major or minor in Groups B or C or E.

Note that one unit in a minor may be counted from work below the tenth grade, in accordance with the regulation on page 13.

#### II. Admission by Examination

In accordance with the regulation printed on page 13, the tests required for admission will be (a) college aptitude test, (b) test of proficiency in English.

#### SCHOOL OF NURSING

(Required for Those Entering the Three-Year Course.)

#### I. Admission by Certificate

Applicants for admission to the School of Nursing should be graduates of an approved high school and must present the minimum entrance requirements of one major and two minors as described on page 13.

Beginning with September, 1934, all matriculants must meet the entrance requirements of the College of Science, Literature, and the Arts.

#### II. Admission by Examination

In accordance with the regulation printed on page 13, the tests required for admission will be (a) college aptitude test, (b) test of proficiency in English.

#### COLLEGE OF EDUCATION—SPECIAL CURRICULA

(Required for graduate nurses working for B.S. degree)

For all special curricula to which freshmen are admitted, the certificate of senior high school graduation must show the completion of the following:

1. Major in Group A.
2. Minor in each of two of the Groups B, C, D, and E.

#### REGULATIONS GOVERNING ADMISSION

##### THREE-YEAR COURSE

Applications for admission to the School of Nursing should be made in writing to the director. Information and application blanks may be had upon request from the director, School of Nursing, University of Minnesota. Application blanks and educational credentials must be on file in the school office before the applicant can be given consideration.

Applicants must meet entrance requirements as stated on page 15. Students whose high school records were not good are not advised to enter the field of nursing and if accepted, may be asked to provide their own maintenance during the first three months. In considering the applicants the Enrolment Committee gives preference to those students who ranked in the upper fourth of their high school class. Preference is also given to applicants holding a Bachelor's degree, for whom it is possible to plan a special program of advanced study in their senior year in the School of Nursing. For requirements of physical fitness see Health Regulations, page 18.

To be eligible for registration in the state of Minnesota the nursing school graduate must be twenty-one years of age. Therefore, applicants under eighteen years of age are urged to elect the five-year course.

Final acceptance is made at a meeting of the Enrolment Committee of the School of Nursing at which time the general fitness of the applicant for the field of nursing is considered. The committee reserves the right to reject any candidate who seems to the faculty unsuited for the nursing profession. Meetings of the committee are held at the beginning of the fall and spring quarters, at which time students are admitted to the school. Applicants may meet the committee at its meeting six months prior to the date they intend to enter if they wish, but ordinarily they meet the committee on the date they wish to enter the school. Every precaution is taken to warn applicants in advance if their records seem to indicate that they are not suited to enter the field of nursing.

#### FIVE-YEAR COURSE

Applicants for admission to the five-year course must meet the entrance requirements of the College of Science, Literature, and the Arts, as given on page 15.

Acceptance into the School of Nursing is not made until the 75 credits of **prenursing** subjects have been completed (see outline of the five-year course, page 25). Students who have taken work in another college or university may apply the credits toward the five-year course. Official transcripts of such credits should be submitted to the university registrar for evaluation. Students are admitted to the five-year course at the beginning of every quarter, altho the fall quarter is the most satisfactory time to enter.

#### DEGREE COURSE FOR GRADUATE NURSES

Applicants for admission to this course must meet the entrance requirements of the College of Education special curricula (see page 15) and submit evidence of graduation from an accredited school of nursing.

#### POSTGRADUATE COURSES

Applicants for admission to postgraduate courses must be graduates of accredited schools of nursing and meet the minimum entrance requirement for admission to the University of Minnesota, as described above. They should write to the director, School of Nursing, University of Minnesota, for application blanks. These should be filled out and placed on file in the School of Nursing office one month in advance of the quarter in which the applicant wishes to enter.

Postgraduate students are admitted quarterly, except summer, usually one week before each regular university registration day in order that adjustment to clinical experience in the hospital be made before university classes begin. Only a limited number of applicants may be accepted in any one quarter.

Proper blanks on which the nursing school credits and high school credits should be sent in may also be had by request to the director.

#### COURSES FOR AFFILIATING STUDENTS

By special arrangements with other schools of nursing, approved by the State Board of Nurse Examiners, their students are admitted at stipulated times for additional experience and instruction. Such students must meet the requirements of their own school, and after 1935 must meet the requirements of high school graduation or its equivalent.

#### ADMISSION WITH ADVANCED STANDING

The state law of Minnesota (as that of many other states) requires the nursing course to be three years in length. Hence it is not possible to grant credit in point of time to applicants with advanced university or college credit or even with degrees. It is possible, however, to allow such students marked advantages which are tantamount to time credit. For required courses in which such students have already received credit they may make substitution and so work toward their degree or in case of those already having a Bachelor's degree they may work toward a Master's degree. Also, for those already having a Bachelor's degree the school grants the last six months for electives. This time the student may (and usually does) elect to spend in some special field such as that of psychiatric nursing or public health nursing. She may, also, if she desires, utilize the major portion of this period of six months for work toward her Master's degree.

#### ADMISSION FOR TRANSFERRING STUDENTS

It is not the policy of the School of Nursing to accept students wishing to transfer from other schools of nursing. In almost every case the first two quarters must be repeated and a great deal of time is lost for the student in transfer.

#### ESTIMATE OF EXPENSES OF THREE-YEAR COURSE IN NURSING\*

Year	Board and Room	Books	University Fees	Uniforms (Inc. Cape)	Grad. Fee	Total
First	0†	\$25.00	\$37.50	\$55.00	.....	\$116.00
Second	0	10.00	0	0	.....	10.00
Third	0	10.00	0	0	\$10.00	20.00
Total.....						\$146.00

\* This does not include clothing, incidentals, traveling, and vacation expenses.

† In special cases students will be admitted only on condition that they pay their own maintenance during all or part of first three months (see Admissions). Also, students who leave the School of Nursing without the definite advice of the Students' Work Committee before the beginning of the second quarter are expected to reimburse the hospitals for their maintenance on the basis of \$10 a week.

## SCHOOL OF NURSING

## ESTIMATE OF EXPENSES OF FIVE-YEAR COURSE IN NURSING\*

Year	Board and Room	Books	University Fees†	Uniforms (Inc. Cape)	Grad. Fee	Total
First	\$375.00	\$35.00	\$83.00	0	.....	\$ 493.00
Second	250.00	35.00	88.00	\$55.00	.....	428.00
Third	0	15.00	0	0	.....	15.00
Fourth	0	15.00	0	0	.....	15.00
Fifth	375.00	35.00	83.00	50.00 (Pub. H.)	\$10.00	553.00
Total.....						\$1,504.00

\* This does not include clothing, incidentals, traveling, and vacation expenses.

† Special laboratory and course fees are additional.

Affiliating students pay no tuition and complete maintenance is furnished them. Books amount to about \$20 for the year. Personal expenses can be determined best by the individual student.

For fees in postgraduate courses see page 28.

HEALTH REGULATIONS<sup>1</sup>

All applicants must present a physician's statement attesting the applicant's physical fitness.

In addition, the University School of Nursing requests each student before entering to be vaccinated against smallpox and to be immunized against typhoid fever, diphtheria, and scarlet fever. Compliance with this requirement prevents the necessity of immunizing the student during her first three months which frequently involves discomfort and loss of time for the student in the period when she most needs to be at her best physically. (Detailed instructions as prescribed by the University Health Service regarding immunization may be secured from the School of Nursing if desired by the applicant's physician.)

Upon entrance the applicant must pass satisfactorily the physical examination given by the University Health Service. Students whose condition needs further observation may be admitted tentatively but must cancel if later findings prove them physically unfit for nursing. The increasing emphasis on maintenance of health and prevention of disease is bringing an equal demand that the nurse herself be physically fit.

All students receive in the respective hospitals an annual physical examination. Chest X-rays for regular students are taken on entrance, at graduation, and as frequently as necessary during the course for the protection of the students and the hospitals. Chest X-rays for postgraduate students are taken on entrance only.

A regular student in the School of Nursing who is disabled by continued illness shall be referred to her home or family as soon as she may be safely discharged from the hospital and permitted to travel; and shall

<sup>1</sup> The regulations given here apply to postgraduate, as well as undergraduate, students except where otherwise indicated.

thereafter be eligible for reinstatement under the same rules as apply to any other student. In any case, her registration as a first year student shall be terminated at the end of thirty days; if a second year student, at the end of sixty days; and if a third year student, at the end of ninety days; and thereafter such students shall meet their own cost of hospital care on the same basis as regular patients under the established rules and regulations of the hospital concerned. In the case of affiliating and post-graduate students, they must meet the cost of hospital care which is in excess of one month for any one year of residence in the school.

### GRADES

In both practical work and class work nurse students receive grades in accordance with the general university plan. The passing grades used are A, B, C, D, in order of excellence. A grade of I (incomplete) is given when work is not completed on time, through no fault of the student and must be made up within 30 days unless the time is extended by permission of the Students' Work Committee. Grade of E is a temporary grade which may be removed by satisfactorily passing a second examination, for which a fee of \$1 is charged. Grade of F in any class can be removed only by repeating the course. Students receiving a grade of F (failure) in any part of the clinical experience must repeat enough of the service to secure a passing grade.

Students in the five-year course are governed during the first five quarters by the regulations of the College of Science, Literature, and the Arts, and during the last three quarters by the regulations of the College of Education, in regard to grades, credits, honor points, and so forth.

### CONTINUATION IN SCHOOL

Because of the complicated schedules of clinical experience it is impossible to arrange irregular class schedules for students. For that reason, no student is allowed to register for the second quarter in the School of Nursing who has not satisfactorily completed the work of the first quarter; and no student may register for the third quarter who has not satisfactorily completed the second.

The faculty of the School of Nursing reserves the right to cancel the registration of any student who seems to them unsuited for the nursing profession or to remove any student connected with the school when, in their judgment, the interest of the school requires it.

### READMISSION

All students who miss more than a month of their work through illness or leave of absence will have to remain out of the school until such time as the class or clinical schedule can be adjusted to their needs. Special permission cannot be granted students to remain away for the purpose of caring for sick relatives.



## REQUIREMENTS FOR GRADUATION

The Board of Regents of the University of Minnesota upon recommendation of the faculty of the School of Nursing, confers degrees and certificates as specified below.

## GRADUATE IN NURSING

The degree of graduate in nursing will be granted to those who have completed satisfactorily the requirements of the three-year professional nursing course as outlined on pages 21 to 24.

## BACHELOR OF SCIENCE DEGREE AND GRADUATE IN NURSING

The degrees of bachelor of science and of graduate in nursing will be granted those students who have completed satisfactorily the requirements of the five-year course as outlined on pages 25 to 26.

## BACHELOR OF SCIENCE DEGREE

The bachelor of science degree will be granted those graduate nurses who have completed satisfactorily the requirements for this degree as outlined on pages 26 to 27.

## CERTIFICATES

A certificate of public health nursing will be granted those electing and completing satisfactorily the requirements of Course B of the five-year course as outlined on page 26.

Certificates in the respective fields of nursing will be granted graduate nurses completing satisfactorily elected postgraduate courses as outlined on pages 27 to 31.

## STATE REGISTRATION

Nurse students completing either the three- or five-year course are eligible at the age of twenty-one years to take the state board examination given by the Minnesota State Board of Nurse Examiners. Successful passing of this examination entitles the nurse to registration in Minnesota and makes her eligible for membership through her alumnae, district and state association, in the national nursing organizations and the Red Cross Nursing Service.

## CURRICULA

The School of Nursing administers, with the assistance of certain other departments in the University, curricula for the following courses:

1. Three-year course
2. Five-year course
3. Degree course for graduate nurses
4. Affiliating courses
5. Postgraduate courses

### 1. THREE-YEAR COURSE

The three-year course leads to the degree of graduate in nursing. (Graduates of this course receive 60 blanket credits toward a bachelor of science degree in nursing education or public health nursing.) Candidates for the degree of graduate in nursing must complete the curriculum of class work and clinical experience as given on the following pages, any changes therefrom to have the approval of the Students' Work Committee of the School of Nursing.

#### CLASS CURRICULUM—FIRST SIX MONTHS

##### *First Quarter*

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Anat. 3	Human Anatomy .....	22	22	44
Physiol. 1	Elementary Chemistry .....	33	11	44
Physiol. 2	Human Physiology .....	44	22	66
Bact. 1	Elementary Bacteriology .....	33	33	66
Prev. Med. 3	Personal Hygiene and Elementary Sanitation	22	..	22
Nurs. 1	History of Nursing .....	..	11	11
Nurs. 10	Introduction to Nutrition .....	..	11	11
Total .....		132	132	264

##### *Second Quarter*

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Pharm. 7	Metrology .....	11	11	22
Pharm. 8	Elementary Pharmacology .....	22	11	33
Nurs. 2	Ethics .....	11	..	11
Nurs. 6	Case Study .....	11	..	11
Nurs. 11	Foods and Nutrition .....	11	44	55
Nurs. 15	Principles and Practice of Nursing including Lettering and Hospital Economy .....	44	22	66
Nurs. 23	Massage .....	..	8	8
Nurs. 29	Principles of Surgery and Surgical Nursing	23	..	23
Total .....		133	96	229

## CLASS CURRICULUM AFTER FIRST SIX MONTHS (FALL CLASS)\*

*Freshman One-half Year*

GROUP 1	GROUP 2	GROUP 3	GROUP 4
Title			
Hrs.			
Princ. & Prac. of Nurs. (incl. Bandaging) . . . 44	Same as Group 1	Same as Group 1	Same as Group 1
Pediatrics . . . . . 35			<i>except</i>
Medicine . . . . . 35			Surgery instead of Pediatrics

*Junior Year*

Obst. Nursing . . . 24	Same as Group 1	Same as Group 1	Same as Group 1
Surgery II . . . . 23	<i>except</i>	<i>except</i>	<i>except</i>
Pathology . . . . 18	Gynecology in-	Gynecology in-	Pediatrics instead
Special Senses . 18	stead of Diet	stead of Diet	of Surgery and
Diet Therapy . . 11	Therapy	Therapy	Gynecology in-
Psychology . . . 66			stead of Diet
			Therapy

*Senior Year*

Sociol. and Soc. Serv. . . . . 44	Same as Group 1	Same as Group 1	Same as Group 1
Psych. & Neur. 11	<i>except</i>	<i>except</i>	<i>except</i>
Dermatology . . 18	Diet in Disease	Diet in Disease	Diet in Disease
Gynecology . . . 12	instead of Gyn-	instead of Gyn-	instead of Gyn-
Survey of Nurs. Field & Prof. Problems . . . 18	ecology	ecology	ecology
Spec. Therapeut. 6			
Public Health . . 11			

## CLINICAL CURRICULUM AFTER FIRST SIX MONTHS (FALL CLASS)\*†

*Freshman Year*

GROUP 1		GROUP 2		GROUP 3		GROUP 4	
Title	No.	Title	No.	Title	No.	Title	No.
Surg. Nurs. . . . .	1½	Med. Nurs. . . . .	2	Surg. Nurs. . . . .	1½	Surg. Nurs. . . . .	2
Oper. Room . . . . .	2½	Diet K. . . . .	1	Med. Nurs. . . . .	2	Vac. . . . .	2½
Vac. . . . .	½	Vac. . . . .	½	Diet K. . . . .	1	Med. Nurs. . . . .	2½
Ped. Nurs. . . . .	1½	Oper. Room . . . . .	2½	Vac. . . . .	½	Diet K. . . . .	1
				Oper. Room . . . . .	1		

*Junior Year*

Ped. Nurs. . . . .	1½	Ped. Nurs. . . . .	3	Oper. Room . . . . .	1½	Oper. Room . . . . .	3
Com. Dis. . . . .	1½	Com. Dis. . . . .	1½	Ped. Nurs. . . . .	3	Ped. Nurs. . . . .	3
Med. Nurs. . . . .	1½	Med. Nurs. . . . .	1½	Com. Dis. . . . .	1½	Com. Dis. . . . .	1½
Obst. Nurs. . . . .	3	Obst. Nurs. . . . .	3	Med. Nurs. . . . .	1½	Med. Nurs. . . . .	1½
Med. Nurs. . . . .	2	Dispens. . . . .	1	Obst. Nurs. . . . .	2	Obst. Nurs. . . . .	2
Vac. . . . .	1	Gyn. Nurs. . . . .	1	Vac. . . . .	1	Vac. . . . .	1
Tbc. Nurs. . . . .	1½	Vac. . . . .	1	Dispens. . . . .	1		
				Med. Nurs. . . . .	½		

*Senior Year*

P. H. Nurs.§ . . . 1½	The. Nurs. . . . . 1½	Med. Nurs. . . . . ½	Dispens. . . . . 1
Pri. Pat.‡ . . . . 3	P. H. Nurs.§ . . . 1½	Gyn. Nurs. . . . . 1	Surg. Nurs. . . . 1
Dispen. . . . . 1	Pri. Pat.‡ . . . . 3	Tbc. Nurs. . . . . 1½	Gyn. Nurs. . . . 1
Gyn. Nurs. . . . . 1	Med. Nurs. . . . . 2½	P. H. Nurs.§ . . . 1½	Tbc. Nurs. . . . 1½
Diet K. . . . . 1	Vac. . . . . ½	Pri. Pat.‡ . . . . 3	P. H. Nurs.§ . . . 1½
Surg. Nurs. . . . 1½	Surg. Nurs. . . . 3	Surg. Nurs. . . . 1½	Pri. Pat.‡ . . . . 3
Vac. . . . . ½		Vac. . . . . ½	Med. Nurs. . . . 1½
Med. Nurs. . . . . 2½		Obst. Nurs. . . . 1	Vac. . . . . ½
		Med. Nurs. . . . 1½	Obst. Nurs. . . . 1

For note and footnotes, see p. 24.

CLASS CURRICULUM AFTER FIRST SIX MONTHS (FALL CLASS)

*Freshman One-half Year*

GROUP 5	GROUP 6	GROUP 7	GROUP 8
Title			
Hrs.			
Princ. & Prac. of Nurs. (incl. Bandaging) .. 44	Same as Group 5 <i>except</i>	Same as Group 5 <i>except</i>	Same as Group 5 <i>except</i>
Medicine ..... 35	Psychology in- stead of Medi- cine & Surgery	Psychology in- stead of Medi- cine & Surgery	Psychology in- stead of Medi- cine & Surgery
Surgery ..... 24			
<i>Junior Year</i>			
Pediatrics ..... 35	Same as Group 5 <i>except</i>	Same as Group 5 <i>except</i>	Same as Group 5 <i>except</i>
Obstetrics ..... 24	Medicine in place of Obstetrics & Sociology in place of Psy- chology	Medicine in place of Obstetrics & Sociology in place of Psy- chology	Medicine in place of Obstetrics & Sociology in place of Psy- chology
Pathology ..... 18			
Special Senses . 18			
Diet in Disease 11			
Psychology .... 66			
<i>Senior Year</i>			
Sociol. and Soc. Service ..... 44	Same as Group 5 <i>except</i>	Same as Group 5 <i>except</i>	Same as Group 5 <i>except</i>
Psych. & Neur. 11	Obstetrics & Sur- gery in place of Sociology	Obstetrics & Sur- gery in place of Sociology	Obstetrics & Sur- gery in place of Sociology
Dermatology ... 18			
Gynecology .... 12			
Survey of Nurs. Field & Prof. Problems .... 18			
Spec. Therapeut. 6			
Public Health .. 11			

CLINICAL CURRICULUM AFTER FIRST SIX MONTHS (FALL CLASS)

*Freshman Year*

GROUP 5	GROUP 6	GROUP 7	GROUP 8
Title	Title	Title	Title
No.	No.	No.	No.
Surg. Nurs. .... 2	Surg. Nurs. .. 2½	Med. Nurs. ... 2½	Surg. Nurs. ... 2
Med. Nurs. .... 2	Vac. .... ½	Surg. Nurs. .. 1½	Oper. Room .. 1
Vac. .... ½	Pri. Pat. † .... 3	Vac. .... ½	Med. Nurs. ... 2½
Med. Nurs. .... 1½		Pri. Pat. ‡ .... 1½	Vac. .... ½

*Junior Year*

Med. Nurs. .... ½	Med. Nurs. ... 2	Pri. Pat. † .... 1½	Pri. Pat. ‡ .... 3
Diet K. .... 1	Diet K. .... 1	Med. Nurs. ... 2	Med. Nurs. ... 2
Oper. Room ... 3	Oper. Room .. 3	Diet K. .... 1	Diet K. .... 1
Ped. Nurs. .... 3	Ped. Nurs. ... 3	Oper. Room .. 3	Oper. Room .. 2
Com. Dis. .... 1½	Com. Dis. .... 1½	Ped. Nurs. ... 3	Vac. .... 1
Med. Nurs. .... ½	Vac. .... 1	Vac. .... 1	Ped. Nurs. ... 3
Vac. .... 1	Med. Nurs. ... ½	Med. Nurs. ... ½	
Obst. Nurs. .... 1½			

*Senior Year*

Obst. Nurs. .... 1½	Obst. Nurs. ... 3	Com. Dis. .... 1½	Com. Dis. .... 1½
Dispen. .... 1	Dispen. .... 1	Obst. Nurs. ... 3	Surg. Nurs. ... 1½
Surg. Nurs. .... 1	Gyn. Nurs. ... 1	Dispen. .... 1	Obst. Nurs. ... 3
Gyn. Nurs. .... 1	Med. Nurs. ... 1	Gyn. Nurs. ... 1	Dispen. .... 1
Tbc. Nurs. .... 1½	P. H. Nurs. § . 1½	Surg. Nurs. ... 1	Gyn. Nurs. ... 1
P. H. Nurs. § . 1½	Tbc. Nurs. ... 1½	P. H. Nurs. § . 1½	Med. Nurs. ... 1
Pri. Pat. ‡ .... 3	Med. Nurs. ... 2½	Tbc. Nurs. ... 1½	P. H. Nurs. § . 1½
Vac. .... ½	Vac. .... ½	Vac. .... ½	Tbc. Nurs. ... 1½
Med. Nurs. .... 1		Med. Nurs. ... 1	

## CLINICAL EXPERIENCE

The clinical experience of the students begins in their second quarter in the school. They are assigned to the hospitals in the school in the order of their scholarship rank during the first quarter, the number assigned to each hospital being determined by the daily average of patients in the hospitals during the preceding six months. The hospitals in which the students receive their clinical experience are as follows:

The University Hospitals, situated on the university campus, include the Elliot Memorial Building, the Cancer Institute, the Todd Memorial, and the Eustis Children's Hospital. They are supported by state funds and endowments. They care for patients sent in from all parts of the state. The daily average of patients from July to December, 1931, was 350.

The Minneapolis General Hospital is supported by taxation and cares principally for the indigent sick of the city of Minneapolis. It has a large number of accident and emergency cases and a wide variety of acute diseases. The daily average of patients July to December, 1931, was 460.

The Charles T. Miller Hospital is situated in St. Paul having 50 beds for free patients and 150 beds for private and semi-private patients. The daily average of patients July to December, 1931, was 124.

The Northern Pacific Beneficial Association Hospital is located in the midway district. It cares for the sick among the employees and their families of the Northern Pacific Railroad. The daily average of patients, July to December, 1931, was 83.

The Hennepin County Tuberculosis Sanatorium at Glen Lake, an institution of over 700 beds, caring for all types of tuberculosis is affiliated with the School of Nursing to give the students experience in the care of tuberculous patients. Students are not assigned for experience there until the end of their junior year and then only for one and one-half months.

Students are rotated from one hospital to another in order to give them as complete clinical experience as the school has to offer. For instance, all students go to the Minneapolis General Hospital for experience in communicable disease nursing.

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NOTE.—In the shorter services certain rotation of students takes place which results in slight variation from the schedule—for instance in a three-month period including Gynecology, Diet Kitchen, and Surgical Nursing. Other variations may be made necessary by illness of students, or other emergencies but the above schedule is followed as closely as possible.

\* The class and clinical curriculum for the class entering the beginning of the spring quarter is similar to that for the class in the fall quarter with the exception of vacations which consist of one month in the junior and one in the senior years.

† October to December—classes only; January to March—part time practice in medical and surgical nursing.

‡ Clinical experience in the care of private patients will be in the departments of medical and surgical nursing.

§ Plans have been made to include this experience beginning 1934, if possible.

## FIVE-YEAR COURSE

The five-year combined Nursing and Arts Course leads to a bachelor of science degree and a degree of graduate in nursing. Those electing public health nursing will also receive a certificate of public health nursing upon completion of the requirements. Wherever possible, students should elect the five-year in preference to the three-year course, because the preparation given is broader and better, and graduates of the five-year course are in much greater demand than are those from the three-year program. During the first five quarters of this course, the student is registered in the College of Science, Literature, and the Arts; during the next ten, in the School of Nursing proper, and during the last three quarters, in the College of Education, majoring either in nursing education or in public health nursing.

## CURRICULUM

*First Five Quarters (College of Science, Literature, and the Arts)*

No.	Title	Credits
Engl. A-B-C or 4-5-6 or exemption from the requirement		9-15
Zool. 1-2-3	General Zoology (Lect. and Lab.)	10
Hist.		10
Physiol. 1 and 2*		8
Psy. 1-2	General Psychology	6
H. Ec. 70	Nutrition Survey	2
Soc. 1	Introduction to Sociology	5
Bot.†		10
Phys. Ed.		..
Electives		15-9

*Sixth Quarter (School of Nursing)*

	Credits
Anatomy 3	3
Bacteriology 1	4
History of Nursing 1	1
Educational Psychology 55	3
Electives	4
Physical Education	..

\* If 10 credits chemistry is offered, Physiology 1 may be omitted and Physiology 4 may be substituted for Physiology 2 if desired.

† Freshmen entering September, 1933, and thereafter will be required to take chemistry instead of botany.

*Seventh to Tenth Quarters (School of Nursing)*

The five-year student carries during her residence in the School of Nursing the same class and clinical curricula as does the three-year student with the following exception. She carries a curriculum of clinical experience covering two and one-fourth years (nine quarters) instead of the two and three-fourth years required of the three-year student. This adjustment is made by shortening her time spent in surgical nursing and private patient care and extending her experience in other nursing fields.

For outline of class and clinical curriculum during residence in the School of Nursing see pages 21 to 23.

*Last Three Quarters*

A and B represent electives offered.

## A. Nursing Education (College of Education and School of Nursing)

Major Adviser: Katharine J. Densford

No.	Title	Credits
Ed.T. 15	Technique of Teaching .....	3
Ed.T. 11-12	Special Methods and Practice Teaching .....	12
Ed.Ad. 65	The High School .....	3
Nursing 60	Ward Administration .....	2
Nursing 61	A Survey of Hospital Relationships .....	2
Nursing	Electives .....	23*
Total .....		45

## B. Public Health Nursing (College of Education and Department of Public Health)

Major Adviser: Eula Butzerin

No.	Title	Credits
P.M.&P.H. 53	Elements of Preventive Medicine .....	3
P.M.&P.H. 58	Maternal and Child Hygiene .....	2
P.M.&P.H. 60	Tuberculosis and Its Control .....	2
P.M.&P.H. 61	Mental Hygiene .....	3
P.M.&P.H. 62	Principles of Public Health Nursing .....	3
P.M.&P.H. 63	Special Fields in Public Health Nursing .....	3
P.M.&P.H. 64	Field Practice in Infant Welfare	} Minimum .....
P.M.&P.H. 65	Field Practice in School Nursing	
P.M.&P.H. 66	Field Practice in County Nursing	
P.M.&P.H. 68	Field Practice in Visiting Nursing	
Soc. 49	The Socially Inadequate .....	3
Soc. 52	Elementary Case Work .....	3
Soc. 90	Field Survey and Social Case Work .....	2
Soc. 60	Social Protection of the Child	} .....
or		
H.E. 40	Child Training	3
Ed.T. 15	Technique of High School Instruction .....	3
	Electives .....	2
Total .....		45

\* Electives must be chosen so as to complete the professional requirement of 26 quarter credits for the teacher's certificate. See College of Education bulletin.

DEGREE COURSE FOR GRADUATE NURSES<sup>1</sup>

Graduate nurses desiring to carry work toward a bachelor of science degree should choose as a major either Course A for Nursing Education or Course B for Public Health Nursing (see above). Having made this choice they should have an official transcript of their high school and nursing school record sent to the major adviser in the course selected.

Advanced credit for the professional nursing course will be determined by the Committee on Evaluation of Nursing Credit which will indicate any additional clinical experience to be completed before the credit is granted.

<sup>1</sup> For information regarding the certificate course in public health nursing write the director of the Course in Public Health Nursing.

Forty-five credits represent approximately the average advanced standing given for a satisfactory school of nursing course of study.

The amount and type of college work to be required of each candidate is to be decided by her major adviser after consideration of the candidate's general education and experience. In general the student will be expected to complete the subjects listed in the first five quarters of the five-year course together with the subjects listed in the major she has chosen and enough electives to make a total of 180 credits (including the credits given for nursing school work). A careful selection of electives will enable the student to prepare more in detail for such specialized positions as those of head nurse, supervisor of special services, instructor of science or nursing subjects, school nurse, industrial nurse, infant welfare nurse, visiting nurse, and similar positions.

Students must conform to the regulations of the College of Education in which they register in regard to such matters as total credit and honor points, quality credit rule, approval of programs by the dean and Students' Work Committee of the College of Education, petitions, physical education requirement, and so forth.

### AFFILIATIONS

Because of the large number of patients and the wide variety of illness manifested in these patients the school is able to offer affiliation in certain services to other schools of nursing desiring additional practice for their students.

Services in which other schools may receive affiliation are medical, surgical, pediatric, and obstetric. To schools sending students for a period of one year it is possible to include certain additional elective services.

The terms of affiliation are agreed upon between the University School and the school sending students. A copy of the conditions of affiliation will be sent to any school interested upon request to the director, School of Nursing, University of Minnesota. The length of affiliation varies from three months in the city of Minneapolis to six months and one year for schools outside the city. Schools desiring affiliation must be accredited schools and be connected with hospitals which are approved by the American College of Surgeons as well as by the American Hospital Association.

### POSTGRADUATE COURSES

Among the opportunities offered through postgraduate courses are the following:

1. To prepare for head nurse combined teaching and administrative positions.
2. To become a proficient bedside nurse in a chosen field.
3. To become acquainted with the preventive aspects of nursing in this field.
4. To carry related university courses giving credit toward a degree.
5. To supplement deficient undergraduate preparation.

A program of academic study in the University is arranged for each field of postgraduate work, but may be modified by petition to meet the needs of the individual student and to take into consideration her interests and lines of development. All clinical subjects in the School of Nursing are also available for election.



The clinical experience of the postgraduate students is planned so as to include all available subdivisions of the various fields. The University, Minneapolis General, and, in one instance, the Miller Hospital, are available as fields for clinical experience, and students are assigned to their clinical fields on special registration day for postgraduate students by the Students' Work Committee. Only a limited number of applicants can be accepted in any one quarter.

Postgraduate students receive full maintenance and a \$10 monthly allowance with the following exceptions:

1. Operating Room Technique, Teaching, and Administration. Because of the shorter hours of clinical experience, no allowance is granted, but full maintenance is provided.
2. Medical, Surgical, Pediatric, and Obstetric Nursing. During the eight weeks of public health nursing, nursery school, social service, or laboratory, the student pays her own maintenance of \$10 per week and receives no allowance.

Students wear their own graduate nurse uniforms while in the hospital. Uniforms for the public health nursing service may be rented. Laundry is included in maintenance. As registrants in the School of Nursing, they pay no tuition fee. Postgraduate students who are desirous of transferring such academic credits as may be counted for the bachelor of science degree pay the College of Education tuition fee (i.e., \$1.75 to \$2.50 per credit) at the time when they transfer their credits from the School of Nursing to the College of Education, which college grants the degree. Summer quarter courses, if elected, carry fees.

#### MEDICAL NURSING—TWELVE MONTHS

Subject	Class Curriculum		Clinical Curriculum*	Weeks in Service
	Wkly. Hrs. per Qtr.	Credits		
Chemistry .....	4	3†	Women's Medical, including General Medical Clinics, Special Medical Clinics, Admission Clinic in Out-Patient Dept. and Occupational Therapy .....	12
Physiology .....	6	5†		
Preventive Medicine .....	3	3†	Men's Medical, including Skin and Venereal Clinic in Out-Patient Dept. ....	8
Principles of Medicine and Med. Nursing .....	3	3		
Dermatology .....	1½	1½	Neurology .....	4
Diet Therapy .....	1	1	Communicable Disease .....	4
Neurology and Psychiatry ..	1	1	Tuberculosis .....	2
Ward Administration .....	2	2†	Diet Kitchen .....	4
Teaching and Supervision ..	3	3†	Laboratory .....	4
Tuberculosis Nursing ....	1	1	Physical Therapy .....	2
Communicable Diseases and Com. Dis. Nursing‡ ..	..	..	Social Service or Public Health Nursing .....	4
Nutrition Conferences‡ ...	..	..	Ward Administration .....	8
Total for year .....	25½	23½		

† Credits transferable to College of Education.

‡ Total of approximately six hours.

Number of hours of clinical experience weekly = 42.

\* The clinical curriculum includes 48 hours of ward classes in medical nursing.

SURGICAL NURSING—TWELVE MONTHS

Class Curriculum			Clinical Curriculum	
Subject	Wkly. Hrs. per Qtr.	Credits	Type of Service	Weeks in Service
Anatomy	4 or 9	3† or 6††	Women's Surgery, including Gynecological and Orthopedic Services, and Surgical, Gyn., and Orthopedic Clinics in Out-Patient Dept. .... Men's Surgery, including Urological and Orthopedic Services and Urological and Orthopedic Clinics in the Out-Patient Dept. .... Eye, Ear, Nose and Throat, inc. Clinics in Out-Patient Dept. ... Surgical Dressing Room ..... Cancer Surgery, including Cancer and Reconstruction Clinics ... Public Health Nursing ..... Social Service ..... Operating Room (general) ..... Administration .....	13
Bacteriology	9	5†		8
Principles of Surgery and Surgical Nursing	2	2		4
Principles of Gynecology and Gyn. Nursing	1	1		1
Ward Administration	2	2†		4
Teaching and Supervision	3	3†		1
Pathology	1½	1½		4
Electives (see page 35 for suggested electives)	6½ or 3	6½ or 3		4
Total for year	29	24		4

† Credit transferable to College of Education.

†† The six-credit course in anatomy is given by the Extension Division and carries a fee of \$25.

Number of hours of clinical experience weekly = 42.

OPERATING ROOM TECHNIQUE, TEACHING, AND ADMINISTRATION—TWELVE MONTHS

Class Curriculum			Clinical Curriculum	
Subject	Wkly. Hrs. per Qtr.	Credits	Type of Service	Weeks in Service
Anatomy	4 or 9	3† or 6††	General Surgery ..... Dressing and Supply Room ..... Ward and Surg. Dispensary ..... Eye, Ear, Nose, Throat ..... Gynecology and Orthopedic Surg. .... Administration .....	17
Physiology	6	5†		2
Bacteriology	6	4		6
Pharmacology	4	2		9
Pathology	1½	1½		9
Teaching & Supervision	3	3†		9
Oper. Room Admin.	2	2		
Oper. Room Technique	1	1		
Electives	2 or none	2 or none		
Total for year	29½	23½		

† Credit transferable to College of Education.

†† The six-credit course in Anatomy is given by the Extension Division and carries a fee of \$25.

During 9 months the students have 30 hours of clinical experience per week. During approximately 3 months they have 48 hours weekly.

## PEDIATRIC NURSING—TWELVE MONTHS

<i>Class Curriculum</i>			<i>Clinical Curriculum</i>	
Subject	Wkly.	Credits	Type of Service	Weeks in Service
	Hrs. per Qtr.			
Psychology 1 .....	3	3†	Medical Children, including Nu- trition Work and Out-Patient Dept. ....	4
Psychology 2 .....	3	3†	Infants, including Milk Labora- tory and Newborn Infants ....	8
Child Psychology .....	3	3	Communicable Disease .....	4
Principles of Pediatrics and Pediatric Nursing .....	3	3	Infant Welfare or Soc. Service ..	4
Orthopedic Nursing .....	1	1	Surgical Children .....	6
Ward Administration .....	2	2†	Orthopedics and Physical Therapy	4
Teaching and Supervision .	3	3†	Nursery School .....	4
English .....	3	3†	Administration .....	8
Child Training .....	3	3†		
Total for year .....	24	24		

† Credits transferable to College of Edu-  
cation.

Number of hours of clinical experience  
weekly = 42.

NURSING CARE OF PRIVATE PATIENTS AND ADMINISTRATION  
IN A PRIVATE HOSPITAL—TWELVE MONTHS\*

<i>Class Curriculum</i>			<i>Clinical Curriculum</i>	
Subject	Wkly.	Credits	Type of Service	Weeks in Service
	Hrs. per Qtr.			
English .....	3	3†	Medical, including Men and Women .....	12
History of Modern World	10	10†	Surgical, including Men and Women .....	12
Nutrition Survey .....	2	2†	Obstetrical, including Care of Mothers, Delivery Service, Nursery .....	12
Psychology 1 .....	3	3†	Eye, Ear, Nose, Throat .....	8
Psychology 2 .....	3	3†	Administration .....	8
Massage .....	1	1		
Fine Arts .....	2	2†		
Current Events .....	..	..		
Total for year .....	24	24		

\* Adaptation of this course to three-,  
six-, or nine-month periods may be made  
upon request of the applicant.

† Credits transferable to College of  
Education.

Number of hours clinical experience  
weekly = 42.

OBSTETRICAL NURSING—TWELVE MONTHS  
*Class Curriculum* *Clinical Curriculum*

Subject	Wkly. Hrs. per Qtr.	Credits	Type of Service	Weeks in Service
Principles of Obstetrics and Obst. Nursing . . . . .	2	2	Obstetrics, including Normal and Abnormal Cases with Pre- natal Clinic . . . . .	16
Gynecological Nursing . . . . .	1	1	Nursery . . . . .	6
Maternal and Child Hyg. . . . .	3	3†	Delivery Room . . . . .	8
Anatomy . . . . .	4 or 9	3† or 6††	Gynecology, Wards, and Clinics . . . . .	4
Psychology 1 . . . . .	3	3†	Premature Infants . . . . .	2
Psychology 2 . . . . .	3	3†	Pre- and Post-Natal Service with Visiting Nurses Assoc. . . . .	4
Ward Administration . . . . .	2	2†	Social Service . . . . .	4
Teach. & Supervision . . . . .	3	3†	Administration . . . . .	8
Elective . . . . .	4	4		
Total for year . . . . . 25			Number of hours clinical experience weekly = 42.	
† Credits transferable to College of Education.				
†† The six-credit course in anatomy is given by the Extension Division and carries a fee of \$25.				

SUMMER COURSES

Summer courses for graduate nurses are offered during the first term (six weeks) of the summer quarter in the School of Nursing in co-operation with the Department of Preventive Medicine and Public Health. Guest instructors outstanding in their respective fields are added to the regular faculty for these courses. Courses offered cover such subjects as ward administration, teaching, supervision, administration in schools of nursing, and public health nursing in its various phases.

A special summer announcement describing these courses may be had upon request to the director.

## DESCRIPTION OF COURSES

- Anat. 3f,s. Human Anatomy. Brief resumé of cytology and embryology. More detailed study of the gross anatomy and histology of the organ systems by means of lectures, laboratory studies, and demonstrations. (3 cred.; 44 hrs.)
- Bact. 1f,s.<sup>1</sup> Elementary Bacteriology. Principles of bacteriology, general survey of pathogenic bacteria, molds, protozoa, and viruses. Elements of immunity. Sanitary analysis of water and milk. Germicides. Bacterial food poisoning. (4 cred.; 66 hrs.) Staff.
- Ed.T.11f.<sup>2</sup> Special Methods of Teaching in Schools of Nursing. A survey of conditions in schools of nursing determining optimum conditions for education; a study of the objectives of nurse education; application of education principles to the special school situation; methods of teaching with emphasis on clinical teaching. (5 cred.)
- Ed.T.12w.<sup>2</sup> Special Methods and Practice Teaching in Schools of Nursing. Continuation of Ed.T. 11, with observations and practice teaching in principles and practice of nursing and in one additional subject given in the School of Nursing. (7 cred.)
- Med. 15w. Diet Therapy. This course deals with the diseases which demand dietary treatment and with the scientific principles underlying diet therapy. (1 cred.; 11 hrs.)
- Med. 16w. Dermatology. This course consists of lectures on the anatomy and physiology of the skin; etiology, symptomatology, and management of syphilis and of the more common and important skin disorders. Lantern slides, demonstrations, and clinics are included in the course. (1½ cred.; 18 hrs.)
- Med. 17w. Nervous and Mental Diseases. Lectures on organic and functional mental diseases, methods of diagnosis, treatment, and nursing care. The mental defective. The relation of mental illness to the general public health and possibilities of prevention. The bearing of mental health upon physical disorders. (1 cred.; 11 hrs.)
- Nurs. 1f,s. History of Nursing. A brief historical survey of nursing from ancient times to the present day. (1 cred.; 11 hrs.)
- Nurs. 2w,su. Ethics. A course aiming to assist the student in the formation of a sound ethical basis for her practice of nursing. (1 cred.; 11 hrs.)
- Nurs. 6w,su. Case Study. An introduction to methods of applying scientific, psychological and sociological principles in practice. The technique of studying by cases. (1 cred.; 11 hrs.)
- Nurs. 10f,s. Introduction to Nutrition. A course dealing with food and its relation to the human body; the processes by which the body utilizes food; the study and classification of the various foods together with the caloric index. The normal diet and routine hospital diets are given

<sup>1</sup> A fee of \$1.50 is charged for this course.

<sup>2</sup> A fee of \$1 per credit is charged for this course.

- with directions for modification under special circumstances., (1 cred.; 11 hrs.) Miss Thomas.
- Nurs. 11w,su. Foods and Nutrition. Laboratory and lecture course in practical dietetics-food preparation together with methods of cookery; definite instruction in carrying out the dietary prescription is given. (3 cred.; 55 hrs.)
- Nurs. 15w,su-16f,s. Principles and Practice of Nursing. A course presenting the principles of fine nursing, demonstrating their application in the care of the patient, showing the relation between these principles and foundation sciences, developing through supervised practice a high degree of skill in caring for patients and judgment in observing symptoms and condition. Nursing 15 includes six hours of Hospital Economy and eight hours of Lettering (given by the Drawing Department) and covers a total of 66 hours. Nursing 16 includes six hours instruction in bandaging and covers a total of 44 hours. (8 cred.; 110 hrs.)
- Nurs. 23w,su. Massage. Demonstrations and class practice in the general manipulation of the body tissues and in those general movements which have the value of passive exercise for the sick or convalescent. ( $\frac{1}{2}$  cred.; 8 hrs.)
- Nurs. 29w,su. Principles of Surgery and Surgical Nursing I. An introductory course designed to give a knowledge of surgical conditions and their treatment including nursing care. Lectures, clinics, classes, demonstrations. (2 cred.; 23 hrs.)
- Nurs. 30f,s. Principles of Surgery and Surgical Nursing II. A course planned to give further instruction in surgery and surgical nursing. It consists of a detailed study of patients who show surgical conditions which were taught in Principles of Surgery and Surgical Nursing I, serving to review that course and to introduce this continuation course which deals with orthopedic and genito-urinary surgical conditions and some conditions less commonly encountered in general surgery. Lectures, classes, and demonstrations are given on treatment, nursing care, and prevention of these conditions. (2 cred.; 23 hrs.)
- Nurs. 32f,s. Principles of Medicine and Medical Nursing. Lectures and clinics covering the etiology, symptoms, treatment, and prevention of medical diseases, and classes and demonstrations in nursing aspects and nursing care of patients with these diseases. (3 cred.; 35 hrs.)
- Nurs. 36f,w,s,su. Tuberculosis and Tuberculosis Nursing. A course designed to give the distribution of tuberculosis, theories of invasion, pathology and bacteriology of tuberculosis, principles of treatment and care of tuberculous patients with emphasis on the preventive work in this field. Lectures, clinics, classes, and demonstration. (1 cred.; 12 hrs.)
- Nurs. 39w. Principles of Gynecology and Gynecological Nursing. This course consists of lectures on etiology, symptoms, treatment, and prevention of gynecological conditions. Psychological aspects of this branch of nursing are considered. Demonstrations, classes, and clinics form a part of the course. (1 cred.; 12 hrs.)

- Nurs. 41f,s. Principles of Pediatrics and Pediatric Nursing. Lectures, classes, clinics, and demonstration on the development, mental and physical, of the normal child, on the diseases of infancy and childhood, on treatment, care, feeding, and guidance of the child. Movements for the promotion of child health. Communicable diseases and their care are included in this course. (3 cred.; 36 hrs.)
- Nurs. 43f,s. Principles of Obstetrics and Obstetrical Nursing. This course gives instruction in the physiology, pathology, and hygiene of pregnancy, labor, puerperium, and care of newborn infants. Emphasis is placed on the relation of this field to the public health. Lectures, classes, clinics, and demonstrations. (2 cred.; 24 hrs.)
- Nurs. 48w. Diseases of the Eye, Ear, Nose, and Throat. This course consists of lectures, classes, clinics, and demonstrations. It deals with medical and nursing care, pathological conditions of the eye, ear, nose, and throat. (1½ cred.; 18 hrs.)
- Nurs. 49s. Special Therapeutics. A group of lectures on special therapeutic measures otherwise unclassified. Roentgenology, seriology, and principles of oral hygiene. Physical therapy. (½ cred.; 6 hrs.)
- Nurs. 50s. Professional Problems. A course dealing with present day problems of nursing; ethical, legal, economic, civic, legislative, professional. A survey of fields open for nurses. (1½ cred.; 18 hrs.)
- Nurs. 60f,w. Ward Administration. Principles underlying effective ward management and administration. Lectures, classes, and field visits. (2 cred.; 24 hrs.)
- Nurs. 61f. Survey of Hospital Relationships. Study of hospital personnel, departments and interrelationships. (2 cred.; 24 hrs.)
- Path. 3w. Principles of Pathology. This course presents pathological aspects of various diseases showing relationship between pathological changes and the clinical course of disease, presenting principles which are fundamental in preventive work. Laboratory work in urinalysis. (1½ cred.; 18 hrs.)
- Pharm. 7w,su. Metrology. Systems of weights and measures; equivalents; preparation of percentage solutions; dosage; together with appropriate laboratory exercises and problems. (1½ cred.; 22 hrs.) Dr. Wright, Miss Gordon, and others.
- Pharm. 8w,su. Elementary Pharmacology. A study of the history, uses, classification, and preparation of drugs; definition of descriptive terms; systems of weights and measures; methods of administration; principles of dosage, etc., together with appropriate laboratory exercises. (2½ cred.; 33 hrs.) Dr. Brown, Dr. Wright, and others.
- Physiol. 1f,s. Physiologic Chemistry. (a) A brief study of physical and chemical laws; of the composition of matter, chemical compounds, chemical and energy changes; of the ionic theory; of gases and solutions. (b) The physiologic chemistry of gases, water, salts, carbohydrates, fats, and proteins; of the nutritive media, of digestive fluids and digestion, of metabolism, of excretion and excretory products. (3 cred.; 44 hrs.) Dr. Greisheimer.

- Physiol. 2f,s. Human Physiology. Functional properties of tissue cells; the material bases of the body; the nutritive media; the physiology of nerve and muscle, of the nervous system; the vascular mechanism; respiration, digestion, excretion, and metabolism. (5 cred.; 66 hrs.) Dr. Greisheimer and others.
- Prev. Med. 3f,s. Personal Hygiene and Elementary Sanitation. Elementary principles of normal body function; predisposing and actual causes of disease; ways in which disease may be avoided. (2 cred.; 22 hrs.)
- Prev. Med. 5s. Hygiene and Public Health. A course presenting the problems of hygiene, their solution by application of scientific principles, and the development of main public health movements. (1 cred.; 12 hrs.)
- Psy. 1-2. General Psychology. An introductory survey of psychology; its material, fundamental laws, applications, and relations to other sciences. (6 cred.; 66 hrs.)

#### SUGGESTED ELECTIVE COURSES FOR POSTGRADUATE STUDENTS

(Any subject of undergraduate nursing curriculum may be elected if desired.)

- Bact. 41su,f,w,s.<sup>1</sup> 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. (5 cred.; 99 hrs.) Prereq., 10 cred. in chem. and 10 cred. in biol.
- C.W. 40w. Child Training. A study of the physical and mental development of the child followed by a discussion of the problems of training of young children. Observations in the nursery school, lectures, and reports. (3 cred.; 33 hrs.)
- C.W. 60f. The Nursery School and Parental Education Movement. To orient student with reference to the nursery school and parental education. Consideration given also to the kindergarten and Montessori movement and to the physical and mental hygiene movement. (2 cred.; 22 hrs.)
- C.W. 80f. Child Psychology. A survey of child development with special reference to nursery school and kindergarten education. (3 cred.; 33 hrs.)
- Ed.T. 31su. Permanent Play Materials. A consideration of the various kinds and types of permanent play materials (blocks, dolls, trains, wagons, etc.) and their uses by children of different ages. (2 cred.; 22 hrs.) Not offered in 1932.
- Ed.T. 34su. Story Telling for Young Children. A study of folk, fairy, here-and-now stories, and poetry suitable for young children. The principles underlying story telling, the selection of the story, and versions. The educational importance of conversation with the child. (2 cred.; 22 hrs.)

<sup>1</sup> A fee of \$1.50 is charged for this course.



- P.M.&P.H. 50f,w,s. Public and Personal Health. Discusses the causes of disease and of physical defects and presents the fundamental principles and working methods of health conservation and disease prevention. Lectures, demonstrations, discussions, inspection trips, and directed readings. (3 cred.; 33 hrs.)
- P.M.&P.H. 53f,s. Elements of Preventive Medicine. Susceptibility, resistance, and immunity to disease; methods of spread and the prevention of communicable and degenerative diseases; protection of food, water, and milk; school health work; vital statistics. (3 cred.; 33 hrs.)
- P.M.&P.H. 57s. Health of Infant and Pre-school Child. Growth and development of baby and young child. Care and feeding of normal child. Prevention and correction of physical defects. Demonstration of infant clinics. (2 cred.; 22 hrs.)
- P.M.&P.H. 58w. Maternal and Child Hygiene (for public health nurses). The maternal welfare program; importance of breast feeding; conduct of infant welfare clinics in cities and rural communities; consideration of child of preschool and school age as to malnutrition, physical defects, cardiac and nervous disorders. (2 cred.; 22 hrs.)
- P.M.&P.H. 59w. Social Hygiene. Relation to public health; normal physiological development through adolescence; educational measures; responsibility of the public health nurse; prevention and control of venereal diseases. (1 cred.; 11 hrs.)
- P.M.&P.H. 60w. Tuberculosis and Its Control. History of tuberculosis movement and campaign in the United States. Early diagnosis and sanatorium treatment. Tuberculosis in children. The psychology of tuberculosis; supervision of returned sanatoria patients. State program for the eradication of tuberculosis; legislation. (2 cred.; 22 hrs.)
- P.M.&P.H. 61w. Mental Hygiene. History of movements; social importance. Factors underlying emotional maladjustments and mental disease. Relation to social work, social agencies, and psychiatric practice. Illustrative case material. (3 cred.; 33 hrs.)
- Psy. 3s. Psychology Applied to Daily Life. The applications of psychology to selected problems in medicine, law, education, sociology, and daily life. (3 cred.; 33 hrs.)
- Psy. 4-5f,w,<sup>1</sup> Introductory Laboratory Psychology. Simple experiments providing the beginner illustrative material and training in the methods of laboratory psychology. Required for all advanced courses in general psychology. (4 cred.; 88 hrs.)
- Soc. 6f,w,s. Social Interaction. An examination into the basis and forms of social interaction and social relationships, with detailed attention to some of the fundamental behavior patterns of contemporary society. (3 cred.; 33 hrs.)
- Soc. 49f,w,s. The Socially Inadequate. The significance of the socially inadequate in contemporary and industrial societies and the description of the methods used in their care. (3 cred.; 33 hrs.)

<sup>1</sup> A fee of \$1 per quarter is charged for this course.

- Soc. 60f,w. Social Protection of the Child. 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. (3 cred.; 33 hrs.)
- Zool. 1-2-3f,w,s. General Zoology. Structure, physiology, embryology, classification, and evolution of animals. Textbook, lectures, laboratory, and quizzes. (10 cred.; 198 hrs.)

## CLINICAL EXPERIENCE<sup>1</sup>

### MEDICAL NURSING

Clinical experience in the application of principles of medical nursing to the care of medical patients. The care of patients with neurological disorders is included in this period. 4 to 6 months.

### SURGICAL NURSING

Application of principles of surgical nursing to the care of surgical patients including those affected by urological, orthopedic, and ear, eye, nose, and throat conditions. 4 to 6 months.

### OPERATING ROOM

The students learn and apply in practice the principles of sterile technique and the care of operating room equipment and supplies. They give assistance at a number of operations of varied types including general surgical, orthopedic, ear, eye, nose, and throat, gynecological and urological, as well as assistance with cystoscopic treatments. 2 to 3 months.

### OBSTETRICAL NURSING

Clinical experience in the care of obstetrical patients, both mothers and new born infants, including the instruction of mothers. Practice in assisting at both normal and abnormal deliveries. 3 months.

### PEDIATRIC NURSING

Observation of the normal child, preparation of formulae, clinical experience in the care of convalescent and sick infants and children. 3 months.

### TUBERCULOSIS NURSING

Clinical experience in nursing care of all types of tuberculosis. Preventive and educational aspects are emphasized. 1½ months.

### OUT-PATIENT DEPARTMENT

Experience in the management of clinics, assisting with examination and treatment of patients. A study of the dispensary as a community health center. 1 month.

<sup>1</sup> A slight variation of clinical experience is allowed for illness, absence, and vacation adjustments.

*SCHOOL OF NURSING*

## GYNECOLOGICAL NURSING

Nursing care of gynecological patients. Examinations, pre- and post-operative care, including surgical dressing room technique. 1 month.

## SPECIAL DIET KITCHEN

A period of supervised practice in preparing, planning, and calculating therapeutic diets. Two classes a week are held, covering diet therapy for the patients under treatment at the time. 1 month.

## PRIVATE PATIENT NURSING

A period of clinical experience in the nursing care of private patients, usually in the medical and surgical services. 2 to 3 months.

## COMMUNICABLE DISEASE NURSING

Experience in nursing care of communicable diseases. Preventive and public health aspects are emphasized. 1½ months.

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

*The College of Pharmacy*  
*Announcement for the Years*  
**1931-1933**



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## ADMINISTRATIVE OFFICERS

Lotus Delta Coffman, Ph.D., LL.D., President

Frederick J. Wulling, Phm.G., Phm.D., LL.M., Ph.M., *causa honoris*, D.Sc.,  
*causa honoris*, Dean of the College of Pharmacy, Professor of Pharmacology, and Director of the University Medicinal Plant Gardens

## GENERAL INFORMATION

The fortieth course of the College of Pharmacy begins and ends as announced in the calendar in the bulletin of general information.

### ADMISSION BY CERTIFICATE

Diplomas or other evidences of the completion of an accredited four-year high school course, or of its educational equipment, are required for admission. The high school course must have included:

1. English ..... 4 units  
    or English ..... 3 units  
    and a foreign language ..... 2 units
2. Mathematics  
    Elementary algebra ..... 1 unit  
    Plane geometry ..... 1 unit
3. Latin ..... 1 unit
4. Physics ..... 1 unit
5. Enough additional work to make in all 15 units, of which not more than 4 may be in Group F.

Group F consists of high school, vocational, and miscellaneous subjects. The subjects are no longer designated by the University. The applicant is free to present in this division such subjects as are not listed in other groups, but which are certified by the superintendent or principal as being of acceptable nature and counted toward graduation.

Prospective students in pharmacy are advised to include in their high school courses, higher algebra and solid geometry, but not botany, chemistry, or physiology because these latter three subjects are included in the regular pharmacy course.

Owing to the limited capacity of the Pharmacy Building, not more than sixty new students can be admitted annually. Applications for admission should be in the registrar's office not later than July 1, by June 1, if possible.

### ADMISSION BY EXAMINATION

Students may take examinations in subjects for which they have no certificates. A high school training covers a minimum of 15 units, a unit being a school year of standard work in a given subject. State High School Board certificates and College Entrance Examination Board certificates are accepted in lieu of examinations in respective high school subjects.

### NEW STUDENTS

All applicants for admission and to advanced standing should request the high schools or colleges they attend to send complete transcripts of their records to the registrar of the University as early as possible and not later than July 1. Upon receipt of the credentials, the registrar will

notify the applicant concerning his admission and will forward directions for registration.

New students are admitted only at the beginning of the fall quarter.

#### OLD STUDENTS

About September 1, the registrar will send a fee statement to the student's home address as it appears on the records of his office. Those who fail to receive the statement within a week should write to the registrar and ask for it.

#### FEEES AND OTHER EXPENSES

The quarterly tuition fee of \$35 for resident students and \$45 for non-resident students is payable before the beginning of each quarter. Certificates entitling the student to admission to classes will not be issued until fees have been paid.

Tuition fee (per quarter)	
Residents of Minnesota.....	\$35.00
Non-residents .....	45.00
Incidental fee (per quarter).....	6.00
Deposit (first quarter only).....	10.00
Military deposit (required of all students taking military drill).....	10.00
Special fees:	
Examination for removal of condition.....	1.00
Examination for credits (after the first six weeks in residence).....	5.00
Special examination .....	5.00
Chemistry deposit .....	5.00
Graduation fee .....	10.00

Students registered in Dispensing and Dispensary Practice are required to wear white coats to be purchased at their own expense but to be laundered by the University at no expense to the students.

*Registration penalties.*—A penalty fee for late registration, late change of registration, or late payment of fees shall be \$2 prior to the day classes begin, on and after which the penalty increases at the rate of \$1 per day, provided that no student shall pay more than \$10 of penalty in any given quarter.

Those desiring to take special work may pay fees on a clock hour basis, the rate being \$1.50 an hour for resident students and \$2 an hour for non-resident students.

#### GRADUATION REQUIREMENTS

Regular attendance at lectures, recitations, and laboratory exercises is required. Students will not be permitted to present themselves for final examinations unless they have been in attendance upon at least seven eighths of the total work of the course for which they have matriculated.

Every person upon whom any degree is conferred must be of good moral character; must have completed the required lecture and laboratory courses, the last year spent in this college; and must have passed examinations in the subjects required for graduation.

Drug store experience is not a requirement for graduation.

## NEW PHARMACY LAW REQUIREMENTS

The latter part of March, 1929, the Minnesota Legislature passed an act requiring graduation from a college of pharmacy recognized by membership in the American Association of Colleges of Pharmacy as a prerequisite to application for examination by the Minnesota State Board of Pharmacy for license to practice pharmacy in the state of Minnesota. The act went into effect upon passage. Accordingly, all persons who will apply to the State Board of Pharmacy for examination must be graduates of recognized colleges of pharmacy. Many of the colleges of pharmacy are already on a minimum four-year graduation course basis and all others who are members of the American Association of Colleges of Pharmacy are required to be on a four-year minimum basis by January 1, 1932. Other colleges whose graduation requirements are less will not be among the recognized colleges and their graduates cannot be accepted for examination for license to practice.

The legislature passed another law abolishing the former examination for pharmaceutical assistants. Therefore all who desire to prepare themselves to practice pharmacy in the state of Minnesota must complete a minimum of four years of work at a recognized college of pharmacy. There is no lower standard in the state of Minnesota.

## ADVANCED STANDING

Applicants for advanced standing must pass the entrance examinations or present the usual equivalents. They must furnish satisfactory evidence of time spent and subjects covered in previous professional studies at accredited institutions, and must pass the examinations of all departments in which they desire credit, if such examinations are deemed necessary by the professors in charge. Students will not be permitted to substitute private work in any branch for the regular course work.

## UNCLASSED STUDENTS

Persons meeting the entrance requirements desiring to do less than the work of the regular course may be admitted as unclassified or special students provided there is laboratory room for them. Work completed satisfactorily will be credited should the students subsequently enter the regular course. Registered pharmacists who desire to take certain branches of study may avail themselves of any of the college facilities.

## EXAMINATIONS AND STANDING

Examinations are held during the last week of each quarter, and are supplementary to the written and practical tests and quizzes that are held at frequent intervals during the year, and, with them, form largely the basis of final determination of fitness for promotion or graduation.

The standing of students is indicated by the letters A, B, C, D, (A highest, D lowest passing mark), E (condition), I (incomplete), and F (failure). Conditions may be removed as indicated below. An *incomplete* not removed before the end of the first month of the student's next quar-



ter in college becomes a *condition*. The Students' Work Committee may, in special cases, extend this time limit.

In order to become eligible for final examinations students are required to attend at least seven eighths of the lectures in each course. This does not apply to laboratory courses, which must be taken in full.

Students having conditions in more than two major or in more than three minor subjects of the first year cannot enter upon the second year's work. Candidates for graduation must have removed all conditions before entering upon the third quarter of the graduating year.

Examinations for the removal of conditions will be offered the week preceding the opening of the fall quarter. Similar examinations will also be given during the first thirty days of the winter and spring quarters. Announcement of these examinations will appear in the general information bulletin and the *Official Daily Bulletin*. Conditioned students are required to inform themselves as to these dates as soon as they learn that they are conditioned, as no other notice is given. A fee of one dollar is charged for a condition examination. Failure at the condition examination necessitates a repetition of the subject. Students who carry a condition into a succeeding year may find a conflict of lecture or laboratory hours. In such cases they are to give preference to the lower course.

Absences will not be excused unless satisfactory reasons are given. Habitual absence without a satisfactory excuse, continued indifference to study, or persistently poor scholarship may subject the student to probation or temporary or permanent suspension. Any of the facilities afforded by the University are open to the students of this college, subject to the approval of the dean. Opportunity is offered to do advanced work in all branches. Textbooks may be obtained after coming to the University.

Students find their time fully occupied with the regular curriculum.

#### MEDICINAL PLANT LABORATORY AND GARDEN

Students receive instruction in medicinal plant culture and in the harvesting, drying, preparing, and milling of drugs in the very representative medicinal plant garden and in the plant laboratory and conservatory. The garden and plant laboratory have been added to increase the educational facilities of the college. The college has no experience or information concerning the commercial cultivation of medicinal plants.

#### DISPENSARY PRESCRIPTION PRACTICE

The seniors, under competent direction and supervision, dispense the prescriptions written by the physicians in the Out-Patient Department of the University Hospitals. During the past year upwards of twenty-five thousand prescriptions were filled, most of them formulated ones, only a negligible percentage calling for proprietaries.

#### ELECTIVES IN OTHER UNIVERSITY COLLEGES

Students may elect certain subjects in other university colleges, if such election does not interfere with their regular work. Subjects elected must be approved by the dean.

## COLLEGE TRAINING FOR PHARMACISTS

The recognition of the need of substantial college training for pharmacists finds expression in many ways. In many states, including Minnesota, such training is now obligatory by law. In a number of other states credit is given for college work. Graduates of the four-year course need only one additional year of drug store experience before they become eligible for examination by the State Board of Pharmacy for full registration.

## SUMMER QUARTER

The College of Pharmacy offers no courses in purely pharmaceutical subjects but the summer quarter offers the following courses which are part of the pharmacy course: general chemistry, qualitative chemistry, organic chemistry, general botany, physiology, bacteriology, rhetoric, physics, modern languages, and zoology.

Requests for summer quarter bulletins should be made directly to the university registrar.

## MINNESOTA STATE PHARMACEUTICAL ASSOCIATION SCHOLARSHIP

The Minnesota State Pharmaceutical Association awards annually \$105 in cash and a token to that student who is a citizen of the United States, who has resided in Minnesota for the last five years, and who has earned the highest general or average rating at the completion of the first two years of technical pharmaceutical work up to ten days before Cap and Gown Day and who is a candidate for the first degree in pharmacy from this college. If such student should discontinue attendance at the college, the said sum is to be awarded to the student next highest in standing who meets the other requirements.

## THE FAIRCHILD SCHOLARSHIP

Mr. Samuel W. Fairchild offers a scholarship in the sum of \$500 to be awarded to the student in any of the colleges holding membership in the American Association of Colleges of Pharmacy who has graduated from any of the association colleges' four-year course and who has won the competitive examination provided as a preliminary to graduate work in pharmacy. Fuller particulars may be had from the dean of the college.

## LEHN AND FINK GOLD MEDAL

Messrs. Lehn and Fink, of New York City, award annually a gold medal to that student in the College of Pharmacy who graduates with the highest general average rating from the four-year course leading to the degree of bachelor of science in pharmacy.

## THE JACOBSON PRIZE

David L. Jacobson, '99, offers annually a gold medal to that student who graduates with the highest general average rating from the first graduate course in pharmacy leading to the degree master of science in pharmacy.

## POSITIONS FOR GRADUATES

The demand for graduates of this college has always been greater than the supply and is continually growing. Practically all members of the senior class are engaged before graduation. This college is recognized in all states, including those in which state standards of efficiency have been established.

## STATE BOARD OF PHARMACY

The State Board of Pharmacy meets at the college four times each year to examine candidates for registration. For information concerning the board or state examinations, address the secretary of the board, 2943 Twenty-seventh Ave. So., Minneapolis.

## THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY

This college is a member of the American Association of Colleges of Pharmacy, whose object is the promotion of higher pharmaceutical education. Through the influence of the association, higher standards of education are being adopted from time to time by its members and others, evidenced by the fact that several states by law or by board of pharmacy ruling recognize the standards set by the association. Member colleges must maintain certain minimum entrance and graduation requirements. This college exceeds these requirements.

## THE NORTHWESTERN BRANCH OF THE AMERICAN PHARMACEUTICAL ASSOCIATION

The Northwestern Branch of the American Pharmaceutical Association has its headquarters at the College of Pharmacy. About four meetings are held annually. Students of pharmacy are eligible to membership in the branch, but are privileged to attend the meetings without becoming members.

## COMMUNICATIONS

Communications not relating to registration should be addressed to the dean, Professor Frederick J. Wulling, University of Minnesota, Minneapolis, Minnesota. Communications relating to registration or advanced standing should be addressed to the University Examiner, Registrar's Office, University of Minnesota.

For further information see bulletin of general information.

## COURSE OF STUDY

The College of Pharmacy has discontinued the three-year course leading to the degree pharmaceutical chemist and now offers only one undergraduate course of four years' duration, leading to the degree bachelor of science in pharmacy and including one year of work in certain subjects in the College of Science, Literature, and the Arts, or other colleges of equal standing. This was formerly the optional four-year course. It has become the obligatory minimum degree course by action of the university regents at their April, 1926, meeting. Graduate work in pharmacy, leading to the Master's and Doctor's degrees, respectively, is now under the direction of the Graduate School. The graduate work is open to graduates of the four-year course of this or other colleges of pharmacy of similar standing and who have the degree bachelor of science in pharmacy and who have shown exceptional scholarship and capacity in the undergraduate course and possess unquestioned ability to carry on independent or research work.

### THE PRESENT REGULAR COURSE

This course extends over a period of four full university years. The curriculum is described in the following pages, but its division among the four years may be changed as necessity may warrant. All courses begin only with the fall or first quarter.

### OUTLINE OF THE REGULAR FOUR-YEAR COURSE

(Subject to change)

#### FIRST YEAR

This year includes a minimum total of 45 quarter credits among which must be a minimum of 10 of rhetoric, 9 of modern language, 10 of college physics or zoology. The 16 additional credits are electives. Students may complete this first year at the College of Science, Literature, and the Arts at the University, or at any junior college, or at any academic college of equal standing, in which case they will be admitted to the second year of the four-year course; or they may complete the 45 academic credits at the University by carrying them concurrently during the first two years with some of the technical pharmaceutical subjects. The first choice is recommended. If the student chooses to carry academic and professional work concurrently, the outline of the first two years would be as follows:

#### FIRST YEAR—COMBINED

<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
General Chemistry	General Chemistry	Qualitative Chemistry
General Botany	General Botany	General Botany
Rhetoric* (5 cred.)	Rhetoric* (5 cred.)	Rhetoric* (5 cred.)
Modern Language† (3 or 5 cred.)	Modern Language† (3 or 5 cred.)	Modern Language† (3 or 5 cred.)
Military Drill	Military Drill	Military Drill
Preventive Medicine (2 cred.)		

\* Total of only 10 credits required.

† Total of only 9 credits required.

## THE COLLEGE OF PHARMACY

## SECOND YEAR—COMBINED

<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
Physics or Zoology* (5 cred.)	Physics or Zoology* (5 cred.)	Physics or Zoology* (5 cred.)
Academic electives†	Academic electives†	Academic electives†
Didactic Pharmaceutical Chemistry	Didactic Pharmaceutical Chemistry	Didactic Pharmaceutical Chemistry
Pharmacy	Pharmacy	Pharmacy
Pharmacognosy	Pharmacognosy	Pharmacognosy
Military Drill	Military Drill	Military Drill

## SECOND YEAR

<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
Botany	Botany	Botany
General Chemistry	General Chemistry	Qualitative Chemistry
Military Training	Military Training	Military Training
Pharmacy	Pharmacy	Pharmacy
Pharmac. Chemistry, Didactic	Pharmac. Chemistry, Didactic	Pharmac. Chemistry, Didactic
Pharmacognosy	Pharmacognosy	Pharmacognosy

## THIRD YEAR

The third and fourth year curricula are the same for all students, as follows:

<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
Materia Medica	Materia Medica	Materia Medica
Pharmacognosy	Pharmacognosy	Pharmacognosy
Pharmac. Chemistry, Practical	Pharmac. Chemistry, Practical	Therapeutics
Military Training	U. S. P. Testing	Operative Pharmacy
Organic Chemistry	Military Training	Military Training
	Organic Chemistry	Physiology

## FOURTH YEAR

<i>First Quarter</i>	<i>Second Quarter</i>	<i>Third Quarter</i>
Dispensing	Dispensing	Dispensing
U. S. P. Assay	U. S. P. Assay	U. S. P. Assay
Bacteriology	Drug and Food Analysis	Mineralogy and Crystallog.
Drug and Food Analysis	Physiology	Drug and Food Analysis
Dispensary Practice	Dispensary Practice	Law and Ethics
Organic Pharmacy		Dispensary Practice

## CREDIT VALUE

The credit values of courses were changed September, 1918. Now a credit value covers one period of lecture or recitation or two, and in some laboratory subjects three, periods of laboratory work per week per quarter. The numbers expressing the credit value of courses are now fifty per cent greater than formerly, when the college was on the semester basis.

\* Total of only 10 credits of either required.

† Sufficient to make a total of 45 credits.

## DESCRIPTION OF COURSES

### STATEMENT OF COURSES

Following each course is a statement, in parentheses, of credits, classes of students eligible, prerequisites, days of the week, class hours, and location of class. Thus (3 cred.; jr., sr., grad.; prereq., 3-4; MTW II) means that the course carries three credits, is open to juniors, seniors, and graduates, demands Course 3-4 as a prerequisite, and meets on Monday, Tuesday, and Wednesday, at the second hour.

### BACTERIOLOGY AND IMMUNOLOGY

Professors Winford P. Larson, M.D., Robert G. Green, M.A., M.D., Arthur T. Henrici, M.D., Assistant Professor H. Orin Halvorson, Ch.E., Ph.D.; Instructors Beryl S. Green, M.A., Charles E. Skinner, Ph.D.

51f,w,s,su. General Bacteriology. Lecture and laboratory course. The principles and technique of general bacteriology. Studies in the morphologic and biologic characters of the common bacteria. Preparation of culture media. Disinfectants and disinfection. Bacteriology of water and food products. (5 cred.; sr.; prereq., 1 yr. biol., 1 yr. chem.) Dr. R. G. Green, Dr. Henrici.

### BOOK RESEARCH AND SEMINAR WORK

Throughout the year students are required to do book research and seminar work in the pharmaceutical library during certain hours released for the purpose from the pharmaceutical laboratory and other periods. Beginning with the coming year it is proposed to provide regularly in the college schedule one two-hour period a week for library and seminar work during the second quarter of the graduating year. A room has been reserved for this purpose in the Pharmacy Building.

### BOTANY

Professors Carl O. Rosendahl, Ph.D., Acting Chairman; William S. Cooper, Ph.D., Josephine E. Tilden, M.S.; Associate Professors George O. Burr, Ph.D., Frederic K. Butters, Ph.D., Assistant Professors Ned L. Huff, M.A., Alan E. Treloar, Ph.D.; Instructors Ethel S. Horton, M.A., Ethel M. Mygrant, M.S., Henry Oosting, M.S.; Teaching Assistants Helen Foot, M.A., Marjorie Forbes, M.A., Martin L. Grant, M.A., Borghild Gunstad, B.A., Robert R. Humphrey, M.A., Elmer S. Miller, B.S., John W. Moore, M.A.; Technician Esther H. Wilson.

17f,18w,19s. General Botany. Study of the external form and internal structure of the various organs of flowering plants; special study of the flower and the outline of the classification of flowering plants, etc. (9 qtr. cred.; fr.; no. prereq.) Mr. Butters and assistants.

Botany 1, 5, and 7 in the College of Science, Literature, and the Arts may be substituted for Courses 17, 18, and 19, respectively.

#### CHEMISTRY: INORGANIC

Professors M. Cannon Sneed, Ph.D., Chief; Lloyd H. Reyerson, Ph.D.

14f-15w. Inorganic Chemistry. A study of the general laws of chemistry and of the non-metals and their compounds. (10 cred.; fr.; no prereq.) Mr. Reyerson.

16s. Qualitative Chemical Analysis. Laboratory work in systematic qualitative analysis with lectures on solution, ionization, chemical and physical equilibrium, oxidation and reduction, and other subjects pertinent to qualitative analysis. (5 cred.; fr.; prereq., 5 or 15.) Mr. Reyerson.

#### CHEMISTRY: ORGANIC

Professor William H. Hunter, Ph.D., Chief; Professor Emeritus George B. Frankforter, Ph.D.; Associate Professor Lee I. Smith, Ph.D.; Assistant Professor Walter M. Lauer, Ph.D.

1f,s-2w. Elementary Organic Chemistry. (Pre-med., pre-dent., pharmacists.) A discussion of the important classes of organic compounds, both aliphatic and aromatic. The laboratory work includes the preparation of typical substances. (4 cred. per qtr.; prereq., Inorg. Chem. 11.) Mr. Lauer.

1w-2s,f. Elementary Organic Chemistry. (Pre-med., pre-dent., pharmacists.) A discussion of the important classes of organic compounds, both aliphatic and aromatic. The laboratory work includes the preparation of typical substances. (4 cred. per qtr.; prereq., Inorg. Chem. 11.) Mr. Smith.

#### CLINICAL MICROSCOPY

Professor.....; Instructor.....

1s. Clinical Chemistry and Microscopy. Includes (a) the microscopic study of the urine, its color, sediments, and finer chemical tests and (b) the microscopic study of urine sediments, blood, pus, epithelial cells, casts, etc. Optional. (1 cred.; sr.; no prereq.)

#### DISPENSARY PRESCRIPTION PRACTICE

Instructor Hallie Bruce, Phm.G.; Assistants, Ralph Nelson, Phm.C., Edna Steeves, Phm.G.

1f,w,s. Dispensary Prescription Practice. The prescription dispensing for the Out-Patient Department of the University Hospital is in charge of the College of Pharmacy. The senior students do the prescription work under competent direction. (3 cred.; sr.; prereq., Pharm. 5.) Miss Bruce and assistants.

## FIRST AID TO THE INJURED

Lecturer Charles N. McCloud, Phm.D., M.D., and assistant.

- 1s. Emergency Cases. A series of lectures and demonstrations designed to qualify the pharmacists to administer upon emergency cases before the arrival of the physician. (1 cred.; sr.; no prereq.) Dr. McCloud.

## MATERIA MEDICA

Professor Frederick J. Wulling, D.Sc.; Associate Professor Earl B. Fischer, B.S.; Instructor Charles E. Smythe, and assistants.

- 1f,w,s. Inorganic Materia Medica. This course runs concurrently and in close relationship with Pharmacy 8 and 11, and includes chiefly the medical properties and doses of inorganic official bodies. (3 cred.; fr.; no prereq.) Mr. Wulling and assistants.
- 2f,w,s. Organic Materia Medica. The identity, sources, botanical origins, families, constituents, preparations and doses of the U. S. P., and of some unofficial vegetable drugs are studied in this course. (6 cred.; fr.; no prereq.) Mr. Fischer, Mr. Smythe, and assistants.

## MILITARY SCIENCE AND TACTICS

Professor John H. Hester, Major, Infantry; Assistant Professors Willis Shippam, Major, Coast Artillery Corps; William G. Guthrie, Major, Medical Corps; William C. Webb, Jr., Major, Dental Corps; William A. Ellis, Captain, Infantry; Porter P. Wiggins, Captain, Infantry; Emil Krause, Captain, Infantry; William G. Walker, Captain, Infantry; Murray T. Davenport, Captain, Infantry; Hewitt W. Richmond, 1st Lieutenant, Coast Artillery Corps; Richard A. Ericson, 1st Lieutenant, Coast Artillery Corps; Vincent J. Conrad, 1st Lieutenant, Infantry; Harlan N. Hartness, 1st Lieutenant, Infantry; Rex W. Minckler, 1st Lieutenant, Signal Corps; Instructors Alfred Brandt, Master Sergeant, Infantry; Harry E. Strider, Master Sergeant, Signal Corps; Aubrey R. Dunkum, Technical Sergeant, Coast Artillery Corps; Roy Cunningham, Staff Sergeant, Infantry; John Coop, Sergeant, Infantry; Ernest R. Mylk, Sergeant, Coast Artillery Corps; Clayton A. Peterson, Sergeant, Infantry.

- 1f-2w. First Year Basic Course R.O.T.C. Infantry. Practical and theoretical instruction in school of soldier squad and company; elementary subjects of military training; rifle marksmanship. (No cred.; fr.; no prereq.; MWF IV; A.)
- 3s. First Year Basic Course. Same as 1f-2w. (No cred.; fr.; prereq. 1-2; W VII, VIII, IX; A.)
- 4f-5w. Second Year Basic Course R.O.T.C. Infantry. Practical instruction in school of platoon and company; musketry; automatic rifle; scouting and patrolling and combat principles. (No cred.; fr., jr.; prereq. 1-2-3 MWF IV; A.)



- 6s. Second Year Basic Course R.O.T.C. Infantry. Same as 4f-5w. (No cred.; fr., jr.; prereq., 4-5; W VII, VIII, IX; A.)
- 51f-52w. First Year Advanced Course R.O.T.C. Infantry. Map reading and military sketching; machine gun; 37-mm. gun and 3-inch trench mortar; drill and command; combat principles. (No cred.; jr.; prereq., 1-2-3, 4-5-6; MWF II, III, VI, VIII; TThS I, II, III, IV; TTh VI, VII, VIII, IX; A.)
- 53s. First Year Advanced Course R.O.T.C. Same as 51f-52w. (No. cred.; jr.; prereq., 51-52; W VII, VIII, IX; A.)
- 54f-55w. Second Year Advanced Course R.O.T.C. Infantry. Drill and command; administration; military history; combat principles; field engineering; military law and officers' reserve corps regulations. (No cred.; sr.; prereq., 51-52, 53; MWF II, III, VI, VIII; TTh II, III; A.)
- 56s. Second Year Advanced Course R.O.T.C. Same as 54f-55w. (No cred.; sr.; prereq. 54-55; W VII, VIII, IX; TThS IV; A.)

### PHARMACY

Professors Frederick J. Wulling, D.Sc.; Gustav Bachman, Phm.D., Phm.M., Charles H. Rogers, D.Sc. in Phm.; Instructors Ragnar Almin, Phm.C., Hallie Bruce, Phm.G., Charles V. Netz, Phm.C., M.S., Del D. Turner, Phm.C.

- 1f. History of Pharmacy. This course embraces the study of the history of pharmacy, including the U. S. Pharmacopoeia through all of its revisions and the literature of pharmacy. ( $\frac{3}{4}$  cred.; fr., jr.; no prereq.) Mr. Wulling, Mr. Rogers.
- 2f. This course includes the study and preparation of the active constituents of many vegetable drugs, scale salts of iron, plasters, soaps, oleoresins, collodions, effervescing salts, etc. ( $6\frac{1}{2}$  cred.; jr.; prereq., 4f, 6w, 8s.) Mr. Bachman, Mr. Turner.
- 3f. Metrology. A critical study of weights and measures and balances; specific gravity, specific volume; allegation, etc. ( $4\frac{1}{2}$  cred.; fr., jr.; no prereq.) Mr. Rogers, Mr. Netz.
- 5w. The Physics of Pharmacy. This course covers a review and more extended elucidation of such divisions of physics as apply to pharmaceutical processes. ( $4\frac{1}{2}$  cred.; fr., jr.; prereq., 3.) Mr. Rogers, Mr. Netz.
- 7w,s. Pharmaceutical Processes. A study of the various laboratory processes employed in pharmaceutical manufacture. (5 cred.; fr., jr.; prereq., 5.) Mr. Rogers, Mr. Netz.
- 2w,s. Pharmacopoeial Preparations. This course includes the study and preparation of official bodies for which the Pharmacopoeia gives formulae and processes. ( $7\frac{1}{2}$  cred.; fr., jr.; prereq., 7.) Mr. Rogers, Mr. Netz, and assistants.

- 4f,w,s. Pharmacy Quiz. A thoro review of the work covered in Courses 3f, 5w, 7s, and 2s. ( $4\frac{1}{2}$  cred.; fr., jr.; prereq., 3, 5, 7, 2.) Mr. Rogers, Mr. Netz.
- 6w,s. Identification of Inorganic U. S. P. Preparations. The study of the appearance and physical properties of inorganic official preparations. (2 cred.; fr., jr.; prereq., 2) Mr. Rogers, Mr. Netz.
- 9f. Pharmaceutical Chemical Philosophy. This course treats of the principles underlying chemistry and elucidates chemical facts and phenomena in their pharmaceutical aspects. (3 cred.; fr., jr.; no prereq.) Mr. Wulling.
- 11w. The Pharmaceutical Chemistry of the Non-Metals. A study of the description, properties, pharmacy, and manufacture of the non-metals used in pharmacy, including their U. S. P. preparations. (3 cred.; fr., jr.; prereq., 9.) Mr. Wulling.
- 8s. U. S. P. Inorganic Salts. Especial reference to sources, description, properties, and manufacture. (3 cred.; fr., jr.; prereq., 9.) Mr. Wulling, Mr. Almin.
- 13s. Classification of Pharmaceutical Organic Compounds. A preparation for Pharmacy 15. ( $1\frac{1}{2}$  cred.; jr., sr.; prereq., Chemistry 1f and 2w.) Mr. Wulling, Mr. Rogers.
- 15f,w,s. Pharmaceutical Organic Compounds and Their Preparations. Includes the critical study of cellulin and its derivatives, destructive distillation products, starches, sugars, fermentation products, organic acids, fixed oils and fats, volatile oils, waxes and animal fats, alkaloids, glucocides, animal drugs and products, etc. (9 cred.; jr., sr.; prereq., 13, Chemistry 1f and 2w.) Mr. Rogers.
- 17w. Pharmacopoeial Qualitative Analysis. A critical study of the identity, purity, limit, and percentages tests of the Pharmacopoeia and their application either wholly or in part to practically every official organic and inorganic salt and compound ( $5\frac{1}{2}$  cred.; jr.; prereq., 11w and Chem. 16s.) Mr. Bachman, Mr. Almin, Mr. Turner.
- 18w,s. Pharmacopoeial Quantitative Analysis. This course includes the gravimetric, volumetric, and gasometric determinations of the U. S. Pharmacopoeia, but not Pharmaceutical Assay (12w). (15 cred.; sr.; prereq., 17w.) Mr. Bachman, Mr. Almin, Mr. Turner.
- 19f,w,s. Prescription Incompatibility. Therapeutic, pharmaceutical, and chemical incompatibility is taken up in lecture and recitation work preliminary to Course 21. (2 cred.; sr.; prereq., 17w.) Mr. Bachman, Mr. Turner.
- 21f,w,s. Prescription Dispensing. This course runs concurrently and in co-operation with Dispensary Prescription Practice 1f,w,s, and includes the critical study of the prescription and practical work in dispensing a wide range of prescriptions taken from actual medical practice. (13 cred.; sr.; prereq., 17w.) Mr. Bachman, Miss Bruce, Mr. Turner, Mr. Nelson, Miss Steeves.

- 8a,w,s. Manufacture of Pharmaceutical Inorganic Salts. The preparation of upwards of forty pharmaceutical salts included in this course. (6 cred.; jr., sr.; prereq., 8s, Chemistry 16s.) Mr. Rogers, Mr. Netz, and assistants.
- 10f. National Formulary. This lecture and laboratory course includes a partial study of the National Formulary and the making of a number of its more important preparations. (1½ cred.; jr., sr.; prereq., 8a, 15.) Mr. Bachman, Mr. Almin, Mr. Turner.
- 12s. Pharmaceutical Assay. The quantitative determination of alkaloidal and other active constituents of a number of the potent U. S. P. organic drugs and preparations. (2 cred.; sr.; prereq., 17w.) Mr. Bachman, Mr. Almin, Mr. Turner.
- 14s. Synthetic Remedies. The study of the pharmaceutical chemistry of synthetic chemicals in medical use. (1 cred.; jr., sr.; prereq., 15f,w,s.) Mr. Rogers.
- 16w. Homeopathic Pharmacy. Exposition of principles underlying the preparation of homeopathic remedies, including some laboratory work. (1 cred.; jr.; no prereq.) Mr. Wulling, Mr. Bachman. Optional.
- 25w,s. Identification of U. S. P. Salts. The study of the physical identity of the more important official inorganic and organic salts. (2 cred.; jr., sr.; prereq., 8a, 15.) Mr. Bachman, Mr. Turner.
- 20s. Microchemistry. Work in the microchemistry of pharmacy is included in the work of a number of other courses, but will soon be offered as a separate course. (No cred.; no prereq.)
- 27f. Mathematics of Pharmacy. While students are required to have a preparation in arithmetic, algebra, and geometry, before entering, they receive frequent drills throughout the year. Examinations in the subject are required. (1 cred.; fr., jr.; prereq., 3.) Mr. Wulling, Mr. Bachman, Mr. Rogers, Miss Bruce.
- 29f,w,s. Drug and Food Analysis. A course designed to prepare students for commercial pharmaceutical analytical work. (24 cred.; sr.; prereq., Chemistry 1f and 2w.) Mr. Rogers, Mr. Netz, and assistant.
- 51f,w. Metrology, Elementary. For nurses. (1 cred.; fr., jr.; no prereq.) Mr. Wulling.

#### PHARMACEUTICAL AND BUSINESS LAW

Professor Frederick J. Wulling, D.Sc.

- 1s. Law of Pharmacists. The lectures introduce the subjects of contracts, agency, commercial paper, insurance, etc., in their application to the practice of pharmacy, and discuss the liability of retail pharmacists. (2 cred.; sr.; no prereq.) Mr. Wulling.
- 2s. Minnesota Pharmacy Laws. Statute laws of Minnesota affecting practice of pharmacy. Lectures by special lecturers experienced in the application and operation of pharmacy laws. (½ cred.; sr.; no prereq.)

## PHARMACEUTICAL MINERALOGY AND CRYSTALLOGRAPHY

Professor.....

- 1s. Mineralogy. A study of the occurrence and properties of minerals of pharmaceutical importance; ores of metals used in pharmacy; non-metallic minerals and mineral waters in their mineralogic and geologic relation. (1 cred.; sr.; grad.; no prereq.)
- 2s. Crystallography. A survey of form and more evident physical characters as a basis for practice in sight recognition of economic minerals and their distinction from common rocks. (1 cred.; sr., grad.; prereq., 1.)

## PHARMACOGNOSY

Associate Professor Earl B. Fischer, B.S.; Instructor Charles E. Smyithe and assistants.

- 1f. Medicinal Plant Study and Drug Preparations. The principles underlying the preparation of plant drugs, including the study of plants cultivated in the medicinal plant garden, and herbarium work. (1 cred.; fr.; no prereq.; ar.; ar.) Mr. Fischer, Mr. Smyithe, and assistants.
- 2w,s. The Pharmacognosy of the Thallophytes and Archegoniates. In this course some of the drugs and economic products obtained from the thallophytes and archegoniates are studied. (5 cred.; fr.; prereq., 1f.) Mr. Fischer, Mr. Smyithe, and assistants.
- 3f. Drug Collection and Preparation. Scientific methods of drug collection and preparation of about fifty drugs from plants grown in the medicinal plant garden. (3 cred.; jr.; prereq., 1f.) Mr. Fischer, Mr. Smyithe, and assistants.
- 4s,w. Pharmaco-Histology and Pharmacognosy of the Angiosperms. Includes micrometry and the detailed study of the inner structure of parts of the higher plants as illustrated by the study of the whole and powdered, vegetable and animal drugs, and their adulterants. (10 cred.; jr.; prereq., 2w,s, 3f, Botany 17f, 18w.) Mr. Fischer, Mr. Smyithe, and assistants.
- 5s. Field Work. The classes are taken on field searches for native medicinal plants. The study of the distinguishing characteristics of certain orders, families, and genera of medicinal plants is included in this work. (2 cred.; jr.; prereq., 4w.) Mr. Fischer.
- 6w. Physiological Drug Assay. Optional. The pharmacopoeial and the more important unofficial methods of biologic assay of drugs and their preparations are studied. (3 cred.; sr.; prereq., 4s,w.) Mr. Fischer.
- 7w,s. Advanced Pharmacognosy. Designed to give students a working knowledge of the use of the more important microscopical accessories in advanced pharmacognostic work. (3 cred.; sr.; prereq., 4s,w.) Mr. Fischer.

## PHYSICAL EDUCATION AND ATHLETICS FOR MEN

Professors Herbert O. Crisler, Ph.B., (Director); Fred W. Luehring, Ph.M. Associate Professors Louis J. Cooke, M.D., Louis F. Keller, M.A.; Assistant Professors Frank G. McCormick, B.A., LL.B., David Mac-Millan, B.S.; Instructors Clarence Osell, B.S., Ralph A. Piper, B.P.E., Blaine McKusick, LL.B., Walter R. Smith, B.A., Neils Thorpe; Assistant Lloyd S. Boyce.

A special lecture on sex hygiene is given sometime during the first ten days of the fall quarter, with required attendance on the part of all freshmen.

## PHYSICAL EDUCATION FOR WOMEN

Professor J. Anna Norris, M.D., Director; Assistant Professors Gertrude M. Baker, M.A., May S. Kissock, M.A., Alice H. Tolg, M.D.; Instructors Grace Christianson, B.S., Josephine Dickson, B.S., Elizabeth Graybeal, Ph.B., Esther Hume, Ed.M., B.A., Florence Mahoney, M.S., Catherine Snell, B.S., Helen Starr, B.S., Alice Timberman, B.S.

This department aims to promote the physical efficiency of the women students. It gives physical examinations and advice to all on entrance; plans systematically to keep in close touch with them during their first two years of residence; conducts yearly consultations with, and examines when necessary, all upperclass students; gives courses in hygiene; organizes neuromuscular activity leading toward organic strength, nervous stability, conscious motor control, correct bodily mechanics, skill in handling the body and in physical recreation, and the development of that valuable social quality known as good sportsmanship; co-operates closely with the Woman's Athletic Association in encouraging and organizing athletic sports; holds regular office hours for the purpose of consultation with all students who desire its advice.

Work in this department is required of all newly entering students (see Course 4). Physical examinations or consultations required annually of all students.

For elective classes in gymnastics, dancing, swimming, field hockey, basket-ball, baseball, and other activities, see bulletin of the College of Science, Literature, and the Arts.

For requirements for a teacher's certificate, see bulletin of the College of Education.

48. Preliminary Hygiene. The most essential aspects of the care of the body. (No cred.; no prereq.; II T.) (For nurses and transfer students.)

## PHYSIOLOGY

Professors Elias P. Lyon, Ph.D., M.D., LL.D., Frederick H. Scott, Ph.D., M.B., D.Sc., Jesse F. McClendon, Ph.D.; Associate Professor Karl W. Stenstrom, Ph.D.; Assistant Professors Esther M. Greisheimer, Ph.D., M.D., Joseph T. King, Ph.D., M.D.; Instructors Jesse W. Cavett, Ph.D., Dean A. Collins, B.A.

4f,w,s,su. Human Physiology. Lectures and demonstrations. (4 qtr. cred.; S.L.A., H.E., pharmacy students, and others; prereq., elem. zool. and chem.) Dr. Lyon, Dr. Griesheimer, Dr. King, and others.

57f,su. Physiologic Chemistry. (4 qtr. cred.; dent. stud. and others; prereq., org. chem.) Mr. Cavett and others.

For other courses see Medical School bulletin.

## PREVENTIVE MEDICINE

Professor Harold S. Diehl, M.A., M.D.; Instructor Robert G. Hinckley, B.S., M.D.

3f,w,s. Personal Hygiene and Elementary Sanitation. Elementary principles of normal body function; predisposing and actual causes of disease; ways in which disease may be avoided. (2 cred.; fresh., soph.; no prereq.) Dr. Hinckley.

## THERAPEUTICS AND TOXICOLOGY

Associate Professor Edgar D. Brown, Phm.D., M.D.

2s. Therapeutics and Toxicology. Drugs are studied in groups as governed by their medicinal and toxic properties. Remedial measures other than those depending upon drugs are fully considered. Poisonous action and doses of drugs also receive consideration. (3 cred.; jr.; prereq., Pharmacognosy 5, Mat. Med. 1.) Dr. Brown.

# *The bulletin of the University of Minnesota*

*The University Junior College  
1932-1933*



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1932							1933													
<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
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13	14	15	16	17	18	19	14	15	16	17	18	19	20	12	13	14	15	16	17	18
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11	12	13	14	15	16	17	11	12	13	14	15	16	17	10	11	12	13	14	15	16
18	19	20	21	22	23	24	18	19	20	21	22	23	24	17	18	19	20	21	22	23
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# UNIVERSITY JUNIOR COLLEGE CALENDAR

1932-33

## *Fall Quarter*

1932

September	26	Monday	Entrance tests
September	26-27		Registration for Freshman Week for all new students entering the freshman class
September	26-30		Physical examinations
September	27-30		Registration period, <sup>1</sup> the University Junior College
September	28-October 1		Freshman Week
September	30	Friday	Payment of fees for new students closes
October	3	Monday	Fall quarter classes begin, 8:30 a.m. <sup>2</sup>
October	20	Thursday	Senate meeting, 4:30 p.m.
October	29	Saturday	Homecoming Day
November	8	Tuesday	General Election Day; a holiday
November	9	Wednesday	Mid-quarter grades due
November	11	Friday	Armistice Day Convocation
November	24	Thursday	Thanksgiving Day; a holiday
December	1	Thursday	State Day Convocation
December	15	Thursday	Senate meeting, 4:30 p.m.
December	17&19-23		Final examination period
December	22	Thursday	Commencement Convocation
December	23	Friday	Fall quarter ends, 6:00 p.m.
December	31	Saturday	Payment of fees closes at 12 m. for all students in residence fall quarter <sup>2</sup>

1933

## *Winter Quarter*

January	6	Friday	Entrance tests
January	6-7		Registration <sup>1</sup> and change of registration
			Payment of fees for new students closes
			Registration and payment of fees close at 12 m. on January 7
January	9	Monday	Winter quarter classes begin, 8:30 a.m. <sup>2</sup>
February	14	Tuesday	Mid-quarter grades due
February	16	Thursday	Charter Day Convocation
			Senate meeting, 4:30 p.m.
February	22	Wednesday	Washington's Birthday; a holiday

<sup>1</sup> Registration subsequent to the date specified will necessitate the approval of the University Junior College. See also penalty fees for late registration, general information bulletin, page 52. No student will be allowed to register in the University after one week from the beginning of the quarter except in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

<sup>2</sup> New students must pay fees on dates announced for registration.

## UNIVERSITY JUNIOR COLLEGE

March	20-25		Final examination period
March	23	Thursday	Commencement Convocation
			Payment of fees closes for all students <sup>2</sup> in residence winter quarter
March	25	Saturday	Winter quarter ends, 6:00 p.m.

*Spring Quarter*

March	31	Friday	Entrance tests
March 31 & April 1			Registration <sup>1</sup> and change of registration
			Payment of fees for new students closes
			Registration and payment of fees close at 12 m. on April 1
April	3	Monday	Spring quarter classes begin, 8:30 a.m. <sup>2</sup>
April	14	Friday	Good Friday; a holiday
May	10	Wednesday	Mid-quarter grades due
May	11	Thursday	Cap and Gown Day Convocation
May	18	Thursday	Senate meeting, 4:30 p.m.
May	30	Tuesday	Memorial Day; a holiday
June	10 & 13-17		Final examination period
June	11	Sunday	Baccalaureate service
June	12	Monday	Sixty-first annual commencement
June	17	Saturday	Spring quarter closes, 6:00 p.m.

<sup>1</sup> Registration subsequent to the date specified will necessitate the approval of the University Junior College. See also penalty fees for late registration, general information bulletin, page 52. No student will be allowed to register in the University after one week from the beginning of the quarter except in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

<sup>2</sup> New students must pay fees on dates announced for registration.

# THE UNIVERSITY JUNIOR COLLEGE

## ADMINISTRATION

Lotus Delta Coffman, Ph.D., LL.D., President  
Malcolm S. MacLean, Ph.D., Director  
Edward E. Nicholson, M.A., Dean of Student Affairs  
Anne D. Blitz, M.A., Dean of Women  
Harold S. Diehl, M.D., Director of the Health Service  
Edmund G. Williamson, Ph.D., Chairman, Vocational Guidance Committee  
Bryng Bryngelson, Ph.D., Director of Speech Clinic  
Ralph Cassady, Jr., Ph.D., Visual Education Division

## FACULTY

John D. Akerman, B.S.(Acro.E.), Professor of Aeronautical Engineering and Head of the Department of Aeronautical Engineering  
John E. Anderson, Ph.D., Professor of Psychology and Director of the Institute of Child Welfare  
- Francis S. Appel, M.A., Instructor in English  
Alice Biester, M.A., Associate Professor of Nutrition  
- Charles Bird, Ph.D., Associate Professor of Psychology  
Andrew Boss, D.Sc., Professor of Agriculture and Farm Management  
John M. Bryant, M.S., E.E., Professor of Electrical Engineering and Head of the Department of Electrical Engineering  
- J. William Buchta, Ph.D., Associate Professor of Physics  
S. Chatwood Burton, M.A., Professor of Drawing and Painting  
- Ralph D. Casey, Ph.D., Professor of Journalism and Chairman of the Department of Journalism  
Walter C. Coffey, M.S., LL.D., Dean and Director of the Department of Agriculture  
Elting H. Comstock, M.S., Professor of Mine Plant and Mechanics  
Alvin S. Cutler, C.E., Professor of Railway Engineering  
- Darrell H. Davis, Ph.D., Professor of Geography and Head of the Department of Geography  
John R. DuPriest, B.S.(E.E.), M.E., M.M.E., Professor of Mechanical Engineering and Head of the Department of Mechanical Engineering  
Harriet I. Goldstein, Associate Professor of Home Economics  
Veta Goldstein, Instructor in Home Economics  
- William L. Hart, Ph.D., Professor of Mathematics  
John H. Hester, Major, U. S. Army, Professor of Military Science and Tactics  
Robert S. Hilpert, M.A., Assistant Professor of Art Education  
Robert T. Jones, B.S.(Arch.), Professor of Architectural Construction  
Roy C. Jones, M.S.(Arch.), Professor of Architectural Design  
Louis F. Keller, M.A., Associate Professor of Physical Education and Supervisor of Teacher Training Courses for Men  
- Earle G. Killeen, M.Mus., Professor of Music

- ~ Howard P. Longstaff, Ph.D., Lecturer in Psychology
- ~ Willem J. Luyten, Ph.D., Assistant Professor of Astronomy
- Elias P. Lyon, Ph.D., M.D., LL.D., Professor of Physiology and Dean of the Medical School
- Frank G. McCormick, LL.B., Director of Athletics and Professor of Physical Education for Men
- Malcolm S. MacLean, Ph.D., Professor and Director of the Junior College
- Frederick M. Mann, M.S.(Arch.), C.E., Professor of Architecture and Head of the School of Architecture
- John V. Martenis, M.E., Associate Professor of Mechanical Engineering
- ~ Lennox A. Mills, Ph.D., Assistant Professor of Political Science
- George H. Montillon, Ph.D., Professor of Chemical Engineering
- J. Anna Norris, M.D., Professor of Physical Education for Women and Director of the Department of Physical Education for Women
- William A. O'Brien, M.D., Associate Professor of Pathology and Preventive Medicine
- ~ Abe Pepinsky, B.A., Assistant Professor of Music
- Ruth Raymond, M.A., Professor of Art Education and Chairman of the Department of Art Education
- ~ A. Dale Riley, M.A., Assistant Professor of Speech and Director of the University Theatre
- Harry B. Roe, B.S.(Eng.), Professor of Drainage and Irrigation
- Henry Schmitz, Ph.D., Professor of Forestry and Chief of the Division of Forestry
- ~ Carlyle M. Scott, Professor of Music and Chairman of the Department of Music
- Homer J. Smith, Ph.D., Professor of Industrial Education
- ~ Joseph R. Starr, Ph.D., Assistant Professor of Political Science
- J. Warren Stehman, Ph.D., Professor of Finance
- Lucy A. Studley, M.A., Assistant Professor of Home Economics
- ~ Alice Felt Tyler, Ph.D., Assistant Professor of History
- ~ Everard M. Upjohn, M.Arch., Assistant Professor of Fine Arts
- Marion Weller, B.A., Associate Professor of Textiles
- ~ Jerry E. Wodsedalek, Ph.D., Professor of Zoology

## GENERAL STATEMENT

The University Junior College is designed primarily to provide broadened intellectual training to that large body of students who seek an overview of modern life and of man's activities rather than specialized training. Its courses are synthetic, not specific, as a reading of the descriptions in this bulletin will show. It seems desirable for students who cannot spend the full four or more years in college to devote their limited time to such a complete and rounded program instead of to a fragment of a longer and specialized process. Such courses should seek to build in the mind of the intelligent student a background of understanding of the present world. They should give him the vital comprehension of *what* other men and women do. They should teach him also *why* and *how* things are done. They should, therefore, serve to satisfy his intellectual curiosity, and to train him for enlightened living in his family, social, and citizenship relations.

The university junior college courses are open to any student admitted to the University. They are provided especially for the following classes of students:

1. Those who desire to pursue courses or curricula not offered in other colleges.
2. Those who, for financial or other reasons, have only a limited time to give to college training.
3. Those who need and wish general orientation in the choice of, and general preparation for, a vocation. Many students are not aware of the variety of vocations which may fit their desires, interests, and abilities until they have surveyed such fields of activity as will be dealt with in the courses planned for the University Junior College. Moreover, general training is usually profitable as preparation for a specific vocation.
4. Those who do not satisfactorily meet the entrance requirements of the other colleges because of lack of training in specific subjects.
5. Those who transfer from other institutions who do not meet the standards for advanced standing of the college to which they apply.
6. Those who are transferred by mutual agreement of the University Junior College and the college in which they propose to register or are registered.
7. Those who might not be accepted by existing colleges because of a lack of preparation to pursue their curricula.

Since nearly half of the students who have entered the University in the past have come within one or more of the above classifications, it is believed that the University Junior College will serve the needs of these students in the future more fully and with greater economies to themselves and to the state than has previously been possible. Under a variety of conditions, two or three years of college work is enough for the individual since he may get his special training, except for the professions, on the job.

The faculty of the University Junior College is composed entirely of men and women now on the teaching staffs of the other schools and colleges

of the University. It is their intention to bring to these overview courses the results of their years of study and training in the fields of their specialties, to summarize for junior college students the latest discoveries and developments of their own and other scholars in special departments of knowledge. They plan to weave these materials into a comprehensive, realistic, vivid picture of the modern world.

From the foregoing, it is obvious that the University Junior College is by no means intended to replace or rival any other unit in the University or any existing junior college in the state. It is neither a preparatory nor a vocational training school. It is not a college for the lazy and incompetent, but it is, as President Coffman declares, "A new experiment, an adventure in the field of higher education. It is intended to provide a superior intellectual opportunity for a body of university students whose needs cannot now be adequately met by the existing organization of the University. It will succeed or fail in terms of its service to students. Its courses should be open to the most gifted student in the University. Any student should be privileged to elect membership in the Junior College."

## FOREWORD TO STUDENTS

The University Junior College is your college. It has been built to try to satisfy your desires, to fulfill your needs. In its planning, the colleges and departments of the entire University have co-operated to make its courses attractive and valuable. But the growth and success of this college depend upon you. We start together from scratch on a pioneer adventure in education based upon principles that have long been tested and found good. Upon what we do now, the right things and the wrong things, the mistakes and the triumphs, is dependent, in a way we can only vaguely guess at, the University Junior College of the future. I am asking you, therefore, from the first day of Freshman Week to make the organization and development of this college your business.

**Making yourselves at home.**—Your first and continuous job at Minnesota is to make yourselves at home. You come here to a strange student city of thousands housed in many buildings on two campuses. Your satisfactions from, and efficiency in, getting the most out of your college life will come from knowing your way around, from getting acquainted with your fellow students, with the faculty who teach you, with the organizations in athletics, music, dramatics, debating, literary, and social fields which you may join for your pleasure and profit. And you should know your buildings and classrooms, your library, health service, study halls.

**Finding a room.**—When you first arrive you will want to find room and board. These matters are important to your health, comfort, and efficiency in college. In selecting a room you should consider heating, lighting, quiet, and cleanliness, its convenience to the campus or car lines, its furnishings, especially the bed. You spend nearly a third of your life in bed, and it pays to get a good one. You should not hesitate to look at several rooms until you find just what you want. At first, you should board at the Minnesota Union, Shevlin Hall, or near by restaurants until you have found your room and are ready to choose a permanent place to eat. Then pick carefully. If you are away from home for the first time you will be wise to give attention to the regularity and adequacy of your diet. This is a matter of importance to your health. For further information on dormitories, rooms, and boarding places, and the rules governing them refer to the general information bulletin, pages 53-56.

**Taking part in Freshman Week.**—Full and active participation in Freshman Week will help you to wear away the preliminary strangeness and give you the first sense of freedom that comes from familiarity with this place where you are to live for several years. During this first period it will pay to keep your wits about you, to remember things you see and hear rather than to look upon it wholly as a big reception and a good time.

**Planning your course.**—The next problem that confronts you is the planning of your course in this college and your registration. In this you will have help, for there will be made available to you time in Freshman Week for conferences with the faculty and administrative staff in this

college. Before these conferences, read the descriptions of the courses set forth in this bulletin and shape up in your mind the combination you would like to take. This will give you something definite to take to your first conference. Also before you meet your adviser it would be sensible to appraise yourself, your motives in coming to college, your needs and desires for various kinds of information and knowledge. Such frank self-examination is the best of all bases for planning anything you do.

**Beware of narrow interests.**—Some of you will have special interests, for example: business. You will be inclined, in making your course, to select for your program subjects which center about business. You will probably write down as your courses, first, Our Economic Life; second, the Mathematics of Business; third, English, because you will have noticed it includes business forms; fourth, How To Study, because that has usefulness; and fifth, Vocations, because that, too, sounds practical. With these and required military training and physical education your program is full—and narrow. I should urge you to avoid this narrowness. You should not make the mistake of putting a tight practical limitation on what you study. In such a course as that outlined you have neglected the whole field of physical science, engineering, art, history, agriculture, eutenics, and psychology. None of these can you really afford to miss if you consider the long future and what may contribute to your human appreciation and happiness.

**Learning new fields.**—Some of you will have no special interest and should, therefore, take as widely varied a course as possible in order to sample the fields of knowledge, to satisfy your curiosity, and to test your interests and abilities. By such a survey you should, in time, find the fields that most keenly interest you and be able to plan an intelligent future course of study and recreation. It might be wise in selecting such a diverse program to pick out rather fields you know little about than those in which you know something or much. Thus, if you know little of land economics and the contribution of plant and animal life to human welfare, take Basic Wealth. Many women students will profit by the course in technology, many men students, by courses in art and music—both by eutenics.

**Working for support and reduced programs.**—Still others may, because they are working to support themselves or because they are taking practical music training, art, or other specialized subjects, wish to make up special or reduced programs in the junior college courses. For the planning of such programs you should consult with the director or his associates in order to determine before you begin, the best probable arrangement. Such plans are not usual but every effort will be made to work them out on a practicable basis.

**Registering for the year.**—After you have made out the program for the year and checked it with the chart on page 13 of this bulletin for conflicts or errors you are ready to register. This process will be explained fully during Freshman Week, and ample assistance given you on registration days. It is highly advisable to make out your program and register for the year since it saves you considerable time and effort each quarter if this is done. With the payment of fees for the current quarter, which you will find



listed in the general information bulletin, the first step is completed. You are then ready to enter into the full activities of college study, exercise, recreation, and social contact.

**Adjusting to college classes.**—When you enter your first classes, you will find a considerable adjustment to make. In high school you usually had small classes and discussions. Here you will be on your own responsibility in large classes taught by lectures and demonstrations. Under such a change you must be wary lest you slip into bad habits of just half listening or watching instead of being constantly alert and active in the taking of notes and getting the full meaning of the materials as they come from the lecturer. You should constantly guard also against falling behind in your work, in your reading, note taking, preparation of papers and reports. Many student failures are the result of such habits.

**Establishing a routine.**—Back work is much more difficult than work ahead. Day by day established routine of habit is the only thing that brings satisfactory results. Only by such a process can you possibly prepare for the comprehensive examinations that will be given at the end of each year and the preliminary quizzes and quarter examinations that precede them. In these matters you are your own master—control your own academic fate. The University has, however, established for your aid in making these adjustments certain agencies.

**Learning how to study—budgeting time.**—First of these is the How To Study course which will deal with practical matters of adjustment to college study and college life: with methods of listening to lectures, taking notes, reading habits; with the budgeting or programing of all your time so that by sensible distribution you may spend it effectively not only upon study but upon campus and social activities, reading for pleasure, and other and various recreations.

**Your counseling service.**—The second agency is the counseling and guidance service. Altho university junior college courses are to be taught in large classes, we recognize fully the importance of considering each student as a unique individual with regard to personal ambitions, vocational possibilities, and personality development. This individualization of mass education is one of the principles upon which this college is founded. To achieve this objective each student registered will have available for his counseling and guidance in personal, vocational, and educational matters all of what are commonly called personnel agencies on the campus. The director of the college and his associates will invite conferences regarding student problems. Moreover, co-operative relations with the committee on vocational guidance have been made. You are urged to make appointments through the director's office for vocational counseling and testing, on the basis of which you may discover your strength and weaknesses and formulate reasonable long-time plans for your training and future development. The instructors in your courses will also be available to you and you must not be reluctant to consult with them and ask their advice and help.

**Your speech clinic.**—Third is the Speech Clinic. Since one of the most important causes of student and adult failure lies in defective speaking

habits, the Speech Clinic has been made available to university junior college students. Acute defects such as nasality, faulty accent, wrong pitch, and lisping interfere sometimes fatally not only with college studies but with successful vocational work after graduation. Disabilities in reading, writing, and spelling are sometimes closely linked with faulty speech habits. These may be diagnosed and treated. The earlier the treatment begins the more certain the result. Students in this college who are aware of, or who suspect they may have, speech defects are requested to make appointments with the Speech Clinic within the first two weeks of the college year. These should be made through the director's office. Upon recommendation of the clinic, we will permit students under treatment to carry a reduced program of studies.

**Your health service.**—Some student failure is caused by ill health. When your physical machine slows up or breaks down temporarily study is also slowed or broken. Eyes, ears, and teeth need watching. Common colds especially you should not neglect. To care for these things, the Health Service, described in the general information bulletin, pages 26-27, is at your disposal. Make use of it whenever there is need or even suspected need.

**Earning a certificate.**—You who make Pass or Honors grades on a normal load for two years will be admitted to the final comprehensive examinations and become, on passing these, candidates for a certificate of graduation from this college. The University Junior College will accept also students from other colleges and grant suitable recognition for their previous work.

**Transferring and auditing.**—This college will, moreover, recommend for transfer to other colleges those of you who wish it when your work is of acceptable quality; and, finally, students from other colleges who have the permission of their college and adult auditors are welcome to take one or more courses in this college, the accrediting of the courses for the former resting with the college in which they take their specialized work.

**Behaving like decent citizens.**—I close as I began. The University Junior College is your college. In matters of behavior you must live in this college community on the assumption that your fellow students are decent people to live with; that each tends to his business and to the business of the college to the best of his ability; that what is expected of you is what is expected of acceptable members of society; that class meetings, quizzes, and other scheduled engagements are appointments to be met except in cases of emergency; that much of your college experience will be to your profit or waste in proportion to the generous, kindly, and courteous general spirit you show. Apart from these suggestions, no compulsion is made. The responsibility is yours.

MALCOLM S. MACLEAN, *Director*

THE UNIVERSITY JUNIOR COLLEGE SCHEDULE OF COURSES, 1932-33<sup>1</sup>

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY
I	Chemistry and Physics, 12f, 13w, 14s Earth and Man, 27f,w	Background of Modern World, 28f, 29w, 30s <sup>2</sup> Making Music, 37w	Chemistry and Physics, 12f, 13w, 14s Earth and Man, 27f,w	Background of Modern World, 28f, 29w, 30s Making Music, 37w Earth and Man, 27f,w	Chemistry and Physics, 12f, 13w, 14s Earth and Man, 27f,w	Background of Modern World, 28f, 29w, 30s Making Music, 37w Earth and Man, 27f,w
II	Basic Wealth, 2f, 3w, 4s Practical Applications of Psychology, 43f, 44w, 43-44s	Our Economic Life, 9f, 10w, 11s Practical Applications of Psychology, 43-44s	Basic Wealth, 2f, 3w, 4s Practical Applications of Psychology, 43f, 44w, 43-44s	Our Economic Life, 9f, 10w, 11s Practical Applications of Psychology, 43-44s	Basic Wealth, 2f, 3w, 4s Practical Applications of Psychology, 43f, 44w, 43-44s	Practical Applications of Psychology, 43-44s
III	Formation of Public Opinion, 31f, 32w, 33s World Politics, 39s	Technology, 15f, 16w, 17s	Formation of Public Opinion, 31f, 32w, 33s World Politics, 39s	Technology, 15f, 16w, 17s	Formation of Public Opinion, 31f, 32w, 33s World Politics, 39s	Technology, 15f, 16w, 17s
IV	Euthenics, 21f, 22w, 23s How To Study, 1f,w	Vocations, 45f, 46w, 47s	Euthenics, 21f, 22w, 23s How To Study, 1f,w		Euthenics, 21f, 22w, 23s How To Study, 1f,w	
V						
VI	Introduction to Mathematics of Business and Everyday Life, 34f, 35w, 36s Descriptive Astronomy, 5w American Citizen, 38w	English, 18f, 19w, 20s	Introduction to Mathematics of Business and Everyday Life, 34f, 35w, 36s Descriptive Astronomy, 5w American Citizen, 38w	English, 18f, 19w, 20s	Introduction to Mathematics of Business and Everyday Life, 34f, 35w, 36s Descriptive Astronomy, 5w American Citizen, 38w	
VII	Human Biology, 6f, 7w, 8s	Human Development, 40f, 41w, 42s	Human Biology, 6f, 7w, 8s	Human Development, 40f, 41w, 42s	Human Biology, 6f, 7w, 8s	
VIII	Appreciation of Fine Arts, 24f, 25w, 26s		Appreciation of Fine Arts, 24f, 25w, 26s		Appreciation of Fine Arts, 24f, 25w, 26s	

<sup>1</sup> For room schedule see the official daily bulletin. For physical education and military training schedules see pp. 40-46.

<sup>2</sup> Discussion hours to be arranged.

<sup>3</sup> Writing laboratory hours to be arranged.

**STUDENTS ARE ADVISED TO CUT THIS CHART OUT AND PASTE IT IN THEIR NOTEBOOKS.**

## DESCRIPTION OF COURSES

Courses in the University Junior College are, with the exception of Military Science and Physical Education, elective and without prerequisites to all students.

### 1f,w—Fall, winter quarters—HOW TO STUDY

A most urgent problem faces every college student. He must master quickly and effectively the fields of knowledge which challenge his curiosity and learning ability. Few graduates of preparatory schools have been trained to explore, analyze, and reconstruct class assignments by means which add liveliness and meaning to the process of studying. Students know that special training in ways of doing things is desirable for success in the fields of mechanics, medicine, and even of sport. What then of study? Is it possible that a hit-and-miss process produces the best results? Or is it not more likely that specific training in study methods will enable an earnest and diligent student to understand the content of his various courses and thus enrich and heighten the value of his university experience? At the outset of a college career it is important for a student to become the master of methods which have been found to contribute directly to success as a student. One point the beginning student can be sure of, is that while instructors offer materials *for* study, students get full value from these materials only by thoroughness *of* study.

The How To Study course is particularly designed to help a student meet successfully the challenge of his college program. It offers suggestions for the most practical use of time, a matter which when neglected results in disastrous waste; and, through practical examples and experiments, it seeks to stimulate a student to study efficiently. More specifically, the course affords training in making lecture and textbook notes; it introduces a variety of methods of outlining, each of which has value for particular fields of knowledge. These aids are supplemented by others designed to help in mastering special terms and in developing vocabularies which are indispensable for thinking and remembering correctly about specific subjects. Through directed practice the student learns to apply his skill to the writing of reports, essays, and examinations. Individual attention is given to those whose study performance is likely to suffer because of reading disabilities. Such questions as, "How can I learn to concentrate and avoid daydreaming? How can I best prepare for essay or objective examinations? How can I make useful notes in a lecture course where the instructor does not present an outline?"—these questions and many others will be answered through establishing effective habits. The aims of the How To Study course will be brought to students by lectures and demonstration, but the realization of these aims demands an apprenticeship in actual study situations. MWF IV. Mr. Bird.

## 2f,3w,4s—BASIC WEALTH

Mankind is vitally concerned in gaining knowledge about the earth as a place in which to live and as a base for procuring the necessities for life and sustenance. Fortunately, nature is prolific and the earth abounds in materials that can be utilized to give comfort, pleasure, and satisfaction to man. But these natural resources must be intelligently used and conserved if future generations are likewise to enjoy an abundance of material things and wholesome living conditions.

Mankind is also deeply concerned with, and to a large extent dependent upon, plant and animal life both as it exists in nature and in the forms it has taken under domestication. A knowledge of the natural resources and of the laws governing plant and animal life is one of the elements of sound education.

With a view to acquainting students with the nature of these resources and with the interrelationships between them and human life and welfare this course is devised. It will be offered in three parts, each covering one quarter.

## 2f—Part A, fall quarter. NATURAL RESOURCES: THEIR ECONOMIC UTILIZATION AND CONSERVATION.

Most people recognize the sun as a source of heat and energy. They also know that the earth's form and motions result in changing seasons and in varying temperatures and humidity. Few appreciate, however, the effect of temperature, continental climates, and oceans upon the civilization of the human race and upon plant and animal life. To illustrate these and other important natural phenomena is in part the aim in giving this course. There are resources upon the surface and within the earth which form the basis of economic welfare. These have to do with land areas and their utilization; with forests and mines; with water for power and irrigation purposes and social needs. Wood, coal, and oil are the principal heat producing materials of the present age. Will there be a supply of these resources for our descendants or must they go cold? How long will the great iron and copper mines remain productive? That depends upon the wisdom with which these and other resources are guarded and used. To picture these great natural resources in their true perspective and to teach the principles of conservation and economic utilization is the primary function of Part A. MWF II. Mr. Andrew Boss and associates.

## 3w—Part B, winter quarter. PLANT LIFE AND ITS ECONOMIC UTILIZATION.

Nature has covered the earth's surface with plant life. But not all plants are alike. It is a far reach from the algae and mosses to the giant forest trees. What are the differences between the higher and lower forms of plant life? Some plants thrive in one environment and fail in others. Why? What is the nature and origin of plant life? What are the fundamental facts concerning the processes of growth and reproduction? and the influence of plants upon their environment? To answer these questions and others relating to the uses made by man of plants for food, clothing, and

shelter; for feed and forage and for industrial and economic purposes and to demonstrate methods of plant protection and improvement through scientific procedure is the purpose of Part B. MWF II. Mr. Schmitz and associates.

4s—Part C, spring quarter. ANIMAL LIFE AND ITS ECONOMIC UTILIZATION.

When did domestication of animals begin? By what processes has differentiation in form and function been brought about? What contributions did their domestication make to modes of living? To opening new land for settlement? To extending the power of nations? To diversifying and intensifying the industrial activities of advanced countries? What are the present trends in animal production, and what are the fundamental causes underlying them? These questions indicate the great importance of animals in present day civilization and industry. So intimately is the welfare of the human race associated with, and dependent upon, animal life that every citizen should be informed as to its major contributions to mankind through agriculture and other important industries. MWF II. Dean Coffey and associates.

5w—Winter quarter. DESCRIPTIVE ASTRONOMY.

Descriptive astronomy aims to acquaint students with the principal features of the heavens, to make them aware of the fact that the earth and even our solar system are not alone in space, to give them a better realization of the place of man in the material cosmos. There will be brief and simple explanations of phenomena of everyday occurrence and importance. Why are there seasons? Why does the moon show phases? Why do we see different stars in summer than in winter? What is the midnight sun? What are eclipses? What are shooting stars? Why is the evening star not a star? There will also be presented the latest information available upon such questions as always have interested and always will interest mankind. Can there be life on Mars or on Venus? What will be the ultimate fate of our earth? Are there other planetary systems besides our own?

The course will be preceded by a brief outline of the historical development of the science of astronomy, by an elementary summary of our knowledge of the earth, and by a simple explanation of astronomical instruments, principally the telescope. A description of the sun and the moon will then lead to a consideration of the solar system as a whole and of the more important planets individually. Comets and meteors will be explained and the modern ideas on how the solar system came into being will form the conclusion of the first part.

The second part will deal with the realm of the stars, the origin of the constellations, and a summary description of the more important of these, as well as of some individual stars in detail. The vastness of interstellar space, the scale upon which the stellar universe is built, the distances between the stars, their motions, and certain physical characteristics that are easily understood, as e.g., their temperature, size, mass, and age will be described.

This will lead to some discussion of double stars and variable stars, of star-groups, clusters, and nebulae, and finally to a description of "island universes." The course will close with some general reflections and comparisons to illustrate the immensity of the cosmos. Lantern slides and mechanical models will demonstrate the actual happenings in space. If weather and opportunity offer, students will be given some chance to observe through the university telescope. MWF VI. Mr. Luyten.

#### 6f, 7w, 8s—HUMAN BIOLOGY

Everything that is known concerning the differences between living and non-living—the forms of life, the laws of life, the causes and effects of life—is biology. That part of biology which relates to man is human biology.

Biology is intensely interesting and also broadly practical. Agriculture is applied biology. Efforts to improve animals and plants can only be successful in so far as they accord with biological law. Medicine is also applied biology, and everything the doctor, dentist, or nurse does to relieve suffering is founded on biological principles. The preservation of health, proper rearing of children, prevention of disease—indeed the whole basis of rational adjustment between man and his environment—involve applications of biological knowledge.

This course will consist of three parts, each comprising three class exercises a week through one quarter. In addition illustrative material and demonstrations will be set up each week and may be studied at convenient times by those registered for this work. Parts A, B, C of this course are recommended to be taken in the order here set down, but such sequence will not be enforced. Students may register for one or more parts as convenient or adapted to their needs.

#### 6f—Part A, fall quarter. GENERAL BIOLOGICAL CONCEPTS IN RELATION TO MANKIND.

Characteristics of living matter compared with non-living. The unit structure of protoplasm—the cell. The cell's growth and division. Differentiation of cells into tissues. Elaboration of organs and systems in the ascending scale of animal types including man. Relation of harmful, and of beneficial, animals to human welfare. Some animal parasites of man. The general subject of reproduction. Maturation of both male and female reproductive cells. Fertilization. Development of the body. The relation of these and other facts to the mechanism of inheritance. The inheritance of sex; sex-linked inheritance. The Mendelian laws of heredity. The application of our knowledge of heredity to the improvement of domestic animals and plants. Especial attention to the application of the same knowledge to the betterment of the human race. Discussion of such subjects as the inheritance of acquired traits, prenatal influences, and related topics. The evolution of man. The student's self-appraisal in view of a better understanding of his heritage. A richer mental as well as physical life based on a scientific, biological viewpoint. MWF VII. Mr. Wodsedalek.

7w—Part B, winter quarter. *THE HUMAN BODY, ITS STRUCTURE AND OPERATION.*

The materials of the body. The tissues, organs, and systems. The strongholds of health or disease such as the brain, heart, lungs, digestive tract, reproductive organs, glands, liver. All man's activities as they affect others and the world are based on motion, that is the action of nerves and muscles. This is controlled toward useful ends through the action of the senses and nervous system. New material or food is brought to the body, prepared or digested, distributed through the circulation, and used for repair or as a source of energy for doing the body's work. The respiratory organs supply oxygen to the living body just as the stove draft does to the fire. The blood is the distributing agent for all the materials needed by the body. Waste must be gotten rid of. The temperature must be regulated. One part of the body influences distant parts through substances (hormones) sent into the blood. The body changes, grows, deteriorates, dies. New generations come on through the reproductive process. These and other topics will be considered. MWF VII. Dean Lyon and associates.

8s—Part C, spring quarter. *PERSONAL AND COMMUNITY HEALTH.*

Man's concern for his health. Awakened public curiosity about health examinations, care of teeth, medical discoveries, anti-tuberculosis drives, sanitation, inoculation. Early superstitions regarding disease, evil spirits, charms, conjuring, black and white magic cures. The relation of these to modern medical science. Present quarantine versus ancient custom of driving diseased out of their homes. Native bark chowers discovered quinine as a cure for malaria. Discovery of germs, infection. Practical applications of this discovery to sanitation, medicine, surgery. Vital statistics and "the bookkeeping of humanity." Their application to the fight against yellow fever, black plague, tuberculosis, typhoid, and other epidemic diseases. The current scene and its attempt to breed a healthier human race. The control of health factors in the home, city, state. The development, present and future, of leaders, organizations, and funds to fight and to prevent epidemics and such diseases as pneumonia, diphtheria, cancer. MWF VII. Dr. O'Brien.

9f, 10w, 11s—*OUR ECONOMIC LIFE*

The individual in our modern society comes in almost daily contact with various business organizations and enterprises. These institutions influence his conduct not only through the prices that have to be paid but also by the method of organization through which they operate. This course attempts to answer some of the questions raised by these relations and to explain how business enterprise functions. It is not intended to be a training course for business, but to give an understanding of this system and of the relations it bears to the individual members of society.



9f—Part A, fall quarter. PROBLEMS OF CONSUMPTION AND DISTRIBUTION OF GOODS.

With this object in mind consideration will be given to such matters as the production and marketing of goods. How and where are these goods grown or manufactured? Through whose hands do they pass before they are bought by the retailer? What type of organizations do these middlemen have? How do they secure their profits? How does the retailer determine what goods to buy, how does he pay for them, and what price does he charge? What attitude should the consumer take toward advertising? Why do we have department stores, mail-order companies, chain stores, and small unit stores operating side by side? TTh II. Mr. Stehman and associates.

10w—Part B, winter quarter. PROBLEMS OF PRODUCTION, FINANCE, AND CREDIT.

Goods purchased must be paid for. From what sources does the buyer secure money and credit with which to make these purchases? What determines his wages or salary and the amount he can earn on his investments? What various institutions are willing to pay him interest for the use of savings and how can they afford to pay it? What part do the banks play in this system? What is a national bank? a branch bank? a chain bank system? In what way may other financial institutions serve him? TTh II. Mr. Stehman and associates.

11s—Part C, spring quarter. PROBLEMS OF GOVERNMENT AND BUSINESS RELATIONS.

The relation of government to business and the consumer will also be considered. Why do we have governmental supervision of public utility companies and how does it operate? Why does the Federal Government regulate the railroads and leave to cities and states the regulation of most public utility companies? What sort of regulation do we have over the so-called trusts and, in general, what is the work of the Federal Trade Commission?

Also, in this course, questions will be raised on other matters of general economic significance. For example, where and how does the government get its funds and how does it spend them? What are the gold standard, inflation and deflation, the Federal Reserve? Why do we have tariff duties; what do we gain by them and what do we lose? What is meant by the labor problem and in what sense is it a problem? What determines the values of land and real estate? What causes prices to rise and fall? TTh II. Mr. Stehman and associates.

12f, 13w, 14s—CHEMISTRY AND PHYSICS

The science of physics and chemistry touches life on every side. Whether students realize it or not, they are present in all the processes of the human body and in everything that we touch, or use, or do. Therefore, while this course is not designed to train professional chemists and physi-

cists, it is planned to satisfy the curiosity of the student concerning the nature of the physical world in which we have our everyday life. It will offer him an appreciation of the philosophy of science and give him some information of the fundamental physical and chemical phenomena involved in familiar observations.

12f—Part A, fall quarter. THE PHYSICS OF SOUND, LIGHT, HEAT, AND MOTION.

If sound and light are both wave motions, why can we hear but not see around a corner? Why is the sky blue and the sunset red? Why do thin sheets of oil on water become highly colored? How do glasses aid us in vision? How is the rainbow formed? What determines color? Does ultra-violet light have "color"?

Are there sounds we cannot hear? Two persons sing the same vowel sound at the same pitch, yet we can distinguish their voices. What are the differences in the sounds? Why can we hear so clearly over a quiet lake in the evening?

How is liquid air made? Why does water boil more easily on a high mountain? Does salt in an ice cream freezer make the ice colder? By what process does an electric or gas refrigerator "produce cold"?

Why is it possible to float a needle on water? Why does a balloon rise? Why do racing cars always go counter-clockwise about a track? What physical principles make it difficult to build a perpetual motion machine? MWF I. Mr. Buchta.

13w—Part B, winter quarter. THE CHEMISTRY OF COMMON THINGS.

What happens in the burning process? What does a chemist mean by oxidation and reduction? by valence? What do the terms acid, salt, base mean? How does hard water differ from soft water? How is a dry cell constructed? Does a storage battery store electricity? In what respects do cast iron, wrought iron, and steel differ? How are they made? What is the chemical compound common to the paper of this page, rayon, pine lumber, straw, cellophane, cotton cloth, dynamite, and photographic film? Is it possible to make food out of sawdust? Out of an old cotton shirt? Charcoal and diamond are both carbon. What is the explanation of their differences? MWF I. Mr. Buchta.

14s—Part C, spring quarter. PRACTICAL APPLICATIONS OF PHYSICS AND CHEMISTRY, ELECTRICITY AND ITS FUNDAMENTAL RÔLE.

How do we know what elements are in the sun? How many different kinds of atoms are found in the earth? What is meant by atomic number? How many different kinds of molecules are known? How much do single atoms weigh? How are they weighed? What is the "cycle of carbon"?

Can one element be changed into another? The answer is "yes." Then why do we not change lead into gold?

What is an ion, a proton, an electron, a photon? What are X-rays? What characterizes a radioactive substance? Why can a bird perch without danger on a live trolley wire? What does the term "relativity" mean?

Such questions as these are answered in this course, or indicate the extent to which an answer can be given. Three lectures per week will be illustrated by a large number of experimental demonstrations. The student will be assigned readings in texts and supplementary readings will be indicated. MWF I. Mr. Buchta.

#### 15f, 16w, 17s—TECHNOLOGY

Man's achievements and his rise in the social structure depend upon the use he makes of the sources of energy available around him and his development of machines to lighten the more arduous tasks or to make them safer. One has but to compare the standard of living in the United States or the more highly developed countries of Western Europe with those of the Far East or with Africa to realize how much we depend upon the use of machinery or of services made available by the use of machines.

Better housing facilities, the design and erection of tall buildings, bridges, other structures; health and sanitation, rapid transportation and easy communication by land, water, and air have been brought about by inventions and discoveries of applied science. The indirect result of this has been the production of great wealth, the raising of the standard of living, the changing of national and international relations, and the better understanding between the nations.

All of these features of modern life are the outgrowth of the work of the engineer and the architect in the field of technology. This development will be discussed and illustrated by a free use of lantern slides, motion picture films, and demonstrations. Distant structures, manufacturing plants, mining and power plants, machines, agricultural developments, and the conquest of the air will be brought to the lecture room and discussed by men directly in touch with this work.

#### 15f—Fall quarter. RAW MATERIALS AND THEIR MANUFACTURE.

The application of the basic sciences of mathematics, physics, and chemistry to the adapting of our natural resources and forces to the satisfaction of human wants. The occurrence, discovery, and procurement of materials of nature for use as food and clothing, housing and transportation, such minerals as coal, iron, copper, gold and silver, lead, mica, asbestos, salts, gems, oxygen, hydrogen, helium, natural gas, and petroleum. Reduction of these raw materials to commercial forms such as iron, steel, tungsten, radium. The combination and chemical treatment into explosives, rayon, soap, paints and varnishes, alloys, paper, clay products, cement, etc. The harnessing of the natural forces for meeting human needs in the home, on the farm, and for use in industry, resulting in the bettering of human living conditions and in a multiplication of production by labor. The machinery for the manufacture of clothing, the processes of the production of lumber, wood pulp and paper products, steel shapes and parts for buildings and other structures, farm machinery, steam turbines, aircraft, electrical machinery, etc. will be used to illustrate modern production methods. TThS III. Mr. Comstock, Mr. Montillon, and associates.

## 16w—Winter quarter. BUILDING, TRANSPORTATION, AND COMMUNICATION.

The design and erection of buildings and other structures on farms, commercial buildings, factories, public buildings, bridges, dams, highways, and other public works will be used as examples of the application of the products and forces of nature by mechanical methods in the modern world as contrasted with methods used in other countries. The history and development of transportation by water, land, and air for passengers, freight, express, and mail will illustrate the dependence of every country on these services.

The great inventions in the field of communication by telegraph, telephone, and radio have nearly all been made in recent years. The history of this development will be traced and the most modern advances in this field, including broadcasting, television, and international communication systems, will be fully illustrated. Sources of energy and power will be studied, together with modern methods of their transformation from one form to another, their transmission to distant markets, and their distribution to the homes, the factories, and the transportation systems of the country. TThS III. Mr. Akerman, Mr. Bryant, Mr. Cutler, Mr. R. C. Jones, Mr. Martenis, and Mr. Roe.

## 17s—Spring quarter. TECHNOLOGIC AGENCIES AND THEIR SERVICE.

The economic and sociologic aspects of technology will be illustrated by the results of great inventions, such as those of the steam engine, the locomotive, the telegraph, the telephone, the sewing machine, the cotton gin, modern farm machinery, and many others which have influenced the rapid development of the modern world.

A study also will be made of the technological services rendered by the national, state, municipal, and private agencies. These will cover land, water, and aerial surveying and mapping, reclamation, research and development by the Bureau of Standards and other federal bureaus, and state engineering and agricultural experiment stations, sanitation and public health agencies, flood control, and public utility services in water supply, electric power, motor vehicle transportation, the railroads, natural and artificial gas, and communication. TThS III. Mr. Akerman, Mr. Bryant, Mr. Cutler, Mr. R. C. Jones, Mr. Martenis, and Mr. Roe.

## 18f, 19w, 20s—ENGLISH

All students read magazines, newspapers, books, plays, and occasionally poetry. In these they find expression of the day in which they live. Likewise life demands often that they put their ideas on paper. The two processes are each a part of one and the same thing. No one expects them to read the great masterpieces and produce their own unless they have the particular aptitudes and abilities of the profound scholar or artist writer.

Everyone does read; everyone must write. Students in daily social intercourse and in the formal pursuit of education, constantly feel the need to write notes to friends, letters home, petitions, requests, and reports for courses. After leaving college this need becomes more acute. Often success

in getting a job and holding it depends on ability to write things clearly. Prospective employees in engineering and manufacturing corporations are commonly given a brief period to examine the plant and write daily reports on their findings. On the basis of these reports they are accepted or rejected, held back or advanced. In many business fields the effectiveness of an organization's operation frequently depends on the reports of its representatives.

Skill in these everyday usable types of writing results from intelligent current and continuous reading, taking notes, organizing materials, and finally expressing the results.

18f—Part A, fall quarter. CURRENT READING—PRACTICAL WRITING.

The fall quarter's work in reading will deal primarily with current publications. A wide variety of these will be listed, and many of them commented upon in the lectures. From these listings the student will choose his reading according to his interests. For one or more periods a week, depending on his progress, he will work in the composition laboratory. There on the basis of his reading and the normal demand that he write, he will attack his writing problems, whether they are note taking, letters home, reports on other courses, or petitions. What he does will depend upon his own initiative, for he will be permitted to write only when he has something that interests him and something to say about it. In all laboratory work he will be advised and assisted by the instructor in charge and his assistants. TTh VI. Writing laboratory hours to be arranged. Mr. MacLean, Mr. Appel, and staff.

19w—Part B, winter quarter. COLLECTING AND ORGANIZING MATERIALS.

From casual general reading, everyone absorbs useful information which is stored away and drawn upon when needed, but such information is usually too unorganized and too diffuse to be of practical value. Frequently questions and problems arise which demand that more than a general answer be given. Turning to a ready reference manual or a dictionary will not, in this case, solve the difficulties. The answers must be dug out of the library, and though the student knows that skilled librarians will aid him in his search, he realizes that he does not know how to work in the library without a deal of waste motion. The information he wants may be on the color of a crystal, the food supply in India, military training in Russia, the biography of a stage star, or the sales record on automobile tires in 1930, but unless he has been directed in the use of the library he is without the key to the knowledge he wants. The lectures will deal with the intelligent use of the library, the organization of notes for term papers, reports, briefs, and theses. The course may be of value to the student whether he wishes merely to satisfy curiosity about an unfamiliar subject or wishes direction in preparing papers for his other courses. TTh VI. Writing laboratory hours to be arranged. Mr. MacLean, Mr. Appel, and staff.

20s—Part C, spring quarter. BUSINESS AND SOCIAL FORMS.

With the first and second quarter groundwork in practice and method in his reading, other elementary investigation, and writing in college, atten-

tion will turn in this quarter to the practical forms of writing the student is likely to encounter in his business and social, post-college life. Accurate forms of business and technical reports; effective types of application, refusal, advertising, sales, and protest letters; and proper social notes and letters, formal and informal, will be analyzed and their purposes and principles demonstrated. Supervised practice in the laboratory will be continued throughout the quarter.

Credit in this course will be granted for the amount and quality of the composition of each student, not on the course hour basis. TTh VI. Writing laboratory hours to be arranged. Mr. MacLean, Mr. Appel, and staff.

### 21f, 22w, 23s—EUTHENICS

Euthenics is "the science and art of improving the human race by securing the best external influences and environmental conditions for the physical, mental and moral development of the individual and for the maintenance of his health and vigor." It is a field that may be profitably studied by both men and women. The course outlined below is designed for both.

Every individual is daily faced with the need of making certain choices or selections to satisfy his needs and desires. The amount of information which he can bring to bear in making these selections will determine the satisfactions and pleasures he will derive from them. A knowledge of the relation of food and nutrition to health and efficient, active living makes certain a wise selection of the daily diet. Information on textiles and clothing gives returns in added physical comfort, improved personal appearance, and in economical buying. An appreciation of the principles of art results in becoming dress and increased beauty in surroundings. A knowledge and appreciation of the use of the income, whether of money, time, or energy, increases the measure of satisfaction for the individual and the family, and promotes better relationships. Finally, in his home—its design, location, and equipment—rests much of the individual's happiness. The course will consist of lectures which will be illustrated by lantern slides and often with the actual materials in the various fields.

#### 21f—Part A, fall quarter. 1. FOOD AND NUTRITION.

This unit includes a survey of the nutritional factors which make for optimal health. Consideration will be given to the food requirement of the individual and the factors determining that requirement, such as activity, size, age, etc. The discussion will include the nutritive value of the different foods; combinations of foods which are appetizing and which supplement each other; food values and relative costs; shopping for foods in restaurants, stores, and markets; food fads and fallacies; and the dietetic management of certain diseases. Miss Biester.

#### 2. HOUSE PLANNING AND FURNISHING.

The unit in house planning and furnishing aims to familiarize the student with fundamental art knowledge which will help him to appreciate

beauty in many of its aspects, and will assist him to make a suitable home and make it attractive. The course will begin with a brief survey which will show the principles of design and color as they are applied in familiar objects. The houses of today will be studied from the point of view of the beauty and the sincerity of their design, and of their place within the community. Personality in design will be discussed so that a particular family may choose the type of house and house furnishing that suits it best. Such topics as the following will be discussed: the arrangement of rooms and their furnishings in order to make the home convenient, comfortable, and inviting; walls, woodwork, and floor coverings as they take their place in the furnishing scheme; the selection of furniture which will give comfort and satisfaction as long as it will last; an appreciation of draperies, fine pictures, and decorative objects, with suggestions for selecting and placing them in a room. MWF IV. Miss Goldstein.

22w—Part B, winter quarter. 1. TEXTILES AND CLOTHING.

This unit will include a discussion of the textile fibers and fabrics used for men's and women's clothing and for household purposes. The following topics will be considered: fabrics—the relation of quality to the fundamental processes of construction; textile fibers, their properties and simple methods of identification; yarns, weaves, and finishing processes—what they have to do with quality of fabrics—how designs in fabrics are obtained; uses for wool, cotton, silk, rayon, and linen fabrics; methods of adulteration against which the consumer needs to guard; what the purchaser should demand in the way of protection against deception; cost of clothing and factors which influence the purchase price. A budget plan for clothing expenditures will be outlined; the points to consider in buying a suit or coat, knitted goods, furs, silks; care of clothing. The consumer's attitude toward store service will be analyzed. Miss Weller.

## 2. THE MANAGEMENT OF THE HOME.

The part that efficient management plays in increasing the satisfactions, both economic and social, in family life will be presented by showing that while homes make men and women, men and women are the makers of homes. Homemakers as managers determine the goal of their homemaking enterprise, the financial policy of the family, the use of the family income, the management of the time and labor involved both in household and leisure time activities. Personal as well as family budgeting and accounting will be considered. What constitutes a livable, well-managed home will be illustrated by case studies of real families. MWF IV. Miss Studley.

23s—Part C, spring quarter. THE DESIGN, BUILDING, AND FINANCING OF THE HOME.

This quarter's work by the Department of Architecture is to round out the course in eutherics. It will deal with the home as a physical plant; its location, design, construction, equipment, and financing. The following problems will be discussed; the location; a house in the country, on the edge

of the city, or in the more congested areas; the availability of transportation; the present tax rate in that neighborhood; the probable future tax rate; the availability of sewer and gas mains, water supply, telephone, and electric lights.

Practical and esthetic considerations in the design of the home will be taken up. These will include those not already covered in the earlier part of the course. They will have to do with types of design necessary to meet conditions of family life, family income, etc.; the suiting of the type of home to the climate of the locality; the proper arrangement of rooms in various types of houses in both their practical and historical aspects.

A series of the lectures will be given over to the discussion of good and bad methods of construction; the problems of materials now available; and those probably available in the near future; the values of wood, stone, brick, stucco, frame, and steel construction under varied conditions.

The cost of materials, supervision, and labor in the construction of the home leads to the discussion of financing, and to the consideration of such problems as renting versus ownership, the relation of cost to income and to the various methods and plans of financing home buildings. Financing involves likewise another problem, that of multiple or apartment versus individual housing arrangements, the relative benefits and economies of different methods of heating, ventilating, insulating, lighting; and of the labor saving devices with which the home may be equipped. MWF IV. Mr. Mann, Mr. Robert Jones, Mr. Roy Jones.

#### 24f,25w,26s—APPRECIATION OF THE FINE ARTS

The fine arts are the best reflection of civilization. In this course an attempt will be made to show how the fine arts of the motion pictures, and the theater, sculpture, architecture, painting, etching, and other graphic arts and music are as a whole related to contemporary, and especially to immediate, American life. Do the arts of today display the same force that underlies present achievements in science? Why do some artists hark back to the primitive for their inspiration? Modern life has many new developments but its roots lie in the past; so, too, with recent developments in art. The heritage of ages may be traced back generation by generation with changes but also with traditions.

#### 24f—Part A, fall quarter. APPRECIATION OF MOTION PICTURES AND THE THEATER.

The object of this course is to give the student some standard of judgment of motion picture and theatrical productions that he is likely to see, and to give him some background upon which to base his criticisms and opinions.

It will consist of two lecture and one picture period each week. The lectures will be illustrated by slides, and motion pictures will illustrate various phases of the theater arts. The lecturers will be supplemented by professional critics and theatrical managers and artists from the Twin Cities who will talk on such subjects as: "The business end of the theater," "What I



look for in a play," "What I look for in a motion picture," "My method of memorizing lines," "What I do to 'get into' a part," and readings from some of the great plays.

There will be a brief, preliminary survey of the history of the theater, from the beginnings of drama among primitive tribes, touching the Golden Age of Pericles, the Roman circus, the rebirth of drama in the church, and the flowering of the Romantic period to the rebirth of classic drama in the Renaissance with its lasting influence upon French technique. It will progress through the periods of sentimentality and realism to the era of experimentation in the theater at the present time. These lectures will be chronological, illustrated travelogs of the theater.

This brief survey will be followed by a treatment of the costumes of the different periods, illustrated by slides and such well-known motion pictures as "Intolerance," "Monsieur Beaucaire," "The Birth of a Nation."

This will be followed by another series on scene design and stage illumination from the early period to the most extravagant methods of constructivism and expressionism in the radical Russian theater of today. The modern tendencies in playwriting, acting, directing, stage costuming, and stage setting will be dwelt upon. The different types of theater will be noticed. That remarkable outgrowth of the modern theater, the motion picture, will be traced back to its beginnings when the Egyptian Pharaohs used to ride in their chariots along rows of great pylons upon which human figures were drawn in such a way that they seemed to move as the columns sped by. These talks will be illustrated by slides and by motion pictures from the earliest crude "train coming" and "fire run" type, to the most finished "talkies" of the present day. Where it is advisable, current productions will be commented upon, and the problems involved in productions of the University Theatre will be explained before each performance and reasons for the selections stated. MWF VIII. Mr. Riley and associates.

25w—Part B, winter quarter. APPRECIATION OF THE GRAPHIC ARTS.

In this quarter, graphic arts such as painting, etching, sculpture, the making of pottery, jewelry, fine metal work, and the use of art in advertising will be surveyed. Modern experimental tendencies as well as traditions will be analyzed. Progressive painting of the present time looks back to Cezanne; he, in turn, to the Impressionists, to the great Romantic revival of the last century, and eventually to Giotto. We see statues of bronze or marble, paintings in oil or water color, etchings, engravings, lithographs. How are they made? Some consideration of the minor arts in such fields as textiles, pottery, jewelry, metals from the same point of view—the unity of all the arts—and a discussion of the artistic possibilities of advertising are necessary to round out the picture of the place of art in modern life. Certain developments of recent American architecture, and its relation to the past, must be dealt with. Why do we see rows of new houses ranging from an American colonial dwelling of New England, through a manor house or castle of old England or France, to a Spanish villa in our American cities? Above all, why the last in Minneapolis? Why do we build our

colleges, our post-offices, our state capitols, and our railroad stations with elements of Greek or Roman architecture? Why do our churches go back to the Middle Ages for their inspiration? And lastly, what about the skyscraper, that most purely American development in architecture?

The course will be conducted by means of lectures illustrated by lantern slides, moving pictures, and exhibits. Reading will be assigned. Students will familiarize themselves with whatever important examples of architecture, sculpture, and painting may be found in the Twin Cities. MWF VIII. Miss Raymond, Mr. Upjohn, Mr. Hilpert, Mr. Burton.

26s—Part C, spring quarter. APPRECIATION OF MUSIC.

This course will enable students both to understand and to enjoy the wide variety of music that pours in daily over their radios with its mixture of classic and jazz, of opera and symphony, of martial and religious compositions. It will add also to their appreciation and understanding of opera on the stage and symphony in the auditorium. Music of today touches life at every turn, and a cross section of such music will be explained in terms of the movements that have resulted in symphony and opera. Jazz and other popular music and its orchestral contribution to more serious modern composition will be discussed and illustrated as will modern tendencies in various fields. Some of the music used as material for this course will be heard through the radio, phonograph records, and in four-hand piano compositions. Likewise, the various orchestral instruments will be heard in characteristic pieces singly and in combination. Moreover, both light and grand opera will be illustrated by competent singers in person as well as by records. MWF VIII. Mr. Scott, Mr. Killeen.

27i, 27w—THE EARTH AND MAN

This course introduces students to the field of geography, especially to that subdivision of it known as "human geography." The chief end in view is to determine the ways in which selected world regions differ from one another and to show the part played in these differences by such elements of the natural environment as climate and seasons, vegetation, soil, erosion, and the presence or absence of lakes and streams, rivers and mountains. The survey of world climates serves to show not only the broader elements involved in this "world differentiation," but also the ways in which mankind has become adjusted to severe variations of climate. Types of land surfaces are described and their distributions shown, as a further natural factor tending to bring about regional differences. Surface drainage, soils, and minerals will be considered in so far as they are of significance in answering the general problem of the course. Maps, because they have proved effective in demonstrating different regional conditions, form a factual basis for much of the work, supplemented by pictures and readings from a variety of sources. I MWThFS. Mr. Davis.

## 28f, 29w, 30s—THE BACKGROUND OF THE MODERN WORLD

It is of the utmost importance that the citizens of each country understand the problems and difficulties of other races and nations. Only upon such intelligent comprehension can satisfactory international relations be based. The twentieth century is teeming with complexities which may be made understandable by a study of their origin in the remote past and their evolution through the modern era. Italian fascism, Russian communism, England's abandonment of the gold standard and free trade, America's unavoidable entanglement in the major affairs of world politics, Germany's plight, and the intense nationalism of France—all these and many more such topics are not the outcome of the World War alone but have their roots far back in the Middle Ages. It will be the purpose of this course to try to see how the modern world with its complicated interrelations came to be.

## 28f—Part A, fall quarter. DEVELOPMENT OF THE GREAT STATES OF MODERN EUROPE.

The first quarter will cover the history of Europe from the Reformation to about 1715, showing the rise of nationalism, the dynastic rivalries, and the development of the great states of modern Europe. The intellectual awakening known as the Renaissance which affected all the interests and activities of man belongs in part to this period. Not art and letters alone, but religion, science, commerce, exploration were stimulated and changed by the quickening of this period in which the medieval era came to an end and the modern world began. Every opportunity will be grasped to connect the world of today with the earlier age in which are its roots. TThS I. Discussion section hours to be arranged. Mrs. Tyler.

## 29w—Part B, winter quarter. REVOLUTIONS, POLITICAL AND INDUSTRIAL—THE WORLD WAR—AFTERMATHS.

The work of the second quarter will carry the account to 1848. The balance of power, the colonial rivalries of England and France, the foundation of the British Empire, and the rise of the United States will be considered. The problems which brought about the French Revolution and the effect of that revolution and of the even more important industrial revolution upon the world of today are questions of great interest. The ideals of the French Revolution set Europe afire and the industrial revolution is yet in operation, modifying life for everyone from day to day. The career of Napoleon and the reconstruction of Europe may well be compared with the situation of the world during and after the Great War of the twentieth century. TThS I. Discussion section hours to be arranged. Mrs. Tyler.

## 30s—Part C, spring quarter. THE CHALLENGE OF THE TWENTIETH CENTURY.

In the third quarter the story of the nineteenth century will merge with that of the twentieth. The unification of Italy and Germany and the creation of the new states in southeastern Europe began a new adjustment of international relations and alliances which were to lead to war. Imperialism of the modern economic variety caused the partition of Africa and the problems of the Near and Far East. The World War brought catastrophic changes

to victors as well as vanquished. The years since the war have been full of interesting developments, the League of Nations, the formation of new republics, and startling experiments in Italy and Russia. A study of the past makes the twentieth century a fascinating and challenging prospect. TThS I. Discussion sections and hours to be arranged. Mrs. Tyler.

### 31f, 32w, 33s—FORMATION OF PUBLIC OPINION

This course deals with the present day newspaper and other media of mass impression. The printed word and pictorial display of the press, magazines, and books, the spoken word of the teacher, minister, or lecturer on the platform or by radio, and the visual and auditory impressions conveyed in the talking pictures, all have their influence on the thinking, attitudes, and behavior of every man and woman. As a consequence, a knowledge of the methods and sources of power of these institutions with an explanation of the traditions, procedures, and mechanisms by which they operate and play upon their audiences, is important and significant.

#### 31f—Part A, fall quarter. SHAPING PUBLIC THINKING.

This quarter's work will offer information about institutions and instruments for shaping public thinking. A brief historical background of the press. A survey of the evolution of the newspaper, the great influences in its development. The revolution of production and distribution, the rise of democracy, the urbanization of the population, and the development of communication. Mechanical invention, mass production, standardization, and chain distribution give point to this study. The democratization of government, society, education, and other phases. Their deep effect upon the press. Special reference will be made throughout to the interrelation of the newspaper and the public of today. MWF III. Mr. Casey.

#### 32w—Part B, winter quarter. THE NEWSPAPER, PERIODICAL, AND THEIR FUNCTION.

Students will here be initiated as "insiders" into modern techniques that serve through press, radio, and moving pictures to fix attitudes, create social values, and exercise leadership. Such questions will be answered as: What is news? What is involved in news selection? Does all news fall into the same pattern? Is news a matter-of-fact recital? Is the emotional element in the news built up to create reader interest? What part do struggle, romance, and mystery play in the effect of news? Can emotional interest in significant things be created through the news? Does the reader imagine himself an actor in a news story situation? Does the tabloid's selection of news differ from that of the standard paper? Does the newspaper have unlimited right to print all the news? What is implied by the slogan, "All the news that's fit to print"? Does the newspaper overplay crime news? Has the development of the telegraphic news agencies standardized the news? Why does the present day newspaper pay increasing attention to foreign news and sports? Should the newspaper give the reader what he wants or what the editor thinks he should have? Is it a function of the

newspaper to amuse and divert the reader as well as to inform and counsel him? To what extent is there coloring, suppression, and censorship of the news? What are the chief causes of inaccuracy in news stories? How much time does the reader devote to newspaper or periodical? Is the motion picture or radio a competitor of the press? MWF II. Mr. Casey.

33s—Part C, spring quarter. PROPAGANDA CAMPAIGNS.

Great campaigns to sway public opinion are launched on a united front using all agencies in times of disaster, in times of war. Others are built up to sway mass opinion for religious purposes and in politics. These crusades are variously centered. It is the purpose of this third quarter to discover their organization and effect, to analyze the various agencies participating. Press agency and its propaganda will have an important place in the course. Types of propaganda technique in war and peace time will be observed to reveal how groups in society contrive to obtain certain objectives and how they manipulate to fix or change attitudes and opinion. The following questions will be discussed: Does advertising in the press and over the radio result in social change? How does it affect per capita production and consumption? Standards of living? Social values? Public taste? Do people read editorials? Does the newspaper really exercise leadership? Should a newspaper conduct crusades and campaigns? How partisan is the present day newspaper? The radio? The motion pictures? Certain magazines? Is a publicly-owned newspaper or other propaganda agency possible or desirable? An endowed one? Are newspaper changes imposed by so-called great editors? What imprint have such significant figures as Greeley, Bennett, Pulitzer, Hearst, and Scripps left on journalism? Are there now any men of this stature who mould and stamp national or group thought in any of the opinion forming fields? MWF III. Mr. Casey.

34f, 35w, 36s—INTRODUCTION TO THE MATHEMATICS OF BUSINESS AND EVERYDAY LIFE

For men and women outside the specialized fields of science, engineering, and various phases of business involving higher analysis, mathematics has practical everyday uses. Adequate knowledge of simple forms and processes serves as a safeguard of income, protection against the unscrupulous, and a commonsense basis on which to manage daily business and personal money matters. A large and important part of the exceedingly practical fields called *statistics* and the *mathematics of finance* can be cultivated with the aid of arithmetic and elementary algebra. This course, called an Introduction to the Mathematics of Business and Everyday Life, will train students in the use of such tools and will present selected topics from statistics and the mathematics of finance which are of interest and value to any intelligent citizen. The mathematical basis which is necessary for the consideration of these topics will be completely developed in the course; in particular, the student will meet a review of certain parts of elementary algebra, and a treatment of logarithms, progressions, and probability. Appropriate parts of the history of mathematics will be introduced in connection with various

topics. It is advisable that a student registering in this course has had two years of high school mathematics.

The extent of the course can be inferred from the following sample problems.

34f—Part A, fall quarter. EVERYDAY STATISTICS AND INTEREST.

By use of data from the *Statistical Abstract of the United States*, express the monthly production of bituminous coal for each month of 1930 as a percentage of the production in the corresponding month of 1929; plot the resulting percentages. Determine the trend line of wheat production in the United States graphically, by use of data for the years 1890 to 1930. Give a brief description of the oldest mathematical textbook in existence. (NOTE.—The book referred to is an Egyptian papyrus written about 1700 B. C.) What is the approximate date of the oldest illustrations of promissory notes which have been discovered in the remains of ancient civilizations? What interest rate was specified in these notes? If you borrow \$1,000 for ninety days from a bank which charges 6 per cent interest, payable in advance, at what rate do you actually pay simple interest? Suppose that you buy \$1,000 worth of merchandise and that the terms of payment specified by the seller are net cash in 60 days, or 4 per cent discount for cash in 15 days. What is the highest interest rate at which you could afford to borrow money in order to take advantage of the discount offered to you? MWF VI. Mr. Hart.

35w—Part B, winter quarter. DEPRECIATION AND LOANS.

Compute the arithmetic mean, and also the geometric mean of the hourly readings of the temperature yesterday in Minneapolis, using logarithms for the computation of the geometric mean. Compute the annual rate of depreciation on a motor truck which costs \$1,250 and is worth only \$250 at the end of three years; find the depreciation during each year. How long will it take money to double itself if it is invested (1) at 5 per cent, compounded quarterly, and (2) at 5 per cent simple interest? How much money in hand today would be sufficient to provide you with \$50 per month for two years, if you were able to invest money at 6 per cent, compounded monthly? In return for a loan of \$1,000 you agree to make equal payments at the end of each three months for four years. If these payments include all interest at the rate of 8 per cent, payable quarterly, find the size of the payments. MWF VI. Mr. Hart.

36s—Part C, spring quarter. INVESTMENTS AND INSURANCE.

What rates of interest, compounded annually, are equivalent to the interest charges specified by a Morris Plan bank, for its various types of loans? Suppose that you bought a \$1,000, 7 per cent bond of the Great Northern Railroad at the highest price for which such a bond was sold yesterday on the New York Stock Exchange. What interest rate does this investment yield, assuming that you will hold the bond until its maturity date? Compute the smallest possible annual premium which an insurance company could afford to charge, if it had no overhead expense, in case you

should buy an ordinary \$1,000 life insurance policy today. What sum of money, in hand when a man is of age 65, would be sufficient for him to buy a pension of \$100 per month for the rest of his life, under the usual conditions specified by insurance companies? MWF VI. Mr. Hart.

37w—Winter quarter. MAKING MUSIC

The primary purpose of music is to make an appeal to the senses and the imagination. On many, however, music has the same effect as a warm bath—a pleasant sensation. They listen in repose, and if asked for an opinion of a piece of music, they reply: "Oh yes, I liked it well enough," or "I don't know—it was all right I guess," or again, "I know what I like." Robert Schumann admitted that music means something different to each of us. "Men in different stages of life take such different views of the impressions they derive from artistic fancies, and the youth of eighteen often discovers in a symphony the echo of some world-wide event, where the mature man sees but a local matter, whereas the musician has never thought of either the one or the other, and has merely poured forth from his heart the very best he could give." To the musician has been popularly attributed some divine talent, and he has been clever enough to admit it. But the stuff out of which music is made, the raw material, can be closely examined, and the effects produced upon us better appreciated and understood. We should, therefore, learn how music is made and of what music is made.

Therefore, this course will be a study of the relation of sound to music. Just like a zoologist when he finds a strange bug, we will take the sound-wave into the laboratory, dissect it, and see what it is like. We can learn something about it from observing the effects of its activity. Delicate machines have been invented which show us how the sound-wave behaves. We can determine which characteristics make for noise and which lead to music. We can study the very structure of the tone wave, its pitch, its loudness. Then we can look into a horn or other musical instrument and see what happens in re-enforcing and building-up an insignificant sound-source; how one length of tube can make many notes; how man's skill has improved on nature's production of music. We will discuss tone quality, or tone color which enables us to hear the difference between one instrument and another, one voice and another even when a note is played or sung or spoken in the same pitch. Finally, we will analyze these things in their practical applications to singing, speaking, playing, and to opera in English as compared with that in German, French, or Italian by seeing how the sounded words are made to fit the lines of musical melody. TThS I. Mr. Pepinsky.

38w—Winter quarter. THE AMERICAN CITIZEN AND HIS GOVERNMENT

Popular government rests upon the principle that it is every citizen's business to see that his community is well governed. But, as Lord Bryce

pointed out, what is everybody's business is likely to be nobody's business, for most people hesitate to assume the responsibility. It has therefore been typical of American life to find the affairs of government managed by a relatively small part of the community, motivated often by self-interest. Those who should have been the leaders in politics have been especially slow to interest themselves directly in public affairs, whereas, they ought to be in the forefront. Too many people in the United States have regarded politics as a business to be avoided by those wishing to be thought respectable. The fact is that the functions and activities of government have now expanded to such an extent that politics touches every one of us directly, deeply, intimately, inescapably. It will be increasingly difficult for Americans who have gone to college to remain indifferent to politics, and at the same time many will be anxious to assume the increasing responsibilities which democracy places upon them.

This course is designed to equip the future citizen for assuming the responsibilities of his position as an intelligent member of a democratic state and in making his participation in politics more effective. The American system of local, state, and national government will be described with particular attention to the ways in which the activities of governmental agencies touch the daily affairs of the average citizen. The various ways in which the citizen can take part in public affairs will be analyzed carefully. To this end the functioning of the political party will be studied. The opportunities for employment in the civil service will be explained. Most citizens will have to be content with merely voting in primaries and elections as their share in government, but to point out the wider possibilities of planned political economy will be the main purpose of this course. MWF VI. Mr. Starr.

### 39s—Spring quarter. WORLD POLITICS

The informed citizen needs to know the problems not only of his own country, but also those of other nations, and of the world on which America so much depends. Finance and business, science and education, have become international, and nations have become increasingly interdependent. To survey this field the department offers this course in "World Politics."

The lectures will deal with the international problems of the principal nations of Europe and the Far East, and with their internal affairs where these affect the international situation. The emphasis will be placed upon the post-war period, but attention will be drawn to pre-war events where this is necessary for elucidating the present situation, e.g., France's policy toward Germany. The first part of the course will deal with the salient features of the foreign policies of the principal powers. Outstanding problems will then be discussed, e.g., the Polish question, reparations and inter-allied debts, and Soviet internal and foreign policy. Attention will be drawn to the significance of these questions as illustrations of such general principles as nationalism and imperialism. The efficacy of the League of Nations, disarmament conferences, and the Kellogg Pact will next be considered in the light of the previous discussion of specific problems. The above schedule



of lectures will be altered in order to explain any outstanding current developments, whether in internal or in foreign affairs, e.g., in the event of the National Socialists obtaining control of the German Government, or further upheavals in the Caribbean and South American political areas. MWF III. Mr. Mills.

#### 40f, 41w, 42s—HUMAN DEVELOPMENT AND PERSONAL ADJUSTMENT

In recent years, college students have more and more demanded courses teaching them to know and understand themselves. As expert studies in biology have been brought to bear on the human body, so have the testing and research of many trained men and women focused on the human mind. A large portion of these have been centered on problems of personal adjustment and mental hygiene. Through the study of the development of normal and problem children, the analysis of the behavior of delinquents, inquiries into the causes and nature of mental peculiarities and abnormalities, and the study of family life, much knowledge has been obtained of social and family relations. Not only does this assist the student in meeting his own life problems but it also gives insight into the motives and behavior of others and prepares for the coming responsibilities of family life. It is the aim of this course to make such material available not with the idea of developing psychologists, but to aid in the solution of the difficulties facing every young man and woman and every adult and to prepare for meeting the practical problems of marriage, child rearing, and homemaking. The course will be divided into three parts each covering one quarter. Questions such as the following will be considered.

#### 40f—Part A, fall quarter. THE PERSONAL ADJUSTMENT OF YOUNG PEOPLE.

How do your fears of examinations, of spiders, or snakes, and other frights arise? How may they be reconditioned? Why do you act as you do when angry? What causes temper tantrums, and how may they be controlled? How do food prejudices arise and what can be done? How can bad habits be broken in the child, in the youth? Why do children "go wrong," run away from home, play truant, become bullies, steal, etc.? How is "pathological lying" related to childhood yarns? What causes stuttering, jealousy, envy, etc.? What is the effect of physical inferiority or handicaps on development? How can bashfulness and nervousness be overcome? What can be done with the seclusive, the sensitive, the moody, the shy? Is daydreaming dangerous? Whence come feelings of inferiority? What is the relation of peculiarities and insanity to childhood experiences? How may desires be sublimated?

Is there an adolescent "upset"? How much freedom should be given children? Should college youth be repressed? Is the younger generation "going to the dogs"? What is the effect of the movies, of gangs, of newspapers, of the comics on children and young people? Do your friends affect your character? TTh VII. Mr. Anderson.

41w—Part B, winter quarter. THE BASIS OF ADJUSTMENT IN HEREDITY, EARLY TRAINING, AND DEVELOPMENT.

What happens to the child before it is born? Can babies be "marked"? Why are two children in the same family so different? Are children born shy, nervous, bashful, or are parents responsible? How do neurotic mothers affect children? What traits have you acquired through living with your parents? Are "only children" always spoiled?

Are geniuses stupid as children? Do precocious children turn out badly? What is the relation between play, work, and drudgery? Can the child's curiosity and manipulation be guided into useful channels? Where do children's games originate? Can "creative imagination" be developed? Can we measure the intelligence of babies? Why do children remember baseball scores and forget their arithmetic? Should bright children be double promoted? Should we help children in their school work? How much do children know about sex? What should they know? How can they be given sex information? How do we spoil children? Should a child be whipped? What is the effect of punishment? TTh VII. Mr. Anderson.

42s—Part C, spring quarter. THE PROBLEM MET BY PARENTS IN REARING CHILDREN, AND MAINTAINING A HAPPY AND SUCCESSFUL HOME AND MARRIED LIFE.

How do the personal relations of husband and wife, father and son, mother and daughter, and one child and another, affect the lives and adjustments of the members of the family? Do children educate their parents? How should one choose a wife or husband? Who should have children? What is the effect of divorce upon the children of divorced parents? What is a "broken home"? What family traditions should be preserved? Should the family be done away with and the state take over the care of children? What traits do children admire in their parents? What should be the student's attitude toward his home and his parents? How can positive and desirable character traits be developed? TTh VII. Mr. Anderson.

43f, 44w, 43-44s—THE PRACTICAL APPLICATIONS OF PSYCHOLOGY

Psychology is concerned with human activity. Because every person is influenced by the behavior of other people, it is wise to study this behavior for its practical significance.

The aim of this course is to present a picture of the ways in which the human being meets the problems of his environment and develops the many traits which are called personality. It seeks to answer the question, "Why do we behave as we do?"

43f—Part A, fall quarter. INDIVIDUAL DIFFERENCES.

This part of the course will consider why college students and others differ one from another. Such questions will be discussed as: What is mind? Are all men created free and equal? What is intelligence? What is an I. Q.? How is intelligence measured? Is there more than one kind

of intelligence? Can we improve intelligence? Are woman smarter than men? Is it true that women never reason? Why are different races of people different? What part does age play in individual differences? Are two people ever exactly alike? Can intelligence be ascertained by the shape of the head and face? Do the stars influence our behavior? Can we read people's minds? Can behavior be predicted from handwriting? Are all blondes fickle? And is there anything to numerology?

In what ways do differences come about? How are all of our various traits developed? The part played by the nervous system in behavior: how we hear, see, taste, smell, and the like; what traits we are born with and what we acquire; what causes emotion; whether emotions are always bad; the way in which advertisers and salesmen play upon our emotions in selling us their products; how we can build up sales resistance; why we fight, become angry, and fall in love; the part played by the glands in emotional behavior, also the influence they exert in our physical development. MWF II. Mr. Longstaff.

44w—Part B, winter quarter. LEARNING, HABIT, AND PERSONALITY.

The second quarter's work will help to form a more complete picture of the individual. It will deal with questions of how we learn; how we improve our memories; how we break bad habits and build up good ones; how age influences learning; how other people shape our behavior; what is hypnotism; what is mob behavior; what gives rise to new things such as inventions; what is personality; whether it is possible to have two entirely different personalities; how personality is measured; how we can learn to get along with other people; the kind of work we are best fitted for and how we can develop healthy, normal, and pleasing personalities.

Having seen how people differ, how these differences come about and how our traits are combined into personality, the discussion will finally center upon how personality breaks down; what happens when we go crazy; why drunkards see snakes; whether insanity can be cured; how to reduce insanity; the characteristics which make people "peculiar"; if a genius is insane in some respects; what is a complex; what is psychoanalysis; if insanity is hereditary; what happens when people see visions; what is an introvert, an extravert; why we sometimes think everyone is looking at us or talking about us; what happens when we have the "blues"; why some people think they have every disease they hear of; why we sometimes think the world "has it in for us" and at other times we feel that life is perfect.

Throughout the course stress will be laid upon the practical aspects of psychology rather than the attempt to train the student to become a specialist in the field of human behavior. MWF II. Mr. Longstaff.

43-44s—Part A and B, spring quarter. MTWThFS II. Mr. Longstaff.

45f, 46w, 47s—Fall, winter, and spring quarters. VOCATIONS

The University Junior College would fail to fulfill one of its functions if we neglected to offer a realistic study of the occupations of men and

women in a wide variety of fields. At present many human failures, many late starts, much wasted time, effort, and money are the direct result of student ignorance of the factors involved in any given occupation. Many people hold fanciful illusions about other callings than their own. Some believe that all doctors and lawyers receive large incomes; that a college degree in engineering, education, business administration, nursing, agriculture, and other curricula is a guarantee of a job and of success; that the white collar clerkship is always better than a job in the engine room, at the bench, or behind the plow; that somehow it is more genteel and profitable for a woman to teach school than to sell goods or make them.

It is the purpose of this course to examine the basis of these notions in the light of as accurate knowledge as can be obtained. This will consist of the analysis of the occupation itself, its disadvantages and advantages, its obstacles, griefs, dangers. This will be followed by a summary of the various ranks or steps in advancement and the salaries or wages that accompany them. There will be information then offered, first, on the type of personality and basic skills needed for particular occupations and, second, the kind and amount of training necessary to the successful holding of, and advancement within, the job.

Instruction will be given on how a student can follow up the information given in the lectures with further study of the occupations in which he is interested. He may see how the worth of any given career changes from year to year; how as society changes, as new machines are invented, the good job of yesterday becomes worthless today or entirely disappears; how new types of interesting and profitable work arise; and how men and women, by becoming aware of these things, must be constantly ready to shift, adjust, and retrain themselves to profit by change.

These matters are to be discussed by men and women from the University and the Twin Cities whose experience and training give them ample authority to speak directly and fully on their own vocation. All students in the University Junior College are advised to elect this course throughout the year not alone for the value of focusing attention on their own vocational problem but because contact with successful men and women in various fields may stimulate them and the lectures will add to their understanding of the work of the world. T IV. Mr. MacLean, Mr. Homer Smith, co-ordinators.

## PROGRAM 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.

*Buildings.*—A, Armory; Adm, Administration; Ad(F), Administration, University Farm; B, Business; Bot, Botany; Bu, Burton Hall; C, Chemistry; CWI, Child Welfare Institute; D, Dentistry; E, Engineering; EE, Electrical Engineering; F, Folwell; G, Greenhouse; HE, Home Economics, University Farm; HH, Haecker Hall, University Farm; HS, Health Service; J, Jones Hall; Lib, Library; ME, Mechanical Engineering; MH, Millard Hall; Mu, Music; P, Pillsbury; Ph, Physics; Psy, Psychology; Pt, Pattee Hall; S, Stadium; SBH, State Board of Health; WGM, Women's Gymnasium; Z, Zoology.

### 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 (12:30 to 1:20), sixth hour (1:30 to 2:20), seventh hour (2:30 to 3:20), eighth hour (3:30 to 4:20), ninth 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., to 1:05; sixth hour, 1:30 to 2:20, etc.)

Ar. To be arranged or assigned.  
Aud. Auditorium.  
Cred. Credits.  
Lab. Laboratory.  
Lect. Lecture.  
MTWThFS Monday, Tuesday, etc.  
Prereq. Prerequisite.

## PHYSICAL EDUCATION FOR MEN

Courses 1, 2, and 3 are prescribed for all freshmen and must be taken in the first year of residence. Students entering in the winter and spring quarters will register for Courses 2 and 3, respectively, but must complete the entire sequence, 1f, 2w, 3s. Those students taking the required course in physical education, who cannot swim, must make a reasonable effort, as determined by the department, to pass the swimming and life saving requirements, and will be assigned special hours for instruction.

Advanced students who have not completed the previous requirement in freshman hygiene may register for Preventive Medicine 3.

For a special four-year professional course in physical education and athletic coaching, see bulletin of the College of Education. Students interested in this course should consult Professor Keller before registering.

*Statement of fees.*—For all courses, except 7, 8, 9, \$1.50 per quarter. Maximum fee \$1.50 per quarter.

No.	Title	Hour	Day	Bldg.	Instructor
1Af†	Fresh. Phys. Ed.: Touchball... (1 cred.; fr.; no prereq.)				
	Sec. 1	I	MWF	202S	Ar
	2	II	MWF		
	3	II	TThS		
	4	III	MWF		
	5	III	TThS		
	6	IV	MWF		
	7	VI	MWF		
	8	VII	MWF		
1Bf†	Fresh. Phys. Ed.: Elem. Swim... (See 1Af; for men who cannot pass the swimming test)				
	Sec. 1	II	MWF	7A	Ar
	2	II	TThS		
	3	III	MWF		
	4	III	TThS		
	5	VI	MWF		
1Cf†	Fresh. Phys. Ed.: Boxing..... (See 1Af)				
	Sec. 1	VII	MWF	206S	Ar
	2	VIII	MWF		
1Df†	Fresh. Phys. Ed.: Tennis, Hand- ball, Squash Racquets ..... (See 1Af)				
	Sec. 1	II	TThS	Field House	Ar
	2	III	MWF		
	3	III	TThS		
	4	IV	MWF		
1Ef†	Fresh. Phys. Ed.: Gymnastics... (See 1Af)	VI	MWF	South Wing A	Ar

† See statement of fees, above.

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
1Ff‡§	Fresh. Phys. Ed.: Fresh. Varsity Athletic Teams . . . . .	Ar	Ar	202S	Ar
	(See 1Af)				
2Aw‡	Fresh. Phys. Ed.: Handball, Vol- ley Ball, Squash, Basket-Ball..				
	(See 1Af)				
	Sec. 1	I	MWF	202S	Ar
	2	II	MWF		
	3	II	TThS		
	4	III	MWF		
	5	III	TThS		
	6	IV	MWF		
	7	VI	MWF		
	8	VII	MWF		
2Bw‡	Fresh. Phys. Ed.: Swimming...				
	(See 1Af)				
	(Beginners) Sec. 1	VI	MWF	7A	Ar
	2	II	TThS		
	(Advanced) Sec. 1	II	MWF		
	2	III	MWF		
	3	III	TThS		
2Cw‡	Fresh. Phys. Ed.: Boxing.....				
	(See 1Af)				
	Sec. 1	VII	MWF	206S	Ar
	2	VIII	MWF		
2Ew‡	Fresh. Phys. Ed.: Gymnastics...	VI	MWF	South Wing A	Ar
	(See 1Af)				
2Fw†*	Fresh. Phys. Ed.: Fresh. Varsity Athletic Teams . . . . .	Ar	Ar	202S	Ar
	(See 1Af)				
3As‡	Fresh. Phys. Ed.: Diamond Ball				
	(See 1Af)				
	Sec. 1	II	MWF	202S	Ar
	2	II	TThS		
	3	III	MWF		
	4	III	TThS		
	5	IV	MWF		
	6	VI	MWF		
	7	VII	MWF		
3Bs‡	Fresh. Phys. Ed.: Advanced Swimming, Diving, and Life Saving.....				
	(See 1Af)				
	Sec. 1	II	MWF	7A	Ar
	2	II	TThS		
	3	III	MWF		
	4	III	TThS		
	5	VI	MWF		
	6	VII	MWF		

\* Basketball, gymnastics, hockey, swimming, track, or wrestling. Freshman varsity section may be elected two quarters only.

‡ See statement of fees, page 40.

§ Football, wrestling, swimming, tennis, cross country, or gymnastics. Freshman varsity section may be elected two quarters only.

No.	Title	Hour	Day	Bldg.	Instructor	
3Ds‡	Fresh. Phys. Ed.: Tennis..... (See 1Af)	Sec. 1	III	TThS	Field House	Ar
		2	IV	MWF		
		3	VI	MWF		
3Fs‡§	Fresh. Phys. Ed.: Fresh. Varsity Athletic Teams .....	Ar	Ar	202S	Ar	
		(See 1Af)				
3Gs‡	Fresh. Phys. Ed.: Golf..... (See 1Af)	Sec. 1	VI	MWF	206A	Ar
		2	VII	MWF		
13f,14w,15s‡	Corrective Work .....	Sec. 1	I	TThS	264S	Ar
		2	II	TThS		
		3	III	TThS		
16f,17w,18s‡	Drill Substitution .....				264S	Ar
		(No cred.; by petition only)				
		Sec. 1	I	MWF		
		2	II	MWF		
		3	III	MWF		
		4	IV	MWF		
		5	VII	MWF		
		6	VIII	MWF		
7	IX	MWF				

### PHYSICAL EDUCATION FOR WOMEN

This department aims to promote the physical efficiency of the women students and to teach them forms of activities in which they may participate in leisure time. It assists them to gain control of their bodies through the use of strength, relaxation, and rhythm, to improve posture, to become familiar with the use of muscular exercises for the correction of everyday weaknesses; it gives lectures in hygiene; it offers courses in games, swimming, sports, dancing, and gymnastics, and through the Women's Athletic Association it promotes an elective program for recreational participation.

Physical education is required for six consecutive quarters. Courses 1, 2, and 3 are open to freshmen. All sophomore students are allowed as free a choice as their physical condition permits (see Courses 7-31), except that those who cannot swim must register for Course 22-23 during the sophomore year. Physical examinations are required on entrance and at the close of the sophomore year.

For a special four-year curriculum designed to prepare graduates for teachers of physical education, see the bulletin of the College of Education.

*Statement of fees.*—Phys. Ed. 1-2-3, \$2.50 a quarter. All other exercise courses for which registration is required, except Course 24, \$2 a quarter. Maximum fee paid by a student in physical education, \$3.50 a quarter. No gymnasium fee is charged for Courses 4 or 24.

‡ See statement of fees, page 40.

§ Baseball, football, tennis, or track. Freshman varsity section may be elected two quarters only.



No.	Title	Hour	Day	Bldg.	Instructor
1f§	Freshman Physical Education ... (½ cred.; required of all students; no prereq.)				
	Lect. Sec. 1	I	W	201WGm	Ar
	2	II	T	201WGm	Ar
	3	II	Th	201WGm	Ar
	4	III	Th	201WGm	Ar
	5	IV	M	201WGm	Ar
	6	IV	T	201WGm	Ar
	7	VI	W	201WGm	Ar
	8	VI	Th	201WGm	Ar
	Lab. Sec. 1	II	MWF	3,151,153WGm	Ar
	2	III	MWF	3,151,153WGm	Ar
	3	III	TThS	3,151,153WGm	Ar
	4	IV	MWF	3,151,153WGm	Ar
	5	VI	MWF	3,151,153WGm	Ar
	6	VIII	MWF	3,151,153WGm	Ar
2w-3s*§	Freshman Physical Education ... (See 1f)				
	Sec. 1	II	MWF	3,151,153WGm	Ar
	2	III	MWF	3,151,153WGm	Ar
	3	III	TThS	3,151,153WGm	Ar
	4	IV	MWF	3,151,153WGm	Ar
	5	VI	MWF	3,151,153WGm	Ar
	6	VIII	MWF	3,151,153WGm	Ar
4s	Preliminary Hygiene (for nurses and transfer students).....	VI	W	201WGm	Ar
	(No cred.; no prereq.)				
7f,8w*§	Sophomore Gymnastics .....	IV	TS	153WGm	Ar
	(½ cred.; soph.; prereq., 1-2-3)				
9s§	Sophomore Archery .....				
	(½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	II	TTh	151WGm	Ar
	2	IV	TS		Ar
	3	VII	WF		Ar
10f-11w*§	Sophomore Orthopedic and Individual Gymnastics .....				
	(1 cred.; soph.; prereq., 1-2-3)				
	Sec. 1	I	WF	3WGm	
	2	IV	TS	3WGm	
	3	VIII	TTh	3WGm	
12s§	Sophomore Orthopedic and Individual Gymnastics .....	IV	TS	3WGm	Ar
	(See 10f-11w)				
13f-14w-15s¶§	Sophomore Dancing .....	V½	MW	151WGm	Ar
	(1½ cred.; soph.; prereq., 1-2-3)				
13f.s-14w¶§	Sophomore Dancing .....	II	TTh	151WGm	Ar
	(1 cred.; soph.; prereq., 1-2-3)				
16f,17w*§	Sophomore Games and Folk Dancing .....	I	WF	151WGm	Miss Dickson
	(½ cred.; soph.; prereq., 1-2-3)				

\* Students may enter any quarter.

§ See statement of fees, page 42.

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

¶ Students may not enter the second or third quarter of the course.

## UNIVERSITY JUNIOR COLLEGE

No.	Title	Hour	Day	Bldg.	Instructor
18s§	Tennis .....				
	(½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	I	TTh	151WGm	Ar
	2	IV	TS	151WGm	Ar
	3	VI	TTh	151WGm	Ar
	4	VII	WF	151WGm	Ar
	5	VIII	TTh	151WGm	Ar
19f§	Sophomore Hockey .....				
	(½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	V	MW	151WGm	Ar
	2	VII	WF	151WGm	Ar
	3	VIII	TTh	151WGm	Ar
20w§	Sophomore Basket-Ball .....				
	(½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	V	MW	151WGm	Ar
	2	VII	WF	151WGm	Ar
	3	VIII	TTh	151WGm	Ar
21s§	Sophomore Baseball .....				
	(½ cred.; soph.; prereq., 1-2-3)				
	V	V	MW	151WGm	Ar
22f-23w‡§**	Sophomore Elem. Swimming.....				
	(1 cred.; soph.; prereq., 1-2-3, no knowledge of swimming)				
	Sec. 1	II	TTh	51WGm	Miss Starr and others
	2	III	MW	51WGm	Ar
	3	IV	TS	51WGm	Ar
	4	IV	MW	51WGm	Ar
	5	VI	TTh	51WGm	Ar
	6	VII(Fall)	WF	51WGm	Ar
	7	VIII(3:30)	TTh	51WGm	Ar
	8	VIII(4:00)	TTh	51WGm	Ar
22As§	Sophomore Elementary Swim- ming, Intensive .....				
	(½ cred.; soph.; prereq., 1-2-3, 22, or some knowledge of swimming)				
			Hours as for 22f-23w		
22w-23s§**	Sophomore Elem. Swimming....	VII	WF	51WGm	Ar
	(See 22f-23w)				
24f,s¶	Sophomore Horseback Riding....				
	(½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	VIII	TTh	Ar	Miss Starr
	2	IX	TTh	Ar	Miss Starr
25f,s-26w‡§**	Sophomore Intermed. and Ad- vanced Swimming .....				
	(1 cred.; soph.; prereq., 1-2-3, elementary swimming test)				
	Sec. 1	III	TTh	51WGm	Ar
	2	VIII	MW	51WGm	Ar
	3	VI	MW	51WGm	Ar

‡ The second quarter is not open to students who have not had the first quarter.

§ See statement of fees, page 42.

¶ Students registering for this course will pay for riding lessons at about \$1 per lesson, but not the regular physical education fee. Attendance at class hour is required for credit.

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

PROGRAM

No.	Title	Hour	Day	Bldg.	Instructor
27s  §	Sophomore Elementary Golf..... (½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	I	TTh	Ar	
		2	II	TTh	Ar
		3	II	MW	Ar
		4	VII	TTh	Ar
28f  §	Sophomore Advanced Golf..... (½ cred.; soph.; prereq., 1-2-3)	VI	TTh	Ar	Ar
30s§	Sophomore Life Saving and Water Sports..... (½ cred.; soph.; prereq., 1-2,3, adv. swim. test)	IX	MW	51WGm	Miss Starr
31w§*	Sophomore Skating..... (½ cred.; soph.; prereq., 1-2-3)				
	Sec. 1	VII	WF		Ar
		2	II	TTh	
43w-44s§	Elem. Games and Folk Dancing.. (1 cred.; soph., jr.; prereq., 6 qtrs.)	V	WF	151WGm	Ar
52w,53s§	Individual Projects in Physical Activity..... (2 cred.; jr., sr.; prereq., 6 qtrs.)	Ar	Ar		Ar
61f-62w†-63s§	Elementary Interpretive Dancing (1½ cred.; jr., sr.; prereq., 6 qtrs.)	VII(45 min.)	MF	153WGm	Miss Baker
71f-72w-73s††§	Intermediate Interpretive Dancing (1½ cred.; jr., sr.; prereq., 13- 14-15 or 61-62-63)	I(45 min.)	WF	153WGm	Miss Baker
80f	Theory and Function of Play... (3 cred.; jr., sr.; prereq., 43-44)	II	MWF	201WGm	Ar

*Activities for Which No Registration Is Required*

Elective Sports.....	IX	MTWTh	151WGm
(Fall)—field hockey, volley ball; (Winter)—basket-ball, ice hockey; (Spring)— track, baseball (with permission of director) swimming			
General Swimming.....	IX	MTWTh	51WGm
Tap Dancing.....	IX	TTh	51WGm

MILITARY SCIENCE AND TACTICS‡

The University requires that every physically fit male student shall take two years of military training. For exemptions, postponement, and electives see bulletin of general information, pages 28-30.

No.	Title	Hour	Day	Bldg.	Instructor
1f-2w	First Year Basic Course..... (No cred.; fr.; no prereq.)				
	Sec. 1	II	TThS	A	Ar
		2	III	TThS	Ar
		3	IV	MWF	Ar
		4	V	MWF	Ar
		5	VI	MWF	Ar
		6	VII	MWF	Ar
		7	VIII	MWF	Ar

\* Class meetings will be fifty minutes in length, since weather and ice conditions will cause omissions at times.

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

‡ Arrangements for advanced R.O.T.C. work, in the case of those eligible, should be made with the department.

§ See statement of fees, page 42.

|| Students must supply their own golf equipment. Golf course at university recreation field will be used for Courses 27s and 28f. Student tickets 10 for \$4.50, or 50 cents per ticket.

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

## UNIVERSITY JUNIOR COLLEGE

No.	Title	Hour	Day	Bldg.	Instructor
3s	First Year Basic Course.....				
	(No cred.; fr.; no prereq.)				
	Sec. 1	IV	MW & IX T	A	Ar
	2	V	MW & IX T	A	Ar
	3	VI	MW & IX T	A	Ar
	4	VII	MW & IX W	A	Ar
	5	VIII	MW & IX W	A	Ar
	6	II	TTh & IX W	A	Ar
4f-5w	Second Year Basic Course.....				
	(No cred.; soph.; prereq., 1-2-3)				
	Sec. 1	II	MWF	A	Ar
	2	III	MWF	A	Ar
	3	IV	MWF	A	Ar
	4	V	MWF	A	Ar
	5	VI	MWF	A	Ar
	6	VII	MWF	A	Ar
6s	Second Year Basic Course.....				
	(No cred.; soph.; no prereq.)				
	Sec. 1	IV	MW & IX T	A	Ar
	2	V	MW & IX T	A	Ar
	3	VI	MW & IX T	A	Ar
	4	VII	MW & IX W	A	Ar
	5	VIII	MW & IX W	A	Ar
	6	II	TTh & IX W	A	Ar
7	III	TTh & IX W	A	Ar	

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

*General Information*  
*for the Year 1932-1933*



*Vol. XXXV*

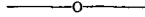
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The Bulletin comprises—

The reports of the president and of the Board of Regents, 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,  
University of Minnesota,  
Minneapolis, Minn.

*The University Press.*—The University of Minnesota Press is a department of the University devoted primarily to the publication of books, both of general and of special scholarly and scientific interest. It also issues at irregular intervals the following series of research publications: Social Science Monographs, Publications of the Bureau for Research in Government, Monographs, Studies, and Reports in Education, Child Welfare Monographs, Language and Literature Series, Biological Sciences Series (including Minnesota Studies in Plant Science), Bulletins of the Minnesota Geological Survey, Bulletins of the Employment Stabilization Research Institute, Studies in Engineering, Bibliography Series, Syllabus Series. These publications are not for free distribution.

A complete catalog of the University of Minnesota Press will be furnished by the Press upon request.

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## INTRODUCTORY STATEMENT

### PURPOSE

The general information bulletin contains such material as will be helpful to the high school graduate or prospective student and his parents. In it is found the necessary information about the entrance requirements, living conditions, fees, university organization, etc.

It is sent out on request, for such help as it may give young men and women who are thinking of coming to the University. It is not designed to urge a college education on any or all who may receive it. It will serve its purpose if it helps in the thoughtful consideration that should be given by parents and high school graduates when they choose a college education from among the many opportunities for further training. It presents a certain type of training which should be considered in relation to other opportunities such as vocational and trade schools of the better kind, normal schools and teachers colleges, junior and private colleges, and extension courses and correspondence schools. The controlling factor in any decision should be the best interests of the individual and his capacity to make successful use of the opportunities offered by the University or by any of the agencies suggested above. The choice is often not an easy one. Perhaps the following suggestions may be helpful.

As the boy or girl approaches the period of responsible manhood or womanhood the kind of training in final preparation for life may often be clearly indicated by the character of the individual's high school work.

The first choice which the student has to make is that between a long period of studies and some immediate employment such as a mechanical trade, buying and selling, clerical work, and many others, perhaps preceded by a shorter period of special study or training.

The wise student will make his decision after an inventory of his own real interests and abilities and will in any case avoid a choice that does not open up to him opportunities to use to the fullest his abilities as they are or as they develop.

Generally speaking, those who like their high school studies and are successful in them are more likely to succeed in college studies. Of those who stand in the lowest one fourth of their high school classes very few are successful in college work. Most of these would do well to consider other types of training for a vocation in which they may be successful. Of those who stand in the highest one fourth of their high school classes about 80 per cent make satisfactory records in college. It is very unfortunate for those young people who have shown their aptitude for studies to be drawn into employment immediately after high school when most of them are capable of preparing for and assuming positions of high responsibility and honor in industrial and social life of state and nation. Given good health and the power of application, those who like their high school studies and stand high in them ought to make every effort to secure college training.

College work is very different from high school work. It deals with a higher order of studies and demands constant advancement to more difficult studies which require intellectual growth and expansion. The college conducts its work with a view to developing initiative, independent judgment, and responsibility in its students for the two reasons that the studies require these qualities and that the students are just becoming men and women and must assume the duties and obligations of men and women.

## FRESHMAN WEEK

The University recognizes the need of giving its newly entering students an introduction to their work and to university life which is new and strange to many of them. For this purpose it is requiring freshmen to come to the University for part of the week before classes begin. This Freshman Week is devoted to efforts to help the freshman get a right start.

The period of September 28 to October 1, inclusive, will be used by the freshman for the following duties:

- a. Making his living arrangements.
- b. Registration and paying his fees.
- c. Physical examinations. (Physical examinations for women are conducted by women physicians.)
- d. Psychological tests.
- e. Other tests or examinations which will enable the faculty to place him in the class for which he is best fitted.
- f. Hearing lectures on such subjects as:
  1. The use of the library
  2. How to study.
- g. Making visits to acquaint himself with the University Library, scientific laboratories, and other points of interest in connection with his choice of studies and future occupations.
- h. Special exercises intended to acquaint him with the peculiar conditions or requirements of the college which he enters.
- i. Musical and social entertainment in the evenings arranged with the co-operation of the Student Council and the various religious bodies.

During the process of registration faculty advisers talk with all students, helping them to make the best selection of studies.

A committee on educational guidance maintains an office for conference with freshmen regarding their general vocational and educational problems.

Administrative officers, faculty, student government councils, upper class students, and organizations for religious work all co-operate to make Freshman Week a period during which the freshmen find themselves and learn how to go about their university work and how to profit by the opportunities for recreation and other activities in addition to their studies.

**NOTE THAT ALL FRESHMEN MUST REGISTER FOR FRESHMAN WEEK ON SEPTEMBER 26 OR 27 AND MUST BE IN ATTENDANCE THROUGHOUT THE FRESHMAN WEEK PERIOD CLOSING ON OCTOBER 1.**

*It is recommended that as many as possible present themselves for registration on Monday, September 26, in order to avoid the inconvenience and delay incident to the congestion on the last day. All who have not completed the psychological and English tests must report on Monday, September 26.*

## 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.

# UNIVERSITY CALENDAR

1932-33

*Fall Quarter*

1932			
September	19	Monday	Extension registration first semester begins
September	22	Thursday	Payment of fees closes, except for new students
September	26	Monday	Entrance tests
September	26-27		Registration for Freshman Week for all new students entering the freshman class
September	26-30		Examinations for removal of conditions
September	27-30		Physical examinations
September	27-28		Registration period, <sup>1</sup> College of Science, Literature, and the Arts
September	27-28		College of Education qualifying examinations for new students entering the senior year
September	28-October 1		Freshman Week
September	29-30		Registration days <sup>1</sup> for all colleges not included above except the College of Engineering and Architecture and the School of Chemistry
September	30	Friday	Registration day <sup>1</sup> for the College of Engineering and Architecture and the School of Chemistry
October	3	Monday	Payment of fees for new students closes Last day for extension registration without penalty
October			Fall quarter classes begin, 8:30 a.m. <sup>2</sup>
October			First semester extension classes begin <sup>3</sup>
October	20	Thursday	Senate meeting, 4:30 p.m.
October	29	Saturday	Homecoming Day
November	8	Tuesday	General Election Day; a holiday (except for extension)
November	9	Wednesday	Mid-quarter grades due
November	11	Friday	Armistice Day Convocation
November	24	Thursday	Thanksgiving Day; a holiday
December	1	Thursday	State Day Convocation
December	15	Thursday	Senate meeting, 4:30 p.m.
December	17 & 19-23		Final examination period
December	22	Thursday	Commencement Convocation
December	23	Friday	Fall quarter ends, 6:00 p.m.
December	31	Saturday	Payment of fees closes at 12 m. for all students in residence fall quarter <sup>4</sup>

See footnotes on page 11.

1933			
January	6	Friday	Entrance tests
January	6-7		Registration days <sup>1</sup> for new students in all colleges except the College of Engineering and Architecture and the School of Chemistry
			Payment of fees for new students closes
			Registration and payment of fees close at 12 m. on January 7
January	7	Saturday	Registration day <sup>1</sup> for all students in the College of Engineering and Architecture and the School of Chemistry
<i>Winter Quarter</i>			
January	9	Monday	Winter quarter classes begin, 8:30 a.m. <sup>2</sup>
January	23	Monday	Extension registration second semester begins
February	4	Saturday	First semester extension classes close
February	6	Monday	Last day for extension registration without penalty
			Second semester extension classes begin
February	14	Tuesday	Mid-quarter grades due
February	16	Thursday	Charter Day Convocation
			Senate meeting, 4:30 p.m.
February	22	Wednesday	Washington's Birthday; a holiday (except for extension)
March	20-25		Final examination period
March	23	Thursday	Commencement Convocation
			Payment of fees closes for all students <sup>4</sup> in residence winter quarter
March	25	Saturday	Winter quarter ends, 6:00 p.m.
<i>Spring Quarter</i>			
March	31	Friday	Entrance tests
March 31 & April 1			Registration days <sup>1</sup> for new students in all colleges except the College of Engineering and Architecture and the School of Chemistry
			Payment of fees for new students closes
			Registration and payment of fees close at 12 m. on April 1
April	1	Saturday	Registration day <sup>1</sup> for all students in the College of Engineering and Architecture and the School of Chemistry
April	3	Monday	Spring quarter classes begin, 8:30 a.m. <sup>2</sup>
April	14	Friday	Good Friday; a holiday (except for extension)
May	10	Wednesday	Mid-quarter grades due
May	11	Thursday	Cap and Gown Day Convocation

CALENDAR

11

May	18	Thursday	Senate meeting, 4:30 p.m.
May	30	Tuesday	Memorial Day; a holiday
June	2	Friday	Second semester extension classes close
June	10 & 13-17		Final examination period
June	11	Sunday	Baccalaureate service
June	12	Monday	Sixty-first annual commencement
June	17	Saturday	Spring quarter closes, 6:00 p.m.

*Summer Quarter*

June	19-20		Registration, first term
June	21	Wednesday	Summer quarter classes begin, 8:00 a.m.
July	4	Tuesday	Independence Day; a holiday
July	27	Thursday	Commencement Convocation
July	29	Saturday	Registration and payment of fees for second term closes at 12 m.
July	31	Monday	Second term classes begin, 8:00 a.m.
September	2	Saturday	Second term closes

<sup>1</sup> Registration subsequent to the date specified will necessitate the approval of the college concerned. See also penalty fees for late registration, page 52. No student will be allowed to register in the University after one week from the beginning of the quarter excepting in unusual cases wherein special circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

<sup>2</sup> First hour classes begin at 8:15 a.m. at University Farm.

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

<sup>4</sup> New students must pay fees on dates announced for registration.

## ORGANIZATION OF THE UNIVERSITY

The University is organized in schools, colleges, and divisions as follows:

THE JUNIOR COLLEGE

THE COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

THE COLLEGE OF ENGINEERING AND ARCHITECTURE, including—

THE ENGINEERING EXPERIMENT STATION

THE DEPARTMENT OF AGRICULTURE, including—

THE COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

THE SCHOOLS OF AGRICULTURE, including—

THE CENTRAL SCHOOL, UNIVERSITY FARM

THE NORTHWEST SCHOOL, CROOKSTON

THE WEST CENTRAL SCHOOL, MORRIS

THE NORTH CENTRAL SCHOOL, GRAND RAPIDS

THE AGRICULTURAL EXPERIMENT STATIONS, including—

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, including—

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 AND METALLURGY, including—

MINNESOTA SCHOOL OF MINES AND METALLURGY 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 ADMINISTRATION

THE UNIVERSITY EXTENSION SERVICE, including—

GENERAL EXTENSION DIVISION

AGRICULTURAL EXTENSION DIVISION

## THE BOARD OF REGENTS

The Hon. Egil Boeckmann, Lowry Building, St. Paul	-	-	-	1933
The Hon. Charles R. Butler, Mankato	-	-	-	1935
The Hon. Julius A. Coller, Shakopee	-	-	-	1937
The Hon. W. H. Gemmell, Brainerd	-	-	-	1933
The Hon. O. J. Hagen, Moorhead	-	-	-	1937
The Hon. W. J. Mayo, Rochester	-	-	-	1935
The Hon. A. J. Olson, Renville	-	-	-	1937
The Hon. R. R. Rand, Jr., Rand Tower, Minneapolis	-	-	-	1933
The Hon. Fred B. Snyder, 1430 Rand Tower, Minneapolis	-	-	-	1935
The Hon. John G. Williams, 1010 Alworth Building, Duluth	-	-	-	1935
The Hon. J. V. Williams, Marshall	-	-	-	1933
The Hon. Bess M. Wilson, 3205 Pillsbury ave., Minneapolis	-	-	-	1933

## ADMINISTRATIVE OFFICERS

Lotus Delta Coffman, Ph.D., LL.D., President  
 James C. Lawrence, B.A., University Dean  
 Rodney M. West, B.A., Registrar  
 William T. Middlebrook, B.A., M.C.S., Comptroller  
 Frank K. Walter, M.A., M.L.S., Librarian  
 Harold S. Diehl, M.A., M.D., Director of the Health Service  
 Malcolm S. MacLean, Ph.D., Dean of the Junior College  
 John B. Johnston, Ph.D., Dean of the College of Science, Literature, and  
 the Arts  
 Ora Miner Leland, B.S., C.E., Dean of the College of Engineering and  
 Architecture and the School of Chemistry  
 Walter C. Coffey, M.S., LL.D., 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  
 Richard E. Scammon, Ph.D., Dean of Medical Sciences  
 William F. Lasby, B.S., D.D.S., F.A.C.D., Dean of the College of Dentistry  
 William R. Appleby, M.A., Dean of the School of Mines and Metallurgy  
 Frederick J. Wulling, Ph.D., LL.M., Dean of the College of Pharmacy  
 Melvin E. Haggerty, Ph.D., Dean of the College of Education  
 Guy Stanton Ford, Ph.D., Dean of the Graduate School  
 Russell A. Stevenson, Ph.D., Dean of the School of Business Administration  
 Richard R. Price, M.A., Ed.D., Director of University Extension  
 Anne D. Blitz, M.A., Dean of Women  
 Edward E. Nicholson, M.A., Dean of Student Affairs  
 Ernest B. Pierce, B.A., Field Secretary of the University and Secretary of  
 the General Alumni Association



## COURSES AND DEGREES

Brief summarized statements of the courses of study offered by the University of Minnesota, together with the degree to which each leads, are listed below.

The University does not issue a complete catalog of courses in one volume but a full outline of each of these courses of study together with descriptions of the subject-matter courses which they include will be found in the announcement of the college or school in which the course of study is offered.

These announcements may be obtained by addressing The Registrar, University of Minnesota, Minneapolis, Minnesota.

### THE JUNIOR COLLEGE

A general course of study for:

1. Those who desire to pursue courses or curricula in the new unit that are not offered in existing colleges, or who for financial or other reasons have only a limited time to give to preparation for intelligent citizenship in their communities and to general orientation in their choice of, or general preparation for, a vocation.

2. Those who do not satisfactorily meet the entrance requirements of the existing colleges because of lack of training in specific subjects.

3. Students transferred from other institutions who do not meet the standards for advanced standing of the college to which they apply.

4. Students transferred by mutual agreement of the Junior College and the college in which they were first registered.

5. Those who might not be accepted by existing colleges because of an indicated lack of ability to pursue prevailing curricula.

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

*General 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 Diplomatic and Consular Service.*—A five-year course leading to the degree of bachelor of arts 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 Library Service.*—A four-year course including three years in a college of the University and a full year (45 quarter

credits) in professional library instruction subjects. At the end of the fourth year students may receive the degree bachelor of science. The same degree is also given to college graduates who take a complete year in Library Instruction.

*Course in Training for Medical Technicians.*—A four-year course including the two-year pre-medical course in this college and two years of work in the Medical School.

*Course in Preventive Medicine and Public Health.*—Students in this college may major in this field.

*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 Architecture.*—A six-year course in Arts and Architecture leading to the degrees of bachelor of arts at the end of four years, bachelor of architecture at the end of the fifth year, and master of architecture at the end of six years.

*Combined course in Arts and Interior Architecture.*—A four-year course leading to the degree of bachelor of interior architecture. The third and fourth years are spent in the College of Engineering and Architecture.

*Pre-professional training.*—In this college is given also the academic work required for admission to the Medical School, the Law School, the College of Dentistry, the School of Business Administration, the College of Education, the course preliminary to nursing education in the College of Education, and various non-professional subjects required in other schools and colleges of the University.

COLLEGE OF ENGINEERING AND ARCHITECTURE  
 AND  
 SCHOOL OF CHEMISTRY

The College of Engineering and Architecture offers professional four-year courses of study in the following fields:

Aeronautical Engineering	Architecture
Civil Engineering	Architectural Engineering
Electrical Engineering	Landscape Architecture
Mechanical Engineering	Interior Architecture
Agricultural Engineering (in co-operation with the College of Agriculture, Forestry, and Home Economics)	

The School of Chemistry offers professional four-year courses of study in

Chemistry	Chemical Engineering
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Each of these courses leads to the Bachelor's degree in the corresponding field (as bachelor of aeronautical engineering or bachelor of chemistry). Optional groups of electives are available in some of the courses for students who desire to devote special attention to certain branches, such as Engineering Administration.

The four-year course in Chemistry is designed for those who wish to become professional chemists or teachers of chemistry.

The course in Chemical Engineering leads to the degree of bachelor of chemical engineering at the end of four years and to the Master's degree in chemical engineering at the end of the fifth year, which is taken in the Graduate School. It aims to give the student a broad foundation in chemistry and allied sciences and professional preparation in chemical engineering.

*The Engineering Pre-business Course* requires the first two years of work in the College of Engineering and Architecture. This is followed by two years in the School of Business Administration upon the completion of which the degree of bachelor of business administration is conferred.

The first two years of the course in *Interior Architecture* are taken in the College of Science, Literature, and the Arts, and the last two years in the College of Engineering and Architecture.

Work is also offered in the Graduate School leading to the Master's degree in the appropriate branch of engineering, architecture, or chemistry, or to the Doctor's degree.

The professional degree of aeronautical, agricultural, architectural, chemical, civil, electrical, or mechanical engineering will be conferred upon those who have received the Bachelor's degree in the corresponding field of engineering when they have completed the equivalent of one additional year's college work in that field, and four years of approved engineering experience in positions of responsibility, and have presented a satisfactory professional thesis. Graduates of this university may be granted permission to pursue the year of graduate study *in absentia* under the direction of the faculty. It is recommended, however, that this year be spent in residence at this or some other university and that the Master's degree be obtained

in this manner. There are many advantages in taking this year of study immediately following graduation from the four-year course, thus making a five-year course leading to the Master's degree. Then after four years of approved experience and the preparation of the thesis, the professional degree may be obtained. This procedure is especially recommended to those students whose undergraduate work is of high grade and who desire additional preparation for the higher positions which require strong character and leadership. Candidates for the professional degrees register in the Graduate School.

*The Engineering Experiment Station* is a research organization, which provides facilities for studies, experiments, and investigations in the various fields of engineering and architecture, under the direction of members of the staff. Several research fellowships are available for part-time graduate students. Results of investigations are published in the bulletin of the Engineering Experiment Station. Research funds are provided by industries in some cases to support special studies.

#### COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

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 work in Agriculture includes general courses in agriculture, agricultural education, agricultural economics, agricultural engineering, agronomy, farm management, dairy husbandry, dairy products, animal husbandry, and horticulture; also a course in extension work, and special courses in such sciences as agricultural biochemistry, agricultural economics, entomology, plant pathology, dairy husbandry, and soils. A course in agricultural business is also offered in co-operation with the School of Business Administration. An engineering course leading to the degree of bachelor of agricultural engineering is offered in co-operation with the College of Engineering and Architecture. While no special course in fur farming is yet offered, courses basic to this industry and helpful to it are available.

In Forestry are included courses in general forestry, commercial lumbering, forest by-products, grazing, and forest sciences. A part of the work is given at the Cloquet Forest Experiment Station and at Itasca State Park, where well-equipped demonstration forests are available for use as laboratories.

The work in Home Economics includes a general course, courses in foods and nutrition, textiles and clothing, and a teacher's course in the general field of home economics; special teachers' courses in textiles and clothing, in foods and home management, and in related arts; a course for dietitians, a course for extension workers, and a course for institutional managers.

Graduate work is offered in special lines of agriculture, forestry, and home economics. For the most part the special problems are correlated with the investigational work of the agricultural experiment station and its branches.

*Schools of Agriculture* offer three-year courses, giving special training in farm life and home economics, adapted especially to the needs and opportunities of farm boys and farm girls. The Central School is at University Farm, St. Paul; the Northwest School, at Crookston; the West Central School, at Morris; and the North Central School, at Grand Rapids.

*Short courses* offer opportunity for the study of a great variety of subjects related to agriculture, to industries based on agriculture, to home economics, and to rural life.

Farmers' and Homemakers' Week, in January, offers instruction in regular classes in agriculture and home economics and gives opportunity for conferences of many important agricultural organizations of the state, which hold their annual meetings at University Farm in the course of the week.

Other short courses of the year are an Advanced Creamery Operators' Course of two weeks in October; an Ice Cream Makers' Course of ten days in December; a Creamery Operators' Course of six weeks in January and February; a Horticultural Short Course of three days in March; a Beekeepers' Course of three days in November; an Editors' Short Course of three days in May; a Short Course in Veterinary Medicine in July; a Short Course in Home Nursing in the spring; a Poultry Short Course in September; a Forestry, Woodcraft, Scouting, and Camping Leadership Course in August; a Boys' and Girls' Short Course in June; a Commercial Florists' and Retailers' Short Course of three days in February; a Land Management Short Course of two days in February; a Present Rural Building Problems Short Course of two days in February; and a Scout Executive Seminar of three days in October.

*The Experiment Station* provides facilities for investigation of the numerous and varied problems involved in the agricultural industry. The results of these investigations contribute largely to the subject-matter included in the courses of instruction given in the College of Agriculture, Forestry, and Home Economics, in the Schools of Agriculture, and to that used by the extension specialists in their work among farmers. The experiment station organization also offers some research advantages to students taking advanced work in the Graduate School. The main or Central Station is located at the University Farm, St. Paul, with branch stations at Crookston, Morris, Grand Rapids, Waseca, and Duluth, and forestry experiment stations at Cloquet and Itasca.

*The Agricultural Extension Service* of the University Department of Agriculture carries to the farmers and homemakers of the state the information made available by the research divisions of the University and the United States Department of Agriculture, and the experience of successful farm practice. This is done through county extension workers, organized local rural leadership, demonstrations, lectures, institutes, contests, bulletins, farm papers, correspondence, and personal visits.

## LAW SCHOOL

The Law School offers courses leading to the degrees of bachelor of science in law and bachelor of laws.

The degree of bachelor of science in law is conferred on students who have completed two years of work, including rhetoric, English, psychology, American government, logic, English constitutional history, and principles of economics, in the College of Science, Literature, and the Arts of this University, or equivalent work in some other accredited college, and two years of work in the Law School. Graduates of the School of Business Administration and of the College of Engineering are eligible as candidates for this degree. The law work may be chosen in accordance with the objective of the student, and may be restricted generally to commercial law. One purpose of this course is to provide a training in law for business purposes. This degree will not qualify for admission to the bar, but graduates of good standing in this course may obtain the bachelor of laws degree by two years additional study.

The degree of bachelor of laws will be conferred on students who have completed (a) two years of college work and four years of work in the Law School, or (b) three years of college work and three years of work in the Law School. Course (a) is recommended for students looking forward to the profession of law. Students taking course (a) may qualify for the degree of bachelor of science in law in the manner specified above. Students taking course (b) may qualify for the degree of bachelor of arts on completing the first year in law provided they have satisfied the requirements of the College of Science, Literature, and the Arts for that degree, the first year in law being accepted as a substitute for the fourth year in that college.

A course leading to the degree of master of laws may be taken under the direction of the Graduate School. Candidates must have completed two years of college work, and must have secured the degree of bachelor of laws from a school which is a member of the Association of American Law Schools.

## MEDICAL SCHOOL

The Medical School offers a five-year course, leading to the degree of doctor of medicine. This course comprises two years in the scientific or pre-clinical departments of the school, two years, in a general way, 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 before beginning the senior medical year. 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, bachelor of medicine, 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 pages 36-38), (b) four years in the Medical School, and (c) one year of internship or advanced scientific study.

2. A combined course, leading to the degrees of bachelor of arts, bachelor of medicine, 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 above, and (b) four years in the Medical School, and (c) one year of internship or advanced scientific study.

In both cases the degree of bachelor of medicine is granted at the end of four years' acceptable work in the Medical School and before the one year of required internship.

The degree of bachelor of arts or bachelor of science from other recognized universities or colleges will be accepted as fulfilling the requirements of the bachelor of science degree before the degree of doctor of medicine is granted.

Graduate courses and research facilities are offered to qualified students. (See page 22.)

*The School of Nursing* is conducted as part of the Medical School. It makes use of the facilities of the University Hospital, the Minneapolis General Hospital, the Miller Hospital, St. Paul, and the Northern Pacific Hospital, St. Paul. It offers a three-year course leading to a diploma in nursing. It offers also in connection with the College of Education a combined five-year course leading to the degree of bachelor of science and a diploma in nursing. The first five quarters are spent in the Arts College, the third and fourth years in hospital work, and the fifth year in both hospital and class work.

Courses for graduate nurses combining advanced nursing practice and academic work are available at the beginning of each quarter. Graduates of approved three-year schools of nursing who fulfill university admission requirements may become candidates for the degree of bachelor of science in nursing education. Graduate nurses interested in nursing education or in postgraduate nursing courses should consult the director of the School of Nursing.

*Courses in Public Health Nursing* are conducted in the Medical School under the Department of Preventive Medicine and Public Health. Graduate nurses who are eligible may secure either the Certificate in Public Health Nursing or a Bachelor's degree with a major in Public Health Nursing. The degree is awarded through the College of Education. Students who are interested should communicate with the director of the Course in Public Health Nursing in order that the necessary credentials may be secured and evaluated before time of registration. See Part I, College of Education bulletin for outline of the course.

*A Course for Medical Technicians* is offered by the Medical School with the co-operation of the College of Science, Literature, and the Arts. (See special circular.)

*The Course in Embalming*, offered by the General Extension Division with the co-operation of the Medical School, the School of Chemistry, and the State Board of Health, is a twenty-four weeks term of study, given annually in the winter and spring quarters. Beginning September, 1932, the course will be lengthened to nine months. On the successful completion

of the work, the university certificate in embalming will be issued. This certificate is issued without reference to the legal requirements for the issuance of an embalmer's license by the state of Minnesota.

*Short courses for physicians* are offered throughout the year by the medical faculty under the administration of the General Extension Division.

#### COLLEGE OF DENTISTRY

The College of Dentistry offers a three-year course leading to the degree of doctor of dental surgery. The minimum requirement for admission is the completion of two years of pre-dental work in the College of Science, Literature, and the Arts at Minnesota or at some other university or college of equal rank.

*The School for Dental Hygienists.*—The College of Dentistry offers a two-year course leading to the degree of graduate dental hygienist. The minimum requirement for admission is the completion of a four-year high school course or its equivalent.

Graduate work is open in certain fields of dentistry to students having a baccalaureate or dental degree. (See page 22.)

*Extension courses.*—Courses in Crown and Bridge Work, Oral Surgery, Orthodontia, and Prosthetic Dentistry 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.

#### SCHOOL OF MINES AND METALLURGY

The School of Mines and Metallurgy offers four regular four-year courses, namely, Mining Engineering, Mining Engineering (specializing in geology), Petroleum Engineering, and Metallurgy, leading to the degrees of engineer of mines, engineer of mines (in geology), engineer of mines (in petroleum), 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.

#### COLLEGE OF PHARMACY

The regular course of the College of Pharmacy leads to the degree of bachelor of science in pharmacy and extends over four university years and includes one year of prescribed academic work of a minimum of 45 quarter credits. The 1929 Legislature passed an act reading partly as follows: "To be entitled to examination by the Board (of Pharmacy) the applicant shall be at least 21 years old and shall be a graduate of a college approved by, or a member of, the American Association of Colleges of Pharmacy." This act went into effect upon passage. The same legislative session passed a bill providing that: "After January 1, 1930, there shall be no examinations for registration or registration of any person as an 'assistant pharmacist.'"

All of the colleges of pharmacy comprising the membership of the American Association of Colleges of Pharmacy went upon a minimum four-year basis on January 1, 1932. The College of Pharmacy of the University



of Minnesota has been on the four-year basis since 1926 (Board of Regents' action April 1, 1926). The legislature has therefore established the graduating course in the College of Pharmacy as the minimum educational requirement preliminary to the state examination for license to practice pharmacy in Minnesota.

#### SCHOOL OF CHEMISTRY

(See p. 16 with College of Engineering and Architecture)

#### COLLEGE OF EDUCATION

The College of Education is organized to offer professional courses in the field of education, to promote research in the problems of education, and to provide educational guidance for prospective teachers and other educational workers in the schools. The completion of satisfactory curricula in this college entitles graduates to receive certificates for school work from the Minnesota State Department of Education. Such certificates are issued only to those graduating from this college.

Among the important curricula offered by the college are those relating to teaching in the following fields: academic subjects in elementary and high schools, agriculture, art, business subjects, home economics, industrial arts, natural science, physical education, and public school music.

Work is also offered in the fields of educational administration and supervision, clinical psychology, educational psychology, library service, school health work, sociology, teaching of subnormal children, work of the visiting teacher, educational and vocational guidance, nursery school and kindergarten education, nursing education, and public health nursing.

#### GRADUATE SCHOOL

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, electrical engineer, mechanical engineer, civil engineer, chemical engineer, 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 degrees of bachelor of science (or equivalent) and doctor of medicine and one year of intern service in an acceptable hospital are prerequisite for admission to the clinical departments. Properly qualified college students may be admitted to the medical laboratory departments (Anatomy, Physiology, Bacteriology, Biophysics, Pharmacology, 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 60). 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.

#### SCHOOL OF BUSINESS ADMINISTRATION

The School of Business Administration offers a two-year course leading to the degree of bachelor of business administration. This course requires as a prerequisite the completion of two years of work in the College of Science, Literature, and the Arts, College of Engineering and Architecture, or the College of Agriculture, Forestry, and Home Economics in which certain pre-business courses are prescribed.

In addition to the general course in business, several specialized sequences are offered. Among them are courses in Accounting, Advertising, Agricultural Business, Finance, Insurance, Merchandising, Foreign Trade, Personnel Management, Industrial Administration, Traffic and Transportation, Secretarial Work, and Statistics. In each of these a sequence of courses has been arranged which enables the student to obtain the professional training essential for entrance into the specialized field. Instruction is directed toward the broader aspects of the business professions rather than detailed drill in various technical processes. The business courses are combined with a sufficient amount of instruction in other fields to afford a well-rounded university education.

A limited number of positions are available to students in the senior year to supplement the university training. Students selected for these positions are employed by accounting firms, financial institutions, or other business concerns on a full time basis for one term. Employment under these conditions affords an excellent opportunity for laboratory experience. The positions available have been selected by the faculty with special consideration as to the educational value of the work. University credit is allowed for work which has been successfully carried under proper supervision.

Students who have completed the course of study required for the degree of bachelor of business administration at this University or the equivalent degree at any other institution of recognized standing may enroll in the Graduate School and become candidates for the degree of master of science.

#### INDIVIDUAL CURRICULA

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.

A student who is unable to find in any of the curricula of the colleges a program of study suited to his special intellectual interests or professional aims may, with the advice and approval of the All-University Curriculum Committee, arrange a course of study best adapted to his needs. Any course

offered in the University may be drawn upon in making up such a program. The satisfactory completion of an approved curriculum entitles the student to the degree of bachelor of arts or bachelor of science.

#### UNASSIGNED GROUP

Those freshmen who are unable to decide between two or more possible vocations may be registered as "unassigned" and enrolled in special courses which will provide a try-out of their vocational interests. Students who are interested in such an arrangement should state on their application blank just what their vocational interests are and then should communicate directly with the Committee on Vocational Guidance of Freshman Week.

#### VOCATIONAL GUIDANCE

All freshmen are invited to make use of the Committee on Vocational Guidance which is available for counseling during Freshman Week. This committee will do all it can to help you decide what vocation is most suitable for you in view of your aptitudes and ambitions. If you desire to communicate with the committee before Freshman Week, every effort will be made to do as much as can be done through correspondence. Address your inquiries to E. G. Williamson, Room 255, Psychology Building.

#### UNIVERSITY SUMMER QUARTER

The university summer quarter is organized for two terms, one of six weeks and one of five weeks, from June to September, under the authority of the Board of Regents as a regular part of the University. Courses in the Colleges of Science, Literature, and the Arts, Agriculture, Forestry, and Home Economics, Education, Engineering and Architecture, Chemistry, Medicine, Dentistry, and Business Administration, with special attention given to graduate work, are offered. These courses are, in the main, regular courses, the same as are offered during the academic year, but wherever necessary, are adapted to meet the needs of students in the summer quarter.

#### UNIVERSITY EXTENSION

All Extension work at 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 18.

The General Extension Division conducts late afternoon and evening extension classes and correspondence courses, in science, literature, and the arts, business, education, and engineering subjects; it provides communities with faculty lectures and lyceum courses of popular lectures, concerts, and entertainments; lends lantern slides and films for visual instruction; maintains a Municipal Reference Bureau; holds annual short courses in embalming, engineering, dentistry, merchandising, medicine, banking, citizenship, and social service; offers guidance for the development of community organi-

zations; gives advice to schools and other organizations on the selection and production of plays; operates a radio broadcasting station for educational purposes. Qualified students may earn credits toward a degree through extension classes or correspondence courses. Bulletins of extension classes and of correspondence and lecture courses may be had upon request. Address the General Extension Division.

#### DEGREES

The Board of Regents will confer the degree appropriate to the course pursued under the following conditions:

1. *Curriculum requirements.*—Certification by the registrar of the completion of all requirements of the course of study as outlined in the college announcement, or its equivalent as determined by the faculty of the college offering the course.

2. *Recommendation of the faculty.*

3. *Residence requirement.*—The student must earn at least one year's credit in residence in this University. 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. In addition, special residence requirements must be met in several of the schools and colleges. See individual announcements.

4. *Payment or satisfactory arrangement of all financial obligations due the University.*

5. *Attendance at commencement.*—A candidate for a degree is required to be present at the commencement exercises at which his degree is conferred provided that the candidate's work is completed at the end of a quarter when such exercises are held.

A student who fails to attend shall not receive his diploma until the expiration of one year, unless in the meantime he attends commencement exercises or unless excused from such attendance by the dean of the college and the president of the University.

#### THE UNIVERSITY LIBRARY

The University Library comprises all the collections of books belonging to the University. It now contains about 660,000 volumes.

The University Library Building contains not only the general collection but several important college and departmental collections aggregating about 525,000 volumes.

In addition to the General Library, branches are maintained in the Department of Agriculture, the College of Engineering and Architecture, and the Schools of Chemistry, Law, and Mines and Metallurgy. Small collections of books constantly in use in departmental work are deposited in many important departments of the University.

The service of the University Library to the University is twofold: (1) to supply the books and references used in connection with the courses of instruction, for graduate and faculty research, and for outside cultural reading; and (2) to help students to use them with a minimum of time

and effort and a maximum of profit. In addition to personal help by the library staff a course in the use of books and libraries, open to freshmen and sophomores, is conducted for this purpose.

The Arthur Upson room with a collection of about 4,000 volumes was given to the Library for the purpose of promoting personal cultural reading.

The Division of Library Instruction with a full year of professional training in librarianship for students in senior standings has a separate organization but is under the direction of the university librarian and closely affiliated in its work with the University. Its course is accepted by the Colleges of Science, Literature, and the Arts and of Education as the senior year requirement for graduation. Certain courses will also be credited by the School of Business Administration.

The *Library Handbook*, copies of which may be had gratis upon application at the library, contains information essential to the proper use of the library. It should be read carefully by every student.

Registration automatically entitles students to the privileges of the library.

The reference librarian and her 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 STUDENTS' HEALTH SERVICE

Through the Students' Health Service the University makes available to any student physical examinations, health consultations, and medical attention. General service is provided free of charge, but for services which are specialized and individual in character, such as dentistry, X-rays, board and laundry in the student hospital, out-patient calls, minor surgery, etc., special fees are charged. No student, however, will be denied service because of inability to pay these fees. Major surgical operations or prolonged medical care ordinarily are secured through private physicians selected by the students or their families, but may be arranged for through the Students' Health Service upon the basis established for the care of such patients.

On the main campus the offices of the Health Service and the Students' Hospital and Dispensary are located in the new Health Service Building. On the University Farm campus the hospital and dispensary also are located in a special Health Service Building. 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 for the Health Service on the main campus is University of Minnesota (Dinsmore 8720); for the one on the University Farm campus, Nestor 2881.

The facilities of the dispensary, medical and dental, are such that a large number of students can be given attention in a day. The normal capacity of the two hospitals is one hundred beds. In emergencies, this 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 the prodigious academic and economic loss due to indisposition and illness of students. Positive health is its goal.

There are four main lines to the activities of the University Health Service: (1) medical care, (2) dental hygiene, (3) sanitation, and (4) education.

1. *Medical care.*—This phase of the work may be divided into the following activities. A complete record of the physical condition and the medical care and treatment of each student throughout his university career is made and kept on file. From this record can be determined what procedure is essential to keep this student in the best physical condition during his academic life.

a. A thoro physical examination of each student upon entrance to the University.

b. Informing students of correctable defects which they may have and assisting them to get such defects corrected.

c. Treatment and professional care of all students who are ill or in need of medical advice or treatment. For extended care by the Health Service it is necessary that the student enter the students' hospital. To this hospital any student may be admitted upon the recommendation of a staff physician. To all patients in the hospital the staff will furnish medical and nursing services.

d. Provision for the care and treatment of cases of communicable diseases in an isolation hospital.

e. Protection of well students from communicable diseases that are continually creeping into the University; early detection and isolation of all cases of communicable diseases such as tuberculosis, diphtheria, scarlet fever, measles, typhoid fever, smallpox, mumps, etc.

f. Upon the basis of the physical examination a recommendation classifying students for work in the Department of Physical Education; cooperation with the Departments of Physical Education for special exercises when indicated.

2. *Dental hygiene.*—As a part of his entrance physical examination each student is given a complete dental examination by a member of the dental staff, and advised regarding the condition of his teeth. During the year, students at any time may receive dental consultation and, if they so desire, they may obtain expert dental treatment and care on a cost basis.

3. *Division of Sanitation.*—The student's environment should be made as hygienic as possible. The Health Service assumes the responsibility for the sanitary inspection of the university swimming pools. All food handlers who are employed in university dining halls and cafeterias are given physical examinations each year. Hence, this division concerns itself with sanitary conditions both on and off the campus.

4. *Education.*—Every student in the University is made familiar with the fundamentals of both personal and public hygiene. Through personal conferences on this subject, daily bulletins, exhibits, public lectures, etc., education in hygiene and right living is conducted.

*School of Nursing.*—Special arrangements with the hospitals are made for students in the School of Nursing. See School of Nursing bulletin.

## MILITARY SCIENCE AND TACTICS

### REQUIRED WORK

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.

The University requires that every physically fit male student shall take two years of military training.

### EXEMPTIONS

1. *Physical unfitness.*—If you believe you should be exempted on this ground report to Dr. Cooke of the Student Health Department for examination and petition. If the petition is approved by him, present it at the office of the dean of student affairs.

2. *Admission with sophomore or junior standing.*—If, upon entrance to the University, you are allowed 45 credits of advanced standing from an institution where drill is not required, the registrar's office will release you from one year of drill. If you are allowed 90 credits, you will be released from the two years. In case of any irregularity make a petition for release and present at office of dean of student affairs.

3. *Military training elsewhere.*—In case you have had previous military training in college, high school, military school, National Guard, Naval Reserves, or United States Army, present a petition to the office of the dean of student affairs, giving full statement of facts and credentials.

a. Students who have been enrolled in senior R.O.T.C. units are given full credit for work done prior to matriculation at the University of Minnesota.

b. Students who have satisfactorily completed three years or more at essentially military schools at which R.O.T.C. units are maintained, will be credited with six quarters of drill.

c. Students who have been enrolled in military schools, in the National Guard, in the Naval Reserves, or who have completed courses in C.M.T. camp will be given credit for such service, as follows:

Where Service Was Rendered	Amount of Service	Credit
Junior R.O.T.C. units not essentially military	1 year or more	3 quarters
National Guard or Naval Reserves	1 year or more prior to matriculation in the University	3 quarters
C.M.T. Camp	3 camps totalling 12 weeks or more	3 quarters
	2 camps totalling 8 weeks	2 quarters
	1 camp totalling 4 weeks	1 quarter

d. Students who hold commissions in the National Guard, the Organized Reserves, or the Naval Reserves are exempt from military training.

e. All cases not covered by the above will be decided on their merits by the dean of student affairs.

f. In no case will students, except those coming under the provisions of paragraphs a, b, and d above, be given credit for more than three quarters, except as provided for in paragraph g below.

g. Prior military training which under paragraph c would entitle a student to credit for more than three quarters, will be handled as follows: the student will be given a test by the Military Department to determine his proficiency. If found qualified, he will receive credit for the full amount of prior service up to six quarters.

h. The preceding regulations are based on the provisions of the Land-Grant Act, and in case of conflict with R.O.T.C. instructions published by the War Department, the regulations outlined herein will govern.

4. *Substitution of athletics for military training.*—a. Any student who has satisfactorily completed the first three quarters of military work in a senior R.O.T.C. Unit, and who is designated by the director of athletics as a first string man in any recognized sport, will be given credit for the three remaining quarters of required military work, provided substitution of athletics for military work is made during the next year in which the student is registered, following the completion of three quarters of military work.

b. If at any time the director of athletics considers a student taking athletics under these regulations unfit as a first string man, such student will be reported back to the Military Department to complete such portion of the year's work as remains on the date of relief from the Athletic Department.

c. If a student of his own accord fails to substitute athletics for military work during the second year, as contemplated in these regulations, such student will be required to complete the full six quarters of military work necessary under university regulations.

d. Work done in athletics under these regulations will be considered as leading to eligibility for Advanced R.O.T.C. Course.

e. A list of students coming under these regulations will be prepared by the director of athletics prior to the opening of a new quarter. Such list will become effective upon approval by the dean of student affairs. A copy of such approved list will be filed with the Military Department.

Any student who is registered for military drill and who is reported to this office by the Military Department as failing to attend will be dropped from the University for the balance of the quarter.

5. *Postponement of military training.*—If for any good and sufficient reason you need to be allowed to postpone this training for any quarter, make the request on petition blanks, giving reasons, and present at office of the dean of student affairs.

Do not under any consideration fail to register for or attend drill unless you have attended to the matter in the registrar's office or that of the dean of student affairs.



## ELECTIVE WORK

Any student 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 Course 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 expenses 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 and the professor of military science and tactics, eligible for appointment as reserve officers of the army in the lowest grade of the branch of the service of which they are members.

The Advanced Course embraces five departments: infantry, coast (heavy) artillery, signal corps, medical and dental 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.

## ADMISSION

### GENERAL REQUIREMENTS

Admission to the schools and colleges of the University which accept students directly from the high school is either by certificate or examination. These methods are described below.

#### ADMISSION BY CERTIFICATE

The applicant must present a certificate of graduation from an accredited preparatory school, or certificates showing that he has passed examinations in high school subjects as given by the Minnesota State Board, or corresponding examinations in another state provided these examinations are recognized by the state university in that state. Certificates representing examinations given by the College Entrance Board or the New York Regents are likewise accepted.

Graduates of senior high schools must present twelve units of work, at least nine of which must be from Groups A, B, C, D, E (see page 32). These nine units must include a major of three units, and two minors of two units each, or preferably two majors and one minor, of which either one major or one minor must be from Group A. In Group B or D applicants may present a maximum of one unit of work from grades below the senior high school as fulfilling one of these requirements. This unit, however, may not be counted in the twelve which are required. In addition to these requirements, applicants must fulfil such others as the particular college which they desire to enter may specify. See Requirements of Individual Colleges, pages 33-43.

Graduates of four-year high school courses, and candidates who offer state board or other examination certificates must present evidence to show that they have completed sufficient work in Grades X, XI, and XII to satisfy the requirements specified for graduates of senior high schools. Beginning with September, 1932, all admissions on certificate will be in accordance with these requirements.

#### ADMISSION BY EXAMINATION

Applicants for admission to the University who are high school graduates, or who are at least nineteen years of age and are unable to meet the requirements for entrance by certificate will be admitted provisionally and subject to one year of satisfactory work at the University, upon passing the following tests:

- (a) College aptitude test
- (b) Test of proficiency in English
- (c) Such special placement tests as the school or college to which the candidate desires admission, may prescribe.

Applicants failing to pass tests (b) or (c) may apply for a subsequent examination at any scheduled date on payment of a fee of five dollars. Those failing to pass test (a) may enter only upon satisfactorily meeting the entrance requirements by the certificate method.

## LIST OF ENTRANCE SUBJECTS

Below is shown the minimum and maximum number of units in any one subject that will be accepted by the various colleges of the University. The term "unit" means not less than five recitations of forty minutes each week for a school year of thirty-six weeks. In manual subjects and kindred courses it means the equivalent of ten<sup>1</sup> recitation periods a week for thirty-six weeks.

## Group A: English

Composition and literature one to three units<sup>2</sup>

## Group B: Foreign languages

French, one, two, three, or four units

German, one, two, three, or four units

Greek, one, two, three, or four units

Latin, one, two, three, or four units

Scandinavian languages, one, two, three, or four units

Spanish, one, two, three, or four units

Requirements for a major in this group, three units in one language; for a minor, two units in one language.

## Group C: History and social sciences

## History—

American, one-half or one unit

English, one-half or one unit

European, one or two units

## Social sciences—

American government, one-half or one unit

Commercial geography, one-half or one unit

Elementary economics, one-half unit

History of commerce, one-half or one unit

Sociology, one-half or one unit

Requirements for a major in this group including at least two units in history; for a minor, at least one unit in history.

## Group D: Mathematics

Elementary algebra, one unit

Plane geometry, one unit

Unified mathematics, two units

Higher algebra, one-half or one unit

Solid geometry, one-half unit

Trigonometry, one-half unit

## Group E: Natural sciences

Astronomy, one-half unit

Biology, one unit

Botany, one-half or one unit

Chemistry, one unit

<sup>1</sup> Double periods will not be required from schools organized on a sixty-minute class period schedule

<sup>2</sup> Not to exceed one unit of public speaking or journalism may be presented in partial satisfaction of these requirements.

Geology, one-half unit  
 Physics, one unit  
 Physiography, one-half or one unit  
 Physiology, one-half unit  
 Zoology, one-half or one unit

For a major or minor in this group not more than two half-unit courses may be included.

Group F: Vocational and miscellaneous subjects

The three units which are not required to be in Groups A, B, C, D, E, may be in work which the superintendent certifies as being of acceptable nature and as having been counted toward the applicant's graduation.

#### APPLICATION FOR ADMISSION

The applicant for admission should request the principal or superintendent to forward to the examiner at 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 received, and the year during which each subject was pursued. 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.

### REQUIREMENTS OF INDIVIDUAL COLLEGES

#### THE JUNIOR COLLEGE

##### I. Admission by Certificate

The minimum requirements for admission to the University in accordance with the general rules on page 31 as follows: Graduates of senior high schools must present 12 units of work, at least nine of which must be from Groups A, B, C, D, E (see page 32). These nine units must include a major of three units, and two minors of two units each, or preferably two majors and one minor.

##### II. Admission by Examination.

In accordance with the regulations printed on page 31 the tests required for admission will be (a) college aptitude test, (b) test of proficiency in English, (c) such placement tests as may be specified on registration.

*Adult special students* will be admitted in accordance with the general university regulations on page 42.

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

##### I. Admission by Certificate

- (a) Major in Group A.
- (b) Minor in Group D.
- (c) Major or minor in Groups B or C or E.
- (d) Evidence in the college aptitude rating and other information that the individual will find suitable educational opportunities in the work of this college.

Note that one unit in a minor may be counted from work below the tenth grade in accordance with the regulation on page 31.

## II. Admission by Examination.

In accordance with the regulation printed on page 31, the tests required for admission will be (a) college aptitude test, (b) test of proficiency in English.

*Adult special students.*—See statement on page 42.

### COLLEGE OF ENGINEERING AND ARCHITECTURE AND SCHOOL OF CHEMISTRY

*Courses in Aeronautical, Agricultural, Architectural, Chemical, Civil, Electrical, and Mechanical Engineering; Architecture, Landscape Architecture, Chemistry, and Engineering Pre-business.*

#### I. Admission by Certificate

- (a) Major in Group D including higher algebra and solid geometry
- (b) Minor in Group A
- (c) Minor in Group E, B, or C (preferably E, in chemistry and physics).

For admission to the School of Chemistry, that is, for the courses in chemistry and chemical engineering, *one unit of chemistry* must be included.

*Recommendations.*—All students entering these colleges are urged to include in their high school courses additional mathematics; English, 3 units; chemistry; physics; Latin, 2 units; German or French, 2 units; ancient, modern, and American history; and American government or civics. French is desirable for students in architecture. German is important for students entering the School of Chemistry.

#### *Course in Interior Architecture*

Students in Interior Architecture spend the first two years in the College of Science, Literature, and the Arts and must meet the admission requirements for that college.

For admission to the College of Engineering and Architecture in the third year, the student must present the following credits: Freshman English (unless exempt); Mathematics, Trigonometry (4 or 5 credits); French (0 to 20 credits); History 11-12-13 (10 credits); Architecture 21-22-23 (6 credits); Architecture 31-32-33 (15 credits); Drawing 61-62-63 (6 credits); Chemistry 1-2-3 or 4-5 (8 to 12 credits), or Physics 3 and 4 and any of the continuations, 23 and 24, 33 and 34, 43 and 44 (8 credits); and Physical Education (3 credits).

If, including these credits, the student does not present a total of 93 credits and 93 honor points, he must secure enough credits and honor points to make this total, after admission to the College of Engineering and Architecture and in addition to the 102 credits required in the last two years of the course.

#### II. Admission by Examination

In accordance with the regulation printed on page 31, the tests required

for admission will be (a) college aptitude test, (b) test of proficiency in English, (c) test in mathematics including arithmetic, elementary and higher algebra, and plane and solid geometry, (d) for students in chemistry and chemical engineering— a placement test in chemistry.

*Adult special students.*—See statement on page 42.

*Time of admission.*—The regular time to enter the college is in September. However, students will be admitted at the beginning of the winter quarter in January; then by attending the following summer quarter it is possible to complete most of the work of the freshman year. Such students should present chemistry for admission. Admission at the opening of the spring quarter is possible altho several beginning courses are not given in the spring. Consequently students entering in the spring quarter should expect to attend four full years beginning the following fall.

#### COLLEGE OF AGRICULTURE, FORESTRY, AND HOME ECONOMICS

##### I. Admission by Certificate

(a) Subject to the general regulations governing their selection (see page 31), majors and minors may be presented from the Groups A, B, C, D, and E.

(b) Students intending to enter any course in Forestry or the course in Agricultural Sciences must present at least a minor in Group D and one unit in Group E.

(c) For entrance to the course leading to the degree of bachelor of agricultural engineering, see requirements of the College of Engineering and Architecture.

##### *Recommendations*—

- (1) For all students intending to enter any work in the college: Students entering with a unit of high school chemistry are permitted to take a two quarters' course of five credits each in general chemistry in the college instead of a three quarters' course of four credits each. Students presenting a unit of high school physics are not required to take an elementary course in college physics.
- (2) For all students intending to enter any course in Agriculture: Every prospective student in Agriculture is 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 or such experience as the committee may consider equivalent will be required during the college course in accordance with the results of these examinations. It is also recommended that major and minors be taken in Groups A, D, and E.
- (3) For all students intending to enter any course in Forestry: It is recommended that major and minors be taken in Groups A, D, and E.

## II. Admission by Examination

In accordance with the regulation printed on page 31, the tests required for admission will be (a) college aptitude test, (b) test of proficiency in English.

### *Schools of Agriculture*

The schools are not of collegiate grade. For further information see special bulletins.

### LAW SCHOOL

Students desiring to enter the Law School must first complete two full years (not less than 90 quarter [60 semester] credits) of collegiate work in Science, Literature, and the Arts with an average of one 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 33.) 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.

Students entering the Law School with two years of college work must devote four years to the study of law to qualify for the degree of bachelor of laws. They may qualify for the degree of bachelor of science in law on completing two years of work in the Law School, provided they have taken in their college course the subjects required of candidates for that degree. See Courses and Degrees.

Students entering with three full years (not less than 135 quarter [90 semester] credits) of college work of the required grade may qualify for the bachelor of laws degree by completing three years of work in the Law School. They may also qualify for the degree of bachelor of arts on completing the first year in law provided they have satisfied the requirements of the College of Science, Literature, and the Arts in respect to the combined six-year course in arts and law.

Excess honor points do not count as credits for admission to any course in the Law School.

### MEDICAL SCHOOL

On account of the limited capacity of the school, not more than one hundred beginning freshman medical students will be accepted for the fall quarter and forty for the winter quarter. Applicants will be selected on the basis of scholarship, character, and general fitness. The entire number of fall quarter freshmen will be chosen early in July. All accepted applicants will receive a bill for 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 is not 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. The winter quarter freshmen will be selected tentatively in the summer or early in the fall quarter. Students so selected will register in the fall quarter in the College of Science, Literature, and the Arts and must include in their program two Medical School subjects, namely, Physical Chemistry 100 and Physiological Chemistry 100. The full acceptance of such students into the Medical School in the winter quarter will be conditioned on the successful completion of above courses and fulfillment of all pre-medical requirements.

Applicants will be selected on the basis of their record in (a) the pre-medical college studies listed below and (b) a medical students' aptitude test given each year to all prospective medical students.

Applicants for admission must present records covering the successful completion of two years of academic collegiate work<sup>1</sup> which years are defined as including not less than ninety quarter (sixty semester) credits in which must have been earned a number of honor points at least equal to the total number of credits. 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. Therefore, a student's marks must average C or higher in order to admit to the Medical School. Those having a high ratio of honor points to total credits will be given preference.

An applicant must also average C or better, as determined by the honor point method, on his combined records in the required subjects, zoology, chemistry, physics, and rhetoric.

The pre-medical academic college credits must include the following:

1. Rhetoric, nine quarter (six semester) credits. At Minnesota this requirement is met by English 4-5-6 or by Rhetoric A-B-C (15 credits).

2. Chemistry, twenty quarter (thirteen and one-third semester) credits, including general chemistry, qualitative analysis, quantitative analysis, and organic chemistry with laboratory work. At Minnesota, Inorganic Chemistry 4-5 or (1-2-3) 11, Analytical Chemistry 7, and Organic Chemistry 1-2 are necessary. Students are advised also to take chemistry in high school.<sup>2</sup>

3. Physics, twelve quarter (eight semester) credits, covering mechanics, sound, heat, light, electricity and magnetism, with the proper laboratory work. At Minnesota, Courses 3, 13, 23, 33 and 43 (a total of 15 credits) meet the requirements.

See bulletin of the College of Science, Literature, and the Arts for description of these courses and statement of prerequisites.

4. Zoology, twelve quarter (eight semester) credits, including proper laboratory work. At Minnesota, Zoology 5-6-7 meets this requirement. Zoology 1-2, 10 credits, will be accepted.

<sup>1</sup> For admission to the pre-medical college course see admission requirements of the College of Science, Literature, and the Arts.

<sup>2</sup> While the minimum requirement in chemistry is defined as 18 credits, the arrangement of courses in many institutions is such that students are obliged to take more. An excellent preparation in chemistry is essential in modern medicine.



5. Sufficient high school and college training to insure a reading knowledge of German medical literature. This 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 usual minimum preparation for admission to this examination is two years of German. This examination is conducted by the German Department.

6. Pre-medical students are advised to secure preparation in some or all of the following subjects: Latin (high school or college), mathematics (including calculus), and statistics, psychology, sociology, drawing, and comparative anatomy. A broad general education is desirable for those who contemplate the medical profession as their life work.

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 high school and college work, showing subjects, credits, and grades.

#### MODIFIED ADMISSION REQUIREMENTS

The foregoing regulations governing the quality and amount of pre-medical training required for admission to the Medical School will be enforced in all cases upon those who present the minimum amount of work. In cases of mature and superior students, especially such as have taken degrees and have made special progress along some line (even tho it may not have been closely related to medicine), concessions may be made. Cases under this paragraph will be considered individually and upon petition to the dean of the Medical School.

It should be borne in mind that no student can pursue the medical course to advantage without knowledge of biology, chemistry, and physics.

#### *Bachelor's Degree*

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 or who have done work equivalent to that required for such degree in this University. Combined courses offered by the College of Science, Literature, and the Arts and Medical School lead to these degrees (see pages 15 and 19).

#### *Special Students*

Physicians and other graduates 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 (a) those undergraduate medical students who may be candidates for the bachelor of medicine or doctor of medicine degrees but who on account of deficiencies cannot receive legal time credit for attendance, and (b) those undergraduates who are not can-

didates for a degree of bachelor of medicine or doctor of medicine but who are permitted to register for courses in the Medical School.

#### *Irregular Students*

By an irregular student is meant one who is entitled to time credit toward the M.B. and M.D. degrees but who is not carrying a regular program.

#### *Physical Condition*

Physical examinations at specified intervals are required of all medical students, together with such tests and vaccinations as will protect them from avoidable communicable diseases. Students may be excluded who are deemed physically unfit for the medical course.

#### *School of Nursing*

##### I. Admission by Certificate

Applicants for admission to the School of Nursing should be graduates of an approved high school and must present the minimum entrance requirements of one major and two minors as described on page 31.

##### II. Admission by Examination

In accordance with the regulation printed on page 31, the tests required for admission will be (a) college aptitude test, (b) test of proficiency in English.

Those wishing to enter the School of Nursing should file their applications with the director and their credentials with the university examiner. Applicants must be not less than eighteen nor more than thirty-five years of age. They must submit satisfactory evidence of physical and mental fitness and of good character and pass a satisfactory general physical examination by the school physician.

Because of limited facilities for clinical experience in the hospitals it is necessary to limit the number of students that may be accepted. Final acceptance is made by the enrolment committee and selection is made on the basis of scholarship, character, and general fitness.

All applicants for the five-year combined course must meet the entrance requirements of the College of Science, Literature, and the Arts. See page 33.

Beginning with the fall quarter of 1934 applicants for both the three- and five-year courses must meet these same requirements. See page 33.

#### COLLEGE OF DENTISTRY

Students desiring to enter the College of Dentistry must first complete two full years (not less than ninety quarter or sixty semester credits) of collegiate work in science, literature, and the arts at this or some other university or college of equal rank.

The minimum requirements for admission include nine quarter (six semester) credits in English (rhetoric); twelve quarter (eight semester) credits in zoology; twenty quarter (thirteen and one-third semester) credits

in chemistry (including general inorganic, qualitative, organic); four quarter (two and two-thirds semester) credits in mathematics; eight quarter (five and one-third semester) credits in physics; and enough additional credits to make a total of at least ninety quarter (sixty semester) credits.

At Minnesota the pre-dental requirements are met by the following two-year course of study provided high school chemistry and higher algebra are presented for admission (if these are not presented, Chemistry 1-2-3 is required instead of Chemistry 4-5; and Mathematics 3 must be taken as a prerequisite to 4 or 6); Zoology 5-6-7 (12 credits); Inorganic Chemistry 4-5, 11, Organic Chemistry 6-7 (20 credits); Mathematics 4 (4 credits) or Mathematics 6 (5 credits); Physics 3-4 and one of 23-24, 33-34, 43-44 (8 credits); Freshman English A-B-C (15 credits) or Composition for Technical Students 4-5-6 (9 credits). Electives to make a total of ninety quarter credits.

Pre-dental students are advised to secure preparation in some or in all of the following subjects: Latin or a modern language (high school or college), drawing, psychology, economics, history, political science, and sociology.

Students may become candidates for either a bachelor of science or a bachelor of arts degree by choosing to complete the junior college courses which are required of candidates for either of these degrees.

Those whose pre-dental work has been taken elsewhere than at the University of Minnesota must present to the examiner certified credentials of both preparatory and college work showing the subjects completed, credits, and grades.

Students preparing for admission to the College of Dentistry are advised to follow this arrangement as closely as possible.

#### *School for Dental Hygienists*

The requirement for admission to the School for Dental Hygienists is graduation from an approved high school or other preparatory school on the accredited list, and the applicant must present the minimum requirements of one major and two minors as prescribed on page 31.

All accepted applicants must pay a preliminary fee within ten days of notification of acceptance, in order to hold a place in the class. This fee is not returnable in case the student fails to enter.

#### SCHOOL OF MINES AND METALLURGY

##### I. Admission by Certificate

- (a) Major or minor in Group A.
- (b) Major or minor in Group D.

##### *Recommendations—*

- (1) It is recommended that the major be offered either from Group D, Mathematics or Group A, English. If it be in mathematics, it should include higher algebra, one-half unit, and solid geometry, one-half unit.

It is further recommended that all work in mathematics be taken in the senior high school.

Applicants deficient in higher algebra and plane geometry will be required to take a special course in mathematics during their freshman year.

- (2) It is recommended that the second minor requirement be offered from Group E, natural sciences, and include physics, one unit, and chemistry, one unit; or from Group B, foreign languages.

#### II. Admission by Examination

In accordance with the regulation printed on page 31, the tests required for admission will be (a) college aptitude test, (b) test of proficiency in English.

*Adult special students.*—See statement on page 42.

#### COLLEGE OF PHARMACY

##### I. Admission by Certificate

- (a) Major in Group A.
- (b) Minor in Group D.
- (c) One unit in Latin, Group B.
- (d) One unit in physics, Group E.

Students who have completed forty-five credits in the College of Science, Literature, and the Arts or in other accredited colleges of similar standing, including nine or ten credits in each of (1) rhetoric, (2) a modern language, (3) physics or zoology, will be admitted to the second-year class. These students must have completed the high school equivalent of one year each of Latin and physics in addition to meeting the other entrance requirements of the College of Science, Literature, and the Arts.

##### II. Admission by Examination

In accordance with the regulation printed on page 31, the tests required for admission will be (a) college aptitude test, (b) test of proficiency in English.

#### SCHOOL OF CHEMISTRY

##### *Courses in Chemistry and Chemical Engineering*

See page 34, with College of Engineering and Architecture.

#### COLLEGE OF EDUCATION

##### I. Admission by Certificate

- (a) Completion of a regular senior high school course.
- (b) For all courses of study excepting the special curricula to which freshmen are admitted (see page 22) the completion of two full years of college work (a minimum of 90 credits, exclusive of credits in physical education, must have been earned with an average of one honor point per credit hour in all subjects pursued) in the College of Science, Literature, and the Arts at this or some other college or university of equal rank is required.

(c) For all special curricula to which freshmen are admitted (see page 22) the certificate of senior high school graduates must show the completion of the following:

(1) Major in Group A.

(2) Minor in each of two of the Groups B, C, D, and E (except for the public school music curriculum for which a minor in Group D, mathematics, is required).

## II. Admission by Examination

In accordance with the regulation printed on page 31, the tests required for admission will be (a) college aptitude test, (b) test of proficiency in English, (c) for Public School Music Course: mathematics and music tests, (d) for Art Education Course: art test.

In explanation of the honor point 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 (a) and (b), 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 advanced (two-year) normal course in Minnesota teachers colleges are given full credit for additional work taken since September, 1926, which the University of Minnesota considers the equivalent of its own courses. Graduates of two- or three-year courses in out of state teachers colleges receive additional credit for work taken beyond graduation in so far as the subjects taken are of senior college grade.

## SCHOOL OF BUSINESS ADMINISTRATION

Candidates for admission to the degree courses offered by this school must have completed the equivalent of the two-year pre-business course given in the College of Science, Literature, and the Arts, the College of Agriculture, or the College of Engineering and Architecture of this University. (See admission to the College of Science, Literature, and the Arts, page 33; the College of Agriculture, page 35; the College of Engineering and Architecture, page 34.)

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.

## ADULT SPECIAL STUDENTS

No student will be admitted to any school or college of the University who has not fully met the entrance requirements by one of the above methods, except applicants of mature age (24 years or older) and experience

who may desire to pursue a special and limited course of study. Such candidates for admission must secure the approval of the college concerned for the work which they wish to pursue.

### 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 list of the preparatory units presented upon entrance.
- (f) A letter or statement of honorable dismissal.

Applications for advanced standing should be made, if possible, at least one month before the time when the student expects to enter the University.

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.

The following institutions in Minnesota are recognized as institutions of full collegiate grade:

Carleton College, Northfield	College of St. Catherine, St. Paul
Concordia College, Moorhead	St. Olaf College, Northfield
Gustavus Adolphus College, St. Peter	College of St. Scholastica, Duluth
Hamline University, St. Paul	College of St. Teresa, Winona
Macalester College, St. Paul	

The following are recognized for three years of college work. Under certain conditions their graduates may be admitted to the Graduate School:

Augsburg College, Minneapolis	St. Mary's College, Winona
College of St. Benedict, St. Joseph	St. Thomas College, St. Paul

#### 2. *From Minnesota teachers colleges*

Graduates of the Advanced Graduate Course of a Minnesota state teachers college 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 toward graduation.

Applicants for transfer from the third or fourth year of the degree course offered in Minnesota teachers colleges may receive credit for any part of their work in so far as such work is equivalent in subject-matter to courses in the particular college to which the student transfers.

Graduates of state teachers colleges will not be permitted to take the following course at the University for credit: Psychology 1-2.

State teachers colleges at the following places are recognized: Bemidji, Duluth, Mankato, Moorhead, St. Cloud, Winona.

### 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:

Macalester College, St. Paul	Rochester Junior College
Concordia College, St. Paul	St. John's University, Collegetown
Duluth Junior College, Duluth	St. Mary's Hall, Faribault (for one year's work)
Ely Junior College	St. Paul Luther College
Eveleth Junior College	Virginia Junior College
Hibbing Junior College	
Itasca Junior College, Coleraine	

### 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	Appleton	Barnum
Adams	Arco	Barrett
Adrian	Argyle	Battle Lake
Aitkin	Arlington	Baudette
Akeley	Ashby	Beardsley
Albany	Askov	Beaver Creek
Alberta	Atwater	Becker
Albert Lea	Audubon	Belgrade
Alborn	Aurora	Belle Plaine
Alden	Austin	Bellingham
Alexandria	Backus	Beltrami
Alvarado	Badger	Belview
Amboy	Bagley	Bemidji
Annandale	Balaton	Benson
Anoka	Barnesville	Bertha

Big Falls	Climax	Evansville
Big Fork	Clinton	Eveleth
Big Lake	Cloquet	Excelsior
Bingham Lake	Cloverton	Eyota
Bird Island	Cokato	Fairfax
Biwabik	Coleraine	Fairmont
Blackduck	Columbia Heights	Faribault
Blooming Prairie	Comfrey	Farmington
Bloomington	Comstock	Fergus Falls
Blue Earth	Correll	Fertile
Borup	Cotton	Finlayson
Boyd	Cottonwood	Fisher
Braham	Cromwell	Foster Lake
Brainerd	Crookston	Fosston
Brandon	Crosby-Ironton	Franklin
Breckenridge	Cyrus	Frazee
Brewster	Danube	Freeborn
Bricelyn	Dassel	Fulda
Bronson	Dawson	Garden City
Brooten	Deephaven	Gaylord
Browns Valley	Deer Creek	Gibbon
Brownton	Deer River	Gilbert
Buffalo	Delano	Glencoe
Buffalo Lake	Delavan	Glenwood
Buhl	Detroit Lakes	Glyndon
Butterfield	Dilworth	Gonvick
Byron	Dodge Center	Goodridge
Caledonia	Dover	Good Thunder
Cambridge	Duluth	Graceville
Campbell	Central	Granada
Canby	Denfeld	Grand Marais
Cannon Falls	Morgan Park	Grand Meadow
Canton	Eagle Bend	Grand Rapids
Carlton	East Chain	Granite Falls
Cass Lake	East Grand Forks	Grasston
Ceylon	Echo	Greenbush
Chaska	Eden Prairie	Grove City
Chatfield	Eden Valley	Hackensack
Cherry	Edgerton	Hallock
Chisago City	Elbow Lake	Halstad
Chisholm	Elgin	Hancock
Chokio	Elk River	Harmony
Clara City	Elkton	Hastings
Clarissa	Ellendale	Hawley
Clarkfield	Elmore	Hayfield
Clearbrook	Ely	Hector
Cleveland	Erskine	Henderson



Hendricks	Le Roy	Montevideo
Hendrum	Le Center	Montgomery
Henning	Lester Prairie	Monticello
Herman	Le Sueur	Moorhead
Heron Lake	Lewiston	Moose Lake
Hewitt	Lindstrom-Center City	Mora
Hibbing	Litchfield	Morgan
Hill City	Little Falls	Morris
Hills	Littlefork	Morristown
Hinckley	Long Prairie	Morton
Hitterdal	Luverne	Motley
Hoffman	Lyle	Mound
Holdingford	Lynd	Mountain Iron
Holloway	McGrath	Mountain Lake
Hopkins	McGregor	Murdock
Houston	McIntosh	Nashwauk
Howard Lake	Mabel	Nevis
Humboldt	Madelia	Newfolden
Huntley	Madison	New London
Hutchinson	Magnolia	New Prague
International Falls	Mahnomen	New Richland
Isle	Mankato	New Ulm
Ivanhoe	Mantorville	New York Mills
Jackson	Maple Lake	Nicollet
Janesville	Mapleton	North Branch
Jasper	Marietta	Northfield
Jeffers	Marshall	Northome
Jordan	Mazeppa	North St. Paul
Karlstad	Meadowlands	Norwood-Young America
Kasota	Medford	Ogilvie
Kasson	Melrose	Okabena
Keewatin	Menagha	Oklee
Kelliher	Mentor	Olivia
Kellogg	Middle River	Onamia
Kennedy	Milaca	Ortonville
Kenyon	Milroy	Osakis
Kerkhoven	Minneapolis	Oslo
Lake Benton	Central	Osseo
Lake City	Edison	Owatonna
Lake Crystal	John Marshall	Park Rapids
Lakefield	North	Parkers Prairie
Lake Park	Roosevelt	Paynesville
Lake Wilson	South	Pelican Rapids
Lamberton	Washburn	Pemberton
Lancaster	West	Pequot
Lanesboro	Minneota	Perham
Laporte	Minnesota Lake	

Peterson	John A. Johnson	Ulen
Pine City	Mechanic Arts	Upsala
Pine Island	Washington	Verdi
Pine River	St. Paul Park	Verndale
Pipestone	St. Peter	Villard
Plainview	Sacred Heart	Virginia
Plummer	Sanborn	Wabasha
Preston	Sandstone	Wabasso
Princeton	Sauk Center	Waconia
Proctor	Sauk Rapids	Wadena
Randolph	Sebek	Wahkon
Rapidan	Shakopee	Waldorf
Raymond	Sherburn	Walker
Red Lake Falls	Silver Lake	Walnut Grove
Red Wing	Sioux Valley, Lake	Warren
Redwood Falls	Park, Ia.	Warroad
Remer	Slayton	Waseca
Renville	Sleepy Eye	Watertown
Riverton	South St. Paul	Waterville
Rochester	Springfield	Waubun
Rockford	Spring Grove	Wayzata
Roseau	Spring Valley	Welcome
Rose Creek	Staples	Wells
Rosemount	Starbuck	Westbrook
Round Lake	Stephen	West Concord
Royalton	Stewart	Wheaton
Rush City	Stewartville	White Bear
Rushford	Stillwater	Williams
Russell	Storden	Willmar
Ruthton	Swanville	Willow River
St. Charles	Taylor Falls	Windom
St. Clair	Thief River Falls	Winnebago
St. Cloud	Thomson	Winona
St. Francis	Tower-Soudan	Winthrop
St. Hilaire	Tracy	Wolverton
St. James	Triumph	Wood Lake
St. Louis Park	Truman	Worthington
St. Paul	Twin Valley	Wrenshall
Central	Two Harbors	Wykoff
Humboldt	Tyler	Zumbrota

Graduates of the University High School and of the following private schools will be admitted to the freshman class under the regulations governing the admission of high school graduates:

Adrian	Bird Island
St. Adrian High School	St. Mary's High School
Austin	Caledonia
St. Augustin High School	The Loretto

Collegeville	New Ulm
St. John's College	Catholic High School
Crookston	Owatonna
Mount St. Benedict's Academy	Pillsbury Academy
St. Joseph's Academy	Red Wing
Duluth	Academy of the Red Wing
Cathedral High School for Boys	Seminary
Cathedral High School for Girls	Rolling Stone
Villa Sancta Scholastica	Holy Trinity School
Faribault	St. Cloud
Bethlehem Academy	Cathedral High School
St. Mary's Hall	St. Joseph
Shattuck Military Academy	Convent of St. Benedict
Fergus Falls	St. Paul
Park Region Luther College	✓ Academy of the St. Paul Luther
Graceville	College
St. Mary's Academy	✓ Bethel Academy
Hutchinson	✓ Breck School
Maplewood Academy	✓ College of St. Catherine
Lake City	(Derham Hall)
McCahill Institute	✓ Cretin High School
Little Falls	✓ Oak Hall
St. Francis High School	✓ St. Joseph Academy
Mankato	✓ St. Paul Academy
Good Counsel Academy	✓ St. Paul Institute Evening School
Loyola High School	St. Thomas Military Academy
Minneapolis	Summit School
✓ Academy, Augsburg Seminary	Visitation Convent
✓ Blake School for Boys	Waseca
✓ De La Salle High School	Sacred Heart High School
✓ Minnehaha Academy	Winona
✓ Minnesota College	Cathedral High School
✓ Northrop Collegiate Institute	Cotter High School
✓ St. Anthony High School	
✓ St. Margaret's Academy	

Graduates of Minnesota state high school departments which are on the recommended list of the State Department of Education are accepted on the same basis as the graduates of fully accredited preparatory schools.

## EXPENSES

### FEES

The university year, extending from October to June, is divided into three terms called quarters. On the specified dates (see Calendar, pp. 9-11) prior to the opening of each quarter, the following fees are due from each student: (a) tuition, (b) incidental, and (c) such special fees and deposits as may be required.

Payment of fees cannot be deferred. Special attention is called to the paragraph on Penalty Fees (page 52) for further instructions on late registration and late payment of fees.

Checks or drafts received in payment of any fee whatsoever are accepted subject to final payment in cash or solvent credits; and all banks in the banking routine of collection of such items are accepted by the student as his own agents, and not those of the University, whether such items be sent directly or indirectly to the payer bank.

### TUITION FEES

School or College	Quarter Fee		Credit Hour Fee*	
	Resi- dent	Non- resident	Resi- dent	Non- resident
The Junior College .....	\$20.00	\$30.00	\$	\$
College of Science, Literature, and the Arts..	20.00	30.00	\$1.75	\$2.50
College of Engineering and Architecture.....	30.00	40.00	2.50	3.25
College of Agriculture, Forestry, and Home Economics .....	20.00	30.00	1.50	2.25
Law School .....	40.00	50.00	3.75	4.75
Medical School .....	75.00	100.00	†3.25	†4.50
School of Nursing (preliminary course)..	25.00	25.00	†1.00	†1.00
Medical Technicians .....	30.00	40.00	†1.25	†1.75
College of Dentistry.....	60.00	70.00	†2.50	†3.00
Dental Hygienists .....	25.00	25.00	2.00	3.25
School of Mines and Metallurgy.....	30.00	40.00	2.50	3.25
College of Pharmacy.....	35.00	45.00	1.50	2.00
School of Chemistry.....	30.00	40.00	2.50	3.25
College of Education.....	20.00	30.00	1.75	2.50
Graduate School .....	‡20.00	‡30.00	‡1.75	‡2.50
Clinical Medicine .....	75.00	100.00	†3.25	†4.50
School of Business Administration.....	30.00	40.00	2.75	3.75
Division of Library Instruction.....	40.00	45.00	3.00	3.00

\* Students carrying less than the complete schedule of work may pay fees on a credit hour basis.

† In these colleges the prorating is on the basis of clock hours.

‡ 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.

§ Part-time students shall be charged tuition prorated on the basis of full-time work, plus one-third.

*Non-resident fees.*—"All students under the age of twenty-one shall be considered to be domiciled where their parents or legal guardians are domiciled.

"All students who are, and for six months prior to the date of registration have been, domiciled in Minnesota shall pay resident fees, provided, however, that a student's domicile is not to be considered as alterable simply by declaration of intention or by the fact of his presence in the state while attending an educational institution."—Board of Regents Minutes, May 9, 1928.

*Tuition 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.<sup>1</sup>

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 above.

This is not to be interpreted as applying to students in such combination courses as Arts and Medicine, Arts and Dentistry, Arts and Business, etc., provided such students pay regular quarter fees for the full period of residence in the higher fee college.

#### INCIDENTAL FEE

An incidental fee of \$6 a quarter is charged each student for which the student receives the privileges of the Minnesota Union or Shevlin Hall, the Health Service, the *Minnesota Daily* including the Official Daily Bulletin, the university post-office service, and the *University Address Book*. Students in Engineering, Architecture, and Chemistry pay \$6.40 per quarter and receive the *Minnesota Techno-Log* in addition to the foregoing.

All students who are registered for five credits or more in any quarter shall be required to pay the regular incidental fee; while students who are registered for less than five credits in any quarter shall not be charged any incidental fee, nor be permitted to pay this fee in order to obtain the privileges to which the payment of this fee entitles students.

#### MATRICULATION DEPOSIT

At the student's first registration at the University a matriculation deposit, fifteen dollars (\$15) for men and five dollars (\$5) for women, is required to cover the following charges: locker rental, locker key deposit, case book deposit (Law School), laboratory breakages, drawing board rental (Architecture), military equipment deposit (men), library fines, or damage to university property.

The matriculation deposit required of students registered for less than

<sup>1</sup> 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 time fees of the first and pro rata fees of the second.

five credits is five dollars (\$5), whereas the matriculation deposit of students registered in the Graduate School is three dollars (\$3).

The unused balance of the deposit fee will be returned *by mail* upon cancellation or automatically after the beginning of the first quarter the student fails to return. If, at any time, the charges against a student shall warrant a renewal of the deposit, an additional fee of five dollars (\$5) will be required.

*Laboratory deposit.*—A laboratory deposit of five dollars (\$5) 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.

## SPECIAL FEES

Music fee (in addition to tuition for those electing music)

*Lesson fees*—

Two individual lessons per week, in one subject .....	\$65.00-\$75.00 per quarter
One individual lesson per week, in one subject .....	35.00- 40.00 per quarter
Two individual lessons per week, in two subjects .....	70.00- 80.00 per quarter

*Practice fees* .....\$5.00 per quarter

Pianos and organs are available for practice purposes upon payment of practice fees charged by the Music Department.

*Practice teaching fee* .....\$1.00 per credit hour

*Laboratory fees*—for individual courses. The amounts are specified in the course announcements.

Gymnasium fee (required of all men taking exercise courses in Physical Education).....\$1.50 a quarter

Gymnasium fee (required of all 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:

Condition examination ..... \$1.00

Special examination for removal of condition, at other than set time<sup>1</sup>.. \$5.00

Examination on subjects taken out of class<sup>1</sup> ..... \$5.00

(No fee for such examination on first entering the University, if taken within the first six weeks.)

Large diploma fee: any graduate may receive the large diploma on payment of the special fee of..... \$5.00

Duplicate copy of record: one copy of record will be issued to each student free of charge. Each additional copy will be issued only on payment of ..... \$0.50

(Except during a registration period, when the fee is \$1.00)

Graduation fee .....\$10.00

<sup>1</sup> Such an examination may be taken only upon approval of the appropriate committee.

## PENALTY FEES

*Registration penalties.*—A penalty fee for late registration, late change of registration, or late payment of fees shall be \$2 prior to the day classes begin, on and after which the penalty increases at the rate of \$1 per day, provided that no student shall pay more than \$10 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.

## REFUNDS

*Tuition.*—Students who cancel their registration before the close of any quarter are entitled to refunds of the tuition fee on the following basis:

After Quarter Opens	Percentage of Refund
No attendance .....	100
Two days to one week.....	90
One week to two weeks.....	80
Two weeks to three weeks.....	70
Three weeks to four weeks.....	60
Four weeks to five weeks.....	50
Five weeks to six weeks.....	40

No student who has been in attendance more than one half of the quarter shall receive any refund of tuition.

*Locker rental.*—Full rental fee for lockers may be refunded during the first two weeks of a quarter. After that time no reduction is made.

*Incidental fee.*—Students in any college of the University, with the exception of the College of Engineering and Architecture, and the School of Chemistry, who cancel their registration before the end of the quarter, are entitled to a refund of the incidental fee on the same basis as the refund for tuition, except that in no case will more than \$5 of the incidental fee be refunded. Students in the College of Engineering and Architecture and the School of Chemistry will receive refunds of the incidental fee on the same basis, except that the extra forty cents of the incidental fee in these schools will be entirely refunded during the first two weeks of the quarter, and none of this extra forty cents will be refunded after the second week of the quarter.

## LIVING EXPENSES

## BOARD AND ROOM

## GENERAL REGULATIONS

1. It is understood that a room is engaged for a complete quarter, unless otherwise arranged with the householder. Only when a student withdraws from the University is such student released from financial obligations.

2. It is understood that a room is automatically released at the conclusion of each quarter, but 10 days' notice must be given.

3. A deposit of \$5 is to be made to a householder when a room is engaged.

4. It is advisable to make separate arrangements for board and room.

5. Students are advised—when possible—to board where they room.

6. No rebate in room rent is allowed for absence.

7. Rebate in charges for board is made only if absence exceeds a week, or if arrangements have been made in advance with the householder. This rule applies to absence during vacations as well as to all other absences.

8. A special charge is made for meals served to guests, or for extra services to guests.

*Women*

*Sanford Hall.*—Sanford Hall, the dormitory residence for women students, is situated at 1100 University Avenue S.E., three blocks from the main entrance to the campus. Two hundred and fifty students may be accommodated. The building is fireproof and modern in every way and is very comfortable and homelike.

The charge for board and a single room is \$135 per quarter. For occupants of double rooms the charge for board and room is \$125 per quarter. Board and room is to be paid \$60 the first month in advance, \$40 the first of the second month, and the balance the first day of the last month of the quarter. Fourth floor rooms are \$10 less per quarter. All applications for residence must be made for the entire school year. It is best to apply as early as possible. Applications will be considered in the order in which they are received.

Communications requesting residence or further information should be addressed to the house director, Sanford Hall.

*Co-operative cottages.*—Four co-operative cottages, each in charge of a chaperone, offer comfortable homes for about forty women. By assisting with the work of the houses, the students are able to keep expenses under thirty dollars per month. In assigning students to these cottages, preference is given to women earning a part of their expenses. It is understood that students engage rooms for the school year and will not be released unless their places can be filled. Application may be made to the manager of university cottages, Shevlin Hall.

*Rooming houses.*—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. About seventy-five houses are approved by the University as residences for 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 pillow cases, and towels, all to be marked with the full name of owner. No electric light stronger than fifty watt is required in a student's room. No electric appliances are to be used except by permission of the householder. Room rent varies from ten (\$10) to fifteen dollars (\$15) a month for each student; board at the present time is from five (\$5) to eight dollars (\$8) a week.

Luncheon on the cafeteria plan is served at Shevlin Hall daily, with the exception of Sunday.

For further information and list of addresses, application may be made to the director of housing, Shevlin Hall.

#### School of Nursing Expenses

Expenses of the *Three-Year Nursing Course* are estimated as follows:

Payable at the time of registration	
Tuition and deposit .....	\$36.00
Books .....	15.00
Payable at the end of first three months	
Uniform cape, cap, and initial set of uniforms.....	55.00
Payable during remainder of first year	
Books .....	10.00
Payable during junior year	
Books .....	10.00
Payable during senior year	
Books .....	10.00
Graduation fee .....	10.00
	\$146.00

Room and board is furnished by the associated hospitals without charge to the student during the entire three years, including the preliminary quarter. Students whose high school records were not good are not advised to enter the field of nursing and if accepted may be asked to provide their own maintenance during the first three months. Students who are advised to leave during the preliminary quarter are under no obligations to the school, but acceptable students who voluntarily leave the school before they have given any service to the hospitals are expected to reimburse the hospital for the cost of maintenance. Students in the School of Nursing receive no salary and have no opportunity for earning money while in training. After the first year they are eligible to apply for aid from the student loan funds. The above estimate does not include clothing, incidentals, railroad fare, nor provision for the vacation periods.

Students in the *Five-Year Nursing Course* are registered in the academic college during the first five and last three quarters of the course and would have the same expenses in regard to maintenance, tuition, etc., as other students in that college. During the time they are in the School of Nursing their expenses would be similar to those of the three-year students.

*Men*

*Pioneer Hall.*—The new residence hall for men at the University of Minnesota was erected for the purpose of providing comfortable and attractive individual living quarters for men students. It is ideally located overlooking the Mississippi River on the East River Drive, one block east of the Medical buildings. The building is quadrangle in form and is divided into eight houses, each house having a separate entrance. Approximately 32 students are accommodated in each house. Most of the rooms are arranged in the three-room suites for two students—separate bedrooms and a common study. A few single and double rooms are provided for students who prefer this arrangement. Rooms are furnished with a combination wardrobe and dresser, bed, chair, study table, arm chair, rug, wastebasket, curtains, bed linen, and bed cover. Students are expected to furnish blankets, study lamps, towels, and other personal necessities.

The main dining hall will provide the residents of the houses three meals per day.

Rates, including board, are as follows:

Three-room suites for two men (two bedrooms and a common study) with board, per man.....	\$145 per quarter
Single rooms with board .....	\$140 per quarter
Double rooms with board, per man .....	\$135 per quarter
Fourth floor rooms are \$5 less per quarter	

Students interested in residence in the hall should write to the Director of Pioneer Hall, University of Minnesota, for a copy of the special bulletin and an application form. Assignments will be made in the order of application.

*Approved boarding and rooming houses.*—A list of approved boarding and rooming houses may be secured at the Housing Bureau. Good double rooms for two men can be obtained within easy walking distance of the campus for from eighteen (\$18) to thirty dollars (\$30) per month. Good single rooms rent for from twelve (\$12) to eighteen dollars (\$18) per month. Board at the present time varies from five (\$5) to eight dollars (\$8) per week.

*Minnesota Union.*—At the Minnesota Union, the men's clubhouse on the campus, three meals a day are served on the cafeteria plan.

*Men's cottages.*—The University operates four houses where about forty men students can be accommodated. The charge for room and board is three hundred sixty dollars (\$360) for the university year, payable in nine installments. Rooms are assigned in these cottages for the year and students cannot be released until their places are filled.

The application fees are not refunded to students leaving university houses before the end of the college year. An additional charge of thirty dollars (\$30) for the year must be made for single rooms.

A fifth house, accommodating ten men, is operated as a dormitory only but board can be had, if desired, at the cottage dining hall. Room rentals run from ninety dollars (\$90) to one hundred thirty-five dollars (\$135) for the college year.

For each cottage there is provided a house mother who looks after the comfort and welfare of the men. The students live under a few self-made regulations. For further information, communicate with the manager of university cottages, Shevlin Hall.

#### SELF-SUPPORT

The Employment Bureau is maintained for the purpose of assisting both men and women students who seek employment, and of developing in all proper ways opportunities for self-help. 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 many students, with the aid of the money saved during the summer, are making all of their college expenses. A few are able to make their expenses during the college year, but this can be done only by students of unusual force and adaptability, or with exceptional opportunities. The majority of students must meet stern competition; must live economically; must guard their 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. In addition to tuition fees prospective students should have at least \$150 or the equivalent; and then it will be necessary for them to live very economically. Students who are eventually able to place themselves in self-supporting positions may have to try again and again, and meanwhile their living expenses will be accumulating. An adequate reserve fund under such conditions will enable them to continue their college work.

The Twin Cities offer many opportunities to the self-supporting student. Students are employed as clerks, stenographers, bookkeepers, cashiers, store clerks, drug clerks, salesmen, solicitors, telephone and telegraph operators, teachers, tutors, mechanics, musicians, waitresses and waiters, domestic workers, laborers, janitors, and in many other capacities, some of which are highly specialized. However, it must be remembered that there are usually more applicants than positions. For this reason a student, especially one who is new and unacquainted, may not be able to exercise much preference in work at first.

Applicants for employment should bear in mind that, while every effort is made to secure work for all who need it, the positions that come to this bureau cannot 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.

Applicants should also bear in mind that during the opening week of school there are many hundred students who apply to the Employment Bureau for work. It is manifestly impossible to place all of these students as soon as they apply and some students have to wait for days or weeks

before they can secure work. The amount of work available varies with employment conditions.

It usually is not advisable for a student to make a sacrifice to come to the city before the opening of the school year in the hope that he can get a position before the other students arrive because much of the work for self-supporting students is created by the presence of the other students on the campus. Therefore, until the other students are here there are very few part time jobs available.

Those who find themselves without funds at the beginning of the college year can register in some of the evening extension classes 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 work much easier and give themselves more time for outside work. The correspondence courses offered by the Extension Division are open to all. Students who can meet the usual requirements for college entrance are allowed university credit for most of these courses.

#### GENERAL EXPENSES—ESTIMATED

The following table gives an estimate of the expenses of the average student during his first year in college. The different columns give estimates for the different colleges. This estimate does not include expenses for clothing, railroad fare, and vacations.

#### ESTIMATED EXPENSES OF THE ORDINARY STUDENT DURING HIS FIRST YEAR IN COLLEGE

	Academ., Agric., For., H. E., Educ.	Mines & Met., Business Adm.	Law	Eng. and Arch., Chem.	Dent.	Med.	Phar- macy
Incidental fee ...	\$ 18.00	\$ 18.00	\$ 18.00	\$ 19.20	\$ 18.00	\$ 18.00	\$ 18.00
* Matriculation fee	15.00	15.00	15.00	15.00	15.00	15.00	15.00
Gym. suit (approx.)	8.00	8.00	8.00	8.00	8.00	8.00	8.00
Laundry .....	36.00	36.00	36.00	36.00	36.00	36.00	36.00
Room rent .....	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Board .....	270.00	270.00	270.00	270.00	270.00	270.00	270.00
† Tuition .....	60.00	90.00	120.00	90.00	180.00	225.00	105.00
Incidentals .....	200.00	200.00	200.00	200.00	200.00	200.00	200.00
Books and instr'ts.	35.00	35.00	45.00	35.00	160.00	40.00	35.00
Total .....	\$762.00	\$792.00	\$832.00	\$793.20	\$1007.00	\$932.00	\$807.00

\* For women the matriculation fee is \$5.

† An additional tuition fee of ten dollars per quarter (twenty-five dollars in the Medical School) is charged all students who are not residents of the state of Minnesota.

By reducing the amount spent for incidentals and by obtaining cheaper board and room many students will be able to live for less than the amount estimated in the above table. Likewise, other students will pay more for board, room, and incidentals, and will not be able to live for the amounts estimated. Below we give an estimate of the minimum, average, and liberal

expenses of the freshman student during the college year. To live within the minimum amount a student must forego all luxuries and economize in every way possible. This estimate does not include expenses for clothing, railroad fare, and vacations.

	Minimum	Average	Liberal
Academic, Agriculture, Forestry, and Home Economics, and Education..	\$502.00	\$762.00	\$927.00
Business Administration .....	531.00	792.00	959.00
Law .....	575.00	832.00	999.90
Engineering and Architecture, Chemistry, Mines and Metallurgy .....	536.00	793.20	993.00
Dentistry .....	756.00	1007.00	1196.00
Medicine .....	680.00	932.00	1116.00
Pharmacy .....	555.00	807.00	978.00

## GRADUATE FELLOWSHIPS, SCHOLARSHIPS, AND LOANS

Applications for these fellowships must be made on or before March 1. Blank applications can be obtained from the dean of the Graduate School. Information may be secured from the dean of the college or head of the department in which the fellowship is located.

### GENERAL

#### ADMINISTRATION FELLOWSHIPS

The Board of Regents has recently established four graduate fellowships, one in the office of the comptroller, one in the office of the registrar, one in the office of the dean of women, and one in the office of the dean of student affairs. Each of these fellowships will require one half of the time of the student, one half of his time being given to such other work as may be deemed advisable. The fellowships will cover a period of two academic years, or eighteen continuous months. They carry a stipend of \$1,200 for the two years, \$600 a year. The appointments will be made by the president on the recommendation of the comptroller, the registrar, the dean of women, and the dean of student affairs, respectively.

#### THE CLASS OF 1890 FELLOWSHIP

As a gift of the Class of 1890 the sum of \$250 a year 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 CLARA UELAND FELLOWSHIP

The income from \$11,191.67 is awarded annually to a recent woman graduate of any acceptable college or university for graduate study of problems of government and citizenship. Recipient is exempt from tuition fees.

#### LAMBDA ALPHA PSI GRADUATE LOAN FUND

Gift of \$500 from the honorary language society of Lambda Alpha Psi for the establishment of a loan fund for needy graduate students to be known as the Lambda Alpha Psi Graduate Loan Fund. Applicants must have completed successfully one quarter's work in the Graduate School of the University of Minnesota. "Successfully" is to be interpreted as meaning an average of B for all work and A in 50 per cent of the major work. Application should be made through the dean of student affairs.

#### MINNEAPOLIS COLLEGE WOMEN'S CLUB SCHOLARSHIP

A gift of \$300 received from the Minneapolis College Women's Club for a scholarship for a woman graduate student, to be awarded in 1932

and in alternate years thereafter, with exemption from tuition at the discretion of the Board of Regents.

THE SWEDISH HOSPITAL AND CHARLES R. DRAKE FELLOWSHIP  
IN PATHOLOGY

The Swedish Hospital and Charles R. Drake Fellowship in Pathology for a period of three years—\$900 first year, \$1,200 second year, and \$1,500 the third year. It does not carry exemption from tuition.

FELLOWSHIPS AND ASSISTANTSHIPS

The following fellowships and assistantships 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 1.

Agriculture and Home Economics.....	45 assistants
Anthropology .....	2 assistants
Architecture .....	1 assistant
Botany .....	{ 5 teaching assistants 6 assistants
Chemistry and Chemical Engineering...	33 teaching assistants
Economics .....	10 assistants
Education .....	7 assistants
Engineering, Civil .....	{ 1 teaching fellow 4 research fellows
Engineering, Electrical .....	4 teaching fellows
Engineering Experimental Station .....	6 research fellows
Engineering, Mechanical .....	2 research fellows
English .....	{ 2 teaching assistants 5 assistants
Geology and Mineralogy.....	2 assistants
German .....	{ 5 teaching assistants 3 assistants
History .....	{ 15 teaching assistants 1 assistant
Mathematics .....	{ 1 teaching assistant 2 assistants
*Medicine and Surgery	
(1) Medical School .....	{ 41 fellows 12 assistants 5 scholarships
(2) Mayo Foundation .....	265 fellows
(3) Miller Hospital Clinic.....	4 fellows
Minneapolis General Hospital .....	7 fellows
Philosophy .....	1 assistant
Physics .....	12 teaching assistants
Pokegama Fellowship in Tuberculosis...	1 fellow

\* Special requirements. Address inquiries to the dean of the Graduate School.

Political Science .....	}	5 teaching assistants
		2 assistants
Psychology .....		9 teaching assistants
Romance Languages .....	}	2 teaching fellows
		1 teaching assistant
Scandinavian .....		1 assistant
Sociology .....	}	4 teaching assistants
		2 assistants
		2 medical social work fellows
Zoology .....		18 teaching assistants

AGRICULTURE, FORESTRY, AND HOME ECONOMICS

CALEB DORR RESEARCH FELLOWSHIPS

The Caleb Dorr Fellowships were founded by the bequest of the late Caleb Dorr. Their purpose is the encouragement of research in any field of agriculture. No services are required. Whole time during the academic year (9 months) must be given to graduate work. Fellowship amounts to \$500. Holder is exempt from all tuition fees. Awarded on basis of scholarship and prospect and promise of productive research. There are two such fellowships maintained at the present time.

SHEVLIN FELLOWSHIP IN AGRICULTURE

A fellowship of \$500 open to graduate of any acceptable college or university.

AMERICAN DRY MILK FELLOWSHIP

The Victor Chemical Works of Chicago established the above fellowship to make a study of the properties of wheat flour doughs and yeast leavened bread prepared from such doughs to which varying amounts of dry skim milk have been added.

CLOQUET WOOD FIBER FELLOWSHIP

On January 23, 1925, the Northwest Paper Company and the Cloquet Lumber Company established this fellowship for the purpose of investigating the fundamental chemistry of paper manufacture. This fellowship is at the present time in the amount of \$1,200 per year.

ENGINEERING, ARCHITECTURE, AND CHEMISTRY

DOW FELLOWSHIP IN CHEMISTRY

The Dow Chemical Company has provided a fellowship in Chemistry amounting to \$750 to support research in certain fields of chemistry. The fellow devotes half of his time to this research and the remainder to graduate work towards an advanced degree.

THE DUPONT FELLOWSHIP IN CHEMISTRY AND CHEMICAL ENGINEERING

This fellowship, established by E. I. du Pont 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.



## SHEVLIN FELLOWSHIP IN CHEMISTRY

A fellowship of \$500 open to graduates of any acceptable college or university.

## RESEARCH FELLOWSHIPS IN HEATING AND VENTILATION

The University in co-operation with the American Society of Heating and Ventilating Engineers provides several research fellowships of \$750 each for research problems relating to heating and ventilation. Each fellow devotes one half of his time to this research and the remainder to graduate work towards an advanced degree.

## EDUCATION

## COFFMAN FOUNDATION SCHOLARSHIP

The Coffman Foundation for the promotion of scholarship and research in education offers the sum of \$100 to a graduate of the College of Education in encouragement of graduate work in education. Application should be made to the dean of the College of Education not later than May 1.

The money becomes available at the time the winning candidate is pursuing graduate work, a period of three years being allowed in which advantage of the award may be taken.

## MEDICAL

## MEDICAL SOCIAL WORK FUND

Gift from the Minnesota District of the American Association of Hospital Social Workers for a fund for the assistance of graduate students of medical social work to be known as the Medical Social Work Fund.

## SHEVLIN FELLOWSHIP IN MEDICINE

A fellowship of \$500 open to graduates of any acceptable college or university.

## PHARMACY

## JACOBSON GRADUATE PRIZE

David L. Jacobson will offer a fifty-dollar gold medal to the student who graduates with the highest general average rating from the postgraduate course in pharmacy leading to the degree of master of science in pharmacy.

## THE FAIRCHILD SCHOLARSHIP

The Fairchild Scholarship, amounting to \$500, is awarded to that graduate of any of the colleges holding membership in the American Association of Colleges of Pharmacy who has had two years of drug store experience, is a high school graduate, and who passes the best competitive examination to be conducted by, or under the auspices of, a committee made up of members appointed jointly by the American Pharmaceutical Association, the American Association of Colleges of Pharmacy, and the National Associa-

tion of Boards of Pharmacy and who will use the \$500 for graduate work in pharmacy. Fuller particulars may be had from the dean of the college.

MINNESOTA STATE PHARMACEUTICAL ASSOCIATION GRADUATE  
FELLOWSHIP

The Minnesota State Pharmaceutical Association offers annually a graduate fellowship to foster advanced work and research in the scientific and practical fields of pharmacy and related arts and sciences and to provide opportunities for graduate work toward higher degrees in pharmacy for sufficiently qualified graduates of the College of Pharmacy of the University of Minnesota. The appointment is made by the faculty of the College of Pharmacy.

SCIENCE, LITERATURE, AND THE ARTS

THE CLASS OF 1889 MEMORIAL PRIZE IN HISTORY

A prize of \$100 is offered biennially (odd years) for the best thesis in history written from the sources. It is open to graduate and undergraduate students. It will be offered in 1933.

THE ALBERT HOWARD SCHOLARSHIP

The scholarship of \$240 a year is awarded to graduates of the College of Science, Literature, and the Arts of the University of Minnesota.

ROCK ANALYSIS LABORATORY—ROCKEFELLER FOUNDATION

A fellowship for the purpose of rock analysis established in 1929.

SHEVLIN FELLOWSHIP IN SCIENCE, LITERATURE, AND THE ARTS

A fellowship of \$500 open to graduates of any acceptable college or university.

## UNDERGRADUATE SCHOLARSHIPS, LOANS, AND PRIZES

Undergraduate scholarships, loan funds, and prizes are classified as (1) general, for students in all colleges of the University, (2) those for women students only, and (3) those open only to students registered in a certain college. Information may be obtained from the dean of the college in which the student is registered, the head of the department particularly concerned, the registrar, or the dean of women. Unless otherwise stated, all applications for loans should be made to the dean of student affairs. No student is eligible to borrow from any university loan fund until he has completed two quarters' work at the University of Minnesota.

### GENERAL

#### THOMAS F. ANDREWS UNDERGRADUATE RESEARCH PRIZES

A gift of stocks and cash from the Minnesota Chapter of the Society of Sigma Xi, for prizes to undergraduate students who have completed pieces of work of an outstanding character.

#### THE JOHNSON FOUNDATION SCHOLARSHIPS

The trustees of the Edward M. and Effie R. Johnson Foundation have donated a fund of \$12,000, the income of which is available annually for undergraduate scholarships. The scholarships are open to either men or women in any college of the University. Holders of the scholarships must be in the third or fourth year of work beyond high school and must have been in residence in the University of Minnesota at least one year. The student's record in his studies, his success in other activities, his interests, and his personal qualities will be taken into account in making awards. The purpose is to encourage scholarship and thoroughness of training in students who appear capable of unusual service or leadership.

Whether one or more scholarships shall be awarded each year will depend upon the qualifications of available candidates.

The awards will be made by the Board of Regents upon recommendation of a committee of the faculty appointed by the president. Nominations should be sent to the dean of the college in which the student is enrolled.

#### LA VERNE NOYES SCHOLARSHIPS

Under the will of Mr. La Verne Noyes there was established a number of scholarships for ex-service men or their direct dependents to assist them in obtaining a college education. The funds for these scholarships were placed in the hands of a board of trustees. Beginning with the year 1928-29 five of these scholarships were granted to Minnesota. The scholarship covers the tuition fee in the college in which the appointee is registered.

UNIVERSITY CONCERT BAND SCHOLARSHIPS

Twenty-seven scholarships of \$35 each and eight scholarships of \$50 each are available for members of the university concert band.

GENERAL STUDENT LOAN FUND

A loan fund open to all students in the University of Minnesota that come under the requirements established by the Board of Regents. This fund has been built up by small contributions from alumni who have been benefited in their student days and have taken this means of building up a loan fund to show their appreciation.

ARGOSY CLUB LOAN FUND

Gift of \$225 from the Argosy Club of Minneapolis for a loan fund to be administered in accordance with the usual policies and regulations of the University. Both the interest and the principal may be used for loan purposes.

CLASS OF 1901 LOAN FUND

Gift from the Class of 1901 for the establishment of a loan fund for worthy students.

CLASS OF 1902 LOAN FUND

Gift from the Class of 1902 for the establishment of a loan fund for worthy students, preferably those in the junior and senior classes.

THE COSMOPOLITAN CLUB LOAN FUND

The Cosmopolitan Club of the University has established a \$200 loan fund to be loaned to foreign students at the University, residing outside the territorial limits of the United States.

DAD'S DAY LOAN FUND

Due to the generosity and interest in the University of Minnesota on the part of the dads attending the annual Dad's Day dinners, money was collected and donated to the University to be used as a loan fund for needy students, subject to the regulations adopted by the Board of Regents governing the administration of loan funds.

JULIA HESS LOAN FUND

A gift of \$200 received from the St. Paul Section of the National Council of Jewish Women for the establishment of a loan fund, the principal and interest to be used for loans to undergraduate Jewish students.

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.

## WILLIAM ARTHUR LAWHEAD SCHOLARSHIP LOAN FUND

Gift of \$2,000 from the estate of Lillian Lawhead Rinderer for the establishment of a loan fund to be known as the William Arthur Lawhead Scholarship Loan Fund, for needy students.

## THE JOHN LIND LOAN FUND

A fund of \$7,000 has been established by John Lind, the income of which is to be used for loans to deserving crippled students.

## THE LUDDEN ESTATE LOAN FUND

The annual income from this fund of approximately \$15,000, 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, 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.

## ARIEL MACNAUGHTON PLAY PRODUCTION FUND

A fund of \$100 known as the Ariel Macnaughton Play Production Class Fund, available, all or in part, as a loan for any dramatic purpose, to an organization or individual, with condition that it must be returned to the University at the close of the school year following the loan. Decisions upon the loan are to be made upon recommendation by instructor in dramatics.

## FIRST NATIONAL BANK OF ST. PAUL LOAN FUND

A gift of \$400 received from the First National Bank of St. Paul, Minnesota, to be used as a loan fund for needy students.

## SIGMA ALPHA MU LOAN FUND

A loan fund of \$50 for students of Sigma Alpha Mu, a Jewish fraternity. If at any time there is a balance unused, and uncalled for, it may be used for other Jewish students.

## LUDDEN PRIZES

Three prizes of \$50, \$30, and \$20 to the winners of the first three places in the Freshman-Sophomore Oratorical Contests are provided from the Ludden Real Estate Loan Fund.

## THE FRANK O. LOWDEN PRIZES

The annual income from \$3,000 is given as two prizes of \$100 and \$50 to the winners of first and second places in the contest of the Northern Oratorical League. The members of this league are the University of Michigan, Northwestern University, the University of Wisconsin, the University of Iowa, the University of Illinois, and the University of Minnesota.

THE FRANK H. PEAVEY PRIZE

This prize of \$100 is divided equally among the members of the team winning the annual freshman-sophomore debate.

THE JOHN S. PILLSBURY PRIZES

Three prizes of \$100, \$50, and \$25, respectively, are awarded annually to the winners of the first three places in the Pillsbury Oratorical Contest. The winner of the first prize becomes the representative of the University in the annual contest of the Northern Oratorical League.

ZETA ALPHA PSI PRIZES

Gift of \$40 annually from the Zeta Alpha Psi, forensic sorority of the University of Minnesota, for the establishment of the Zeta Alpha Psi prizes of \$25 and \$15 for first and second places in the annual extemporaneous speaking contest.

CLASS OF 1911 MEMORIAL TRUST FUND PRIZES

A prize of \$40 has been provided by the alumni of the Class of 1911 for an annual contest to encourage original dramatic writing. Plays must be submitted by March 1.

THE ALUMNI WEEKLY GOLD MEDAL

This medal is awarded annually on the recommendation of the faculty members of the Senate Committee on Debate and Oratory to that member of the graduating class who has made the best record in public speaking during his college course. In the absence of a suitable candidate, the committee may withhold the award.

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.

THE MINNESOTA QUARTERLY AWARD

*The Minnesota Quarterly* offers two prizes of \$15 each, one for the best prose article published in the magazine during the year, and the other for the best poem. These prizes must not be awarded to members of the editorial board.

ISRAEL W. CROSLY BEQUEST

Israel W. Crosley of St. Paul, Minnesota, bequeathed to the University of Minnesota and established the "Crosley Benevolent and Educational Fund." This is to help individuals in obtaining an education in the higher institutions of learning and especially in the University, preference to be given at all times to needy young men and women of African descent.

## FOR WOMEN STUDENTS

## THE MRS. GEORGE C. CHRISTIAN SCHOLARSHIP

Through the generosity of Mrs. George C. Christian, a scholarship amounting to \$100 annually is available for young women of high scholarship and fine character. Application may be made to the dean of women before May 1.

## THE NINA MORAIS COHEN SCHOLARSHIP

The Nina Morais Cohen Scholarship, given by the Council of Jewish Women, is awarded annually to a woman student of Jewish descent. Applications may be made to the dean of women before May 1.

## THE MRS. GEORGE P. DOUGLAS SCHOLARSHIP

Through the generosity of Mrs. George P. Douglas, a scholarship amounting to \$100 annually is available for young women of high scholarship and fine character. Application 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 \$150 to be awarded to some woman student. Applications may be made to the dean of women before May 1.

## THE P. E. O. SCHOLARSHIP

The P. E. O. organization gives annually a scholarship of \$100 to some woman student of high scholarship and fine character. Applications may be made to the dean of women before May 1.

## ST. PAUL COLLEGE CLUB SCHOLARSHIPS

The St. Paul College Club offers annually several scholarships to women students. Applications may be made to the secretary of the club before May 1.

## SIGMA THETA PI SCHOLARSHIP

A scholarship awarded on the basis of scholarship, character, and need to a Jewish woman student.

## THE W.S.G.A. SCHOLARSHIPS

The Women's Self-Government Association of the University offers annually several scholarships of \$100 and \$150, preference being given to women of the junior or senior class. Applications may be made to the dean of women before May 1.

## EIGHTH WARD WOMEN'S CHRISTIAN TEMPERANCE UNION LOAN FUND

A gift of \$100 was made by the above organization to establish a loan fund. The money is to be repaid by the borrowers within two years after graduation.

## THE DAUGHTERS OF THE AMERICAN REVOLUTION LOAN SCHOLARSHIP

Through the generosity of the Daughters of the American Revolution a loan of \$800 has been made available to the women students of the University of Minnesota. Application is made through the office of the dean of women, under the same conditions as for regular university loans. Interest is at the rate of 4 per cent, beginning at the time of the student's leaving school. The applications are passed on by a committee from the state organization, juniors and seniors being given preference.

## FACULTY WOMEN'S CLUB LOAN FUND

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.

EDWARD M. AND EFFIE R. JOHNSON FOUNDATION LOAN FUND  
FOR GIRLS

A gift of \$5,000 from the above foundation was received, the income of which is to be used as a loan fund for girls.

## JESSIE S. LADD LOAN FUND

The Minneapolis Alumnae Club has established a small loan fund known as the Jessie S. Ladd Loan Fund to be used for assisting women students. This loan fund is used as an emergency loan fund for short time loans to students. Applications may be made to the dean of women at any time.

## THE MINNEAPOLIS COLLEGE WOMEN'S CLUB LOAN FUND

The College Women's Club of Minneapolis has established a small loan fund to be used for assisting women students. This loan fund is used as an emergency loan fund for short time loans to students. 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 MINNEAPOLIS PATHFINDERS' CLUB LOAN FUND

The Pathfinder's Club of Minneapolis has established a small loan fund to be used for assisting women students. This loan fund is used as an emergency loan fund for short time loans to students. Applications may be made to the dean of women at any time.



THE MINNESOTA FEDERATION OF WOMEN'S CLUBS LOAN  
SCHOLARSHIPS

The Minnesota Federation of Women's Clubs has charge of the 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.

PROFESSIONAL SORORITY COUNCIL LOAN FUND

Income from sum of \$200 to be used as loans to needy women students, preference given to senior girls. An advisory committee consisting of one member from each sorority together with a faculty adviser recommend the candidate for the loan.

ST. PAUL ALUMNAE LOAN FUND

The alumnae of St. Paul have established a small loan fund to be used for assisting women students. This loan fund is used as an emergency loan fund for short time loans to students. Applications may be made to the dean of women at any time.

KAPPA RHO AWARD

A cup is awarded annually to that woman member of the senior class who has been outstanding in ability and achievement in one or more of the speech arts. Recommendation of candidate is made by a committee of five, three members of which are appointed by the chairman of the Department of Speech, and two members by Kappa Rho. In the absence of a suitable candidate the committee may withhold the award.

THE W.S.G.A. AWARD

The W.S.G.A. Scholarship tablet is inscribed annually with the name of that young woman who has attained the highest average during her first college year.

AGRICULTURE, FORESTRY, AND HOME ECONOMICS

THE AGRICULTURAL FACULTY WOMEN'S CLUB SCHOLARSHIPS

The Agricultural Faculty Women's Club offers two scholarships of \$50 each which are available to students of the Division of Home Economics. In awarding these, 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 ALPHA ZETA SCHOLARSHIP

The active chapter of Alpha Zeta offers a scholarship of \$50. Award is made, without application, to that male student of good moral character, who shall have attained the highest average scholastic record while a student in the freshman class in the College of Agriculture, Forestry, and Home Economics. Scholarship is granted with the understanding that the recipient will continue to pursue his work in agriculture or forestry in this college. Awards made through regular channels provided by faculty.

## HENRY WEBB BREWSTER SCHOLARSHIP

This scholarship of \$250 is donated by Mrs. Florence A. Brewster in honor of her husband, the late Henry Webb Brewster, formerly principal of the Central School of Agriculture, University of Minnesota. It is open to students in the College of Agriculture, Forestry, and Home Economics under the following conditions as stated by the donor: "The beneficiaries must be young men or young women who are and must continue of exemplary moral character and of temperate and industrious habits. They must be such as by trial and examination shall evince and maintain a habit and aptitude for study and improvement. Any student who shall fail to come or cease to be within the above conditions shall forfeit all claims to the benefits of these scholarships. It is my preference that such scholarships be awarded to needy students who would otherwise be unable to gain educational advantages."

## MARY L. BULL SCHOLARSHIP FUND

A gift of \$500 from the Alpha Alumnae Chapter of Phi Upsilon Omicron for the establishment of the Mary L. Bull Scholarship fund. The income may be used for scholarships, or grants, for needy and worthy students enrolled in courses in Home Economics.

## CALEB DORR COLLEGE SCHOLARSHIPS AND MEDALS

Donated by the late Caleb Dorr of Minneapolis, Minnesota. Awarded to students in the College of Agriculture, Forestry, and Home Economics on the basis of scholastic record in college. Sophomore scholarships: two of \$50 each, one for men and one for women. Junior scholarships: two of \$50 each, one for men and one for women. Senior scholarships: two gold medals, one for men and one for women.

Special grants: Awarded to students of the college who have maintained a creditable scholastic record in college and who have made a significant achievement in necessary self-support. Amounts and distribution determined by special faculty committee.

## CALEB DORR FRESHMAN COLLEGE SCHOLARSHIPS

Open to entering freshmen in the College of Agriculture, Forestry, and Home Economics. Donated by the late Caleb Dorr, of Minneapolis, Minnesota. Awarded to graduates of high schools of Minnesota and schools of agriculture of the University of Minnesota, on the basis of scholarship

and achievement in self-support during high school course and on need for financial assistance, objectives and aims in college course, and qualifications for public service and leadership. The amount of the scholarship is \$100. The number awarded depends upon funds available. None offered for the year 1932-33.

#### SAMUEL B. GREEN SCHOLARSHIP

Through the generosity of Mrs. Samuel B. Green the income from \$1,000 will be available annually for a scholarship to be awarded to a senior in Forestry having the highest scholastic record.

#### HOME ECONOMICS ASSOCIATION SCHOLARSHIP

The Home Economics Association of the College of Agriculture, Forestry, and Home Economics offers a scholarship of \$50 to students in the Division of Home Economics. Any student in the division is eligible. The scholarship is awarded on the following basis: spirit of service, financial need, professional attitude, character, and an honor point ratio of 1.5 or above, and ideals and standards consistent with those set up by the Division of Home Economics. The award is in the hands of a faculty committee from the Division of Home Economics. Applications may be made to the chief of the Division of Home Economics.

#### MINNESOTA HOME ECONOMICS ASSOCIATION FRESHMAN SCHOLARSHIP

A \$100 scholarship for freshman girls in the Division of Home Economics. The award is to be made by the faculty of the College of Agriculture, Forestry, and Home Economics, on the basis of character, scholarship, achievement, need of financial help, and especially upon promise of leadership.

#### 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 may be made to the chief of the Division of Home Economics.

#### PULLMAN COMPANY SCHOLARSHIPS

These are awarded to the University of Minnesota on the basis of prizes taken by stock at the International Show held annually in Chicago. They become the permanent property of the University. The scholarships are awarded in the form of loans to students. When the loans are paid back, the money becomes again available for award to other students of agricultural courses. For information consult the head of the Division of Animal Husbandry. At the present time only one prize of \$125 is offered.

## 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.

## MARY DWIGHT AKERS LOAN FUND FOR FORESTRY STUDENTS

Established by Emily Speechley Whitacre, of St. Paul, Minnesota, "in recognition of the interest and work of the Fourth District, Minnesota Federation of Women's Clubs, in conservation and reforestation, and especially of the effective work of Mrs. C. N. Akers, chairman of the Outdoor Life Committee of that organization, and with a hearty appreciation of the work which the students and faculty of the Forestry Department of the University of Minnesota are doing in the cause of forestry and conservation," and "to assist worthy and needy students in the study of Forestry and to establish a permanent memorial to the great work of the Outdoor Life Committee, Fourth District Minnesota Federation of Women's Clubs." The amount of this loan fund is \$4,000.

## AGRICULTURAL FACULTY WOMEN'S CLUB LOAN FUND (Home Economics)

The Agricultural Faculty Women's Club has established a \$500 loan fund for the use of undergraduate and graduate students in the home economics course. The fund will be governed by the university rules and regulations for loan funds.

## AGRICULTURAL FACULTY WOMEN'S CLUB LOAN FUND

The Agricultural Faculty Women's Club has established a loan fund for the use of undergraduate students in the College of Agriculture, Forestry, and Home Economics.

## 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.

## DR. NELLIE WELCH NELSON HOME ECONOMICS STUDENT LOAN FUND

Gifts from the Fourth District of the Minnesota Federation of Women's Clubs for the establishment of the Dr. Nellie Welch Nelson Home Economics Student Loan Fund. The principal and interest are to be available for loans to girls in the Division of Home Economics under the usual conditions governing the use of university student loan funds.

## ST. ANTHONY PARK WOMEN'S ASSOCIATION LOAN FUND

Gift of \$375 from the St. Anthony Park Women's Association for the establishment of a loan fund for needy women students in the College of Agriculture, Forestry, and Home Economics.

## ST. PAUL HOUSEWIVES LEAGUE LOAN FUND

Established in 1931 by members of the St. Paul Housewives League. The fund is available to worthy students in the College of Agriculture, Forestry, and Home Economics.

## JUNIATA SHEPPERD LOAN FUND

Gift of \$208.74 to be known as the Juniata Shepperd Loan Fund. The principal and income to be used for loans. Women students needing financial aid in the School and College of Agriculture and graduates in the Division of Home Economics are eligible.

## DOROTHY M. WINTER MEMORIAL FUND

A gift of \$500 to be used as a revolving loan fund in the College of Agriculture for the benefit of daughters or sisters of World War veterans, pursuing work in home economics, or any other course within that college leading to a degree from the College of Agriculture, and fulfilling the requirements of said College of Agriculture.

## A. D. WILSON PRIZE

The income from a fund of \$322.30 contributed by friends of A. D. Wilson, awarded to the student in the College of Agriculture, Forestry, and Home Economics who submits the best essay on co-operation in agriculture.

## GIDEON MEMORIAL PRIZE

The Gideon Memorial Fund of \$500 was raised by members of the State Horticultural Society and presented to the University of Minnesota in 1908 in honor of Peter M. Gideon, Excelsior, the originator of the Wealthy apple, with the stipulation that the income from this fund be used for a prize in some annual competition open to students in horticulture. The annual income from the investment of this capital amounts to \$25, payable \$12.50 semiannually in May and November. This competition has taken the form of papers prepared on some horticultural subject and delivered at the annual meeting of the State Horticultural Society. In odd numbered years the competition is open to college students and in even numbered years to the students of the School of Agriculture. Arrangements for contests are in charge of the Division of Horticulture.

## CHARLES LATHROP PACK FOUNDATION FORESTRY PRIZES

Gift of \$2,000 from Charles Lathrop Pack of which the income is to be used for two prizes for the best essays or other evidence of accomplished work in the interests of public co-operation and public appreciation of forestry. Open to all undergraduates specializing in forestry.

## CENTRAL CO-OPERATIVE ASSOCIATION

The Central Co-operative Association, a co-operative livestock marketing organization in South St. Paul, offers a medal in the form of a watch fob to each student standing highest in judging beef cattle, horses, swine, and sheep.

## DEAN E. M. FREEMAN MEDAL FOR STUDENT LEADERSHIP

An annual medal to the senior student who has made the greatest contribution to student life on the University Farm campus.

## THE TOMHAVE MEDAL

Provided by W. H. Tomhave, alumnus of the College of Agriculture (Class of 1907). Awarded to the student who proves himself the most proficient in judging all classes of livestock. For conditions of competition see the head of the Division of Animal Husbandry.

## BUSINESS ADMINISTRATION

## WAYNE E. BUTTERBAUGH SCHOLARSHIP MEMORIAL LOAN FUND

Cash from various individuals and organizations to be used as a loan fund under general university regulations to students who have indicated a special interest in the field of traffic management.

## THE MINNEAPOLIS ADVERTISING CLUB SCHOLARSHIP

The Minneapolis Advertising Club awards annually in June a scholarship of \$100 to a senior student in the School of Business Administration on vote of a committee consisting of the dean of the School of Business Administration, two other faculty members appointed by the dean, and the president and secretary of the Minneapolis Advertising Club.

## AMERICAN BANKER'S ASSOCIATION LOAN SCHOLARSHIP

The American Banker's Association has allocated two loan scholarships of \$250 each to the University of Minnesota. These loan scholarships are available to students majoring in banking and finance. Applications are made to a committee on which there is representation from the Banker's Association.

## F. D. LINDQUIST LOAN FUND

The sum of \$500 is available as a loan to students in the School of Business Administration in need of financial assistance.

MINNEAPOLIS WOMEN'S ADVERTISING CLUB SCHOLARSHIP—  
LOAN FUND

A gift of \$125 from the Minneapolis Women's Advertising Club and the Business Women's Club of the University of Minnesota for a loan fund for women senior students in the School of Business Administration. These loans are to be awarded in the spring of the junior year to cover expenses of the senior year.

## DENTISTRY

## DELTA SIGMA DELTA LOAN FUND

A loan fund of \$750 to assist eligible and deserving dental students, preference being given to the needs of members of Delta Sigma Delta dental fraternity.

MINNEAPOLIS DISTRICT DENTAL SOCIETY—WOMAN'S AUXILIARY—  
LOAN FUND

A loan fund of \$500 to assist needy and worthy students who are registered in the College of Dentistry, and who are American citizens and residents of Minnesota.

## ALPHA KAPPA GAMMA PRIZE IN DENTAL HYGIENE

The active chapter of Alpha Kappa Gamma Sorority offers an annual prize of ten dollars (\$10) in gold to the girl graduating from the School for Dental Hygienists, who presents the highest scholastic average, having completed her entire course at the University of Minnesota.

## ENGINEERING, ARCHITECTURE, AND CHEMISTRY

## TAU BETA PI PRIZE

The Minnesota Chapter of Tau Beta Pi awards annually a prize of the value of \$25 to a freshman in the College of Engineering and Architecture, the School of Chemistry, or the School of Mines and Metallurgy on the basis of high scholarship and merit.

## AMERICAN SOCIETY OF CIVIL ENGINEERS, NORTHWESTERN SECTION

The Northwestern Section of the American Society of Civil Engineers offers prizes to the amount of \$40 annually to upper class students in the course in civil engineering on the basis of scholarship.

## AMERICAN SOCIETY OF MECHANICAL ENGINEERS PRIZE

The American Society of Mechanical Engineers gives annually \$75 for three prizes, open to members of the University of Minnesota student chapter of the society, for the best original paper adjudged from the standpoint of applicability, value as a contribution to mechanical engineering literature, completeness, originality of manner, and conciseness. Papers must be submitted before June 30.

## A. S. M. E. PRIZES IN MECHANICAL ENGINEERING

The Twin City section of the American Society of Mechanical Engineers has established three prizes aggregating \$75 for seniors in mechanical engineering who are members of the student branch of the society on the basis of technical papers presented in one of the regular senior courses.

## CHI EPSILON PRIZE IN CIVIL ENGINEERING

The Minnesota Chapter of Chi Epsilon, honorary civil engineering fraternity, provides an annual prize consisting of an engineer's handbook or its equivalent to the regular sophomore in civil engineering who has the highest scholastic average for the first five quarters of his course in the College of Engineering and Architecture.

## ETA KAPPA NU PRIZE IN ELECTRICAL ENGINEERING

The Omicron Chapter of Eta Kappa Nu, honorary electrical engineering fraternity, awards an annual prize consisting of an electrical engineering handbook or its equivalent to the regular sophomore in electrical engineering who has maintained the highest scholastic standing during his first five quarters in residence in the College of Engineering and Architecture.

## PI TAU SIGMA PRIZE IN MECHANICAL ENGINEERING

The Minnesota Gamma Chapter of Pi Tau Sigma, honorary mechanical engineering fraternity, presents each year a *Mechanical Engineers' Handbook* to the sophomore in mechanical engineering who earned the highest scholastic average in his class in his freshman year.

## ENGINEERS BOOKSTORE LOAN FUND

The Engineers Bookstore of the University of Minnesota has established a loan fund of \$1,000, primarily for the use of students in the College of Engineering and Architecture, the School of Chemistry, and the School of Mines and Metallurgy.

## MAX TOLTZ (A. S. M. E.) LOAN FUND

Through the American Society of Mechanical Engineers, members of the University of Minnesota student chapter of the society have access to a loan fund established by the gift of \$15,000 from Major Max Toltz, of St. Paul. Applications should be made through the head of the Department of Mechanical Engineering.

## THE ALBERT MOORMAN MEMORIAL FELLOWSHIP IN ARCHITECTURE

A. Moorman and Company, of Minneapolis, contribute an annual fellowship for excellence in senior architectural design as determined by a competition and the award of a committee of judges. The fellowship consists of a sum of money sufficient to cover the traveling expenses of the recipient on a trip after graduation to study notable examples of architecture in this country.

## ALPHA ALPHA GAMMA PRIZE IN ARCHITECTURE

An annual prize of \$15 in books is provided by the Alpha Alpha Gamma Sorority, to be awarded to the author of the design placed first in a designated competition consisting of one of the regular long problems in the sophomore course in design in the School of Architecture.

## MINNEAPOLIS CHAPTER, AMERICAN INSTITUTE OF ARCHITECTS

The Minnesota Chapter of the American Institute of Architects contributes annually two prizes of books to the value of \$50 and \$25 to the students attaining the two highest general averages in the work of the junior year of the course in architecture.



## ARCHITECTURE FACULTY PRIZES

The faculty of the School of Architecture awards annual prizes of books to the value of \$35 and \$15, respectively, to the students attaining the first and second highest general averages in the sophomore year of the courses in architecture and architectural engineering.

## GARGOYLE CLUB PRIZES IN ARCHITECTURE

The Gargoyle Club has established two annual prizes of \$35 and \$15, respectively, in books, for a special design competition in the School of Architecture.

## MAGNEY AND TUSLER PRIZES IN ARCHITECTURE

Two annual prizes of \$20 and \$10, respectively, are provided by Magney and Tusler, architects, of Minneapolis. They will be awarded to the authors of the designs placed first and second in a sketch competition, the subject of which pertains to civic beautification.

## WILLIAM A. FRENCH PRIZES IN INTERIOR ARCHITECTURE

Mr. William A. French, of Minneapolis, has established two annual prizes of \$15 and \$10, respectively, for a design competition open to seniors in the course in interior architecture.

NORTHERN STATES POWER COMPANY PRIZES IN  
INTERIOR ARCHITECTURE

Two prizes of \$25 and \$15, respectively, have been established by the Northern States Power Company of Minneapolis to be awarded each year to students in interior architecture for the best solutions of problems involving special concealed or built-in lighting features.

## HORTON ART SCHOLARSHIP AND LOAN FUND

Annual income from \$1,000 donated by Edith Lee Horton as a memorial to her father, Dr. William Dixon Horton, is available for loans or scholarships to junior and senior students in art classes.

## ALPHA RHO CHI MEDAL IN ARCHITECTURE

The National Architectural fraternity, Alpha Rho Chi, has established an annual award of a medal to be given to that graduating senior in the School of Architecture who is selected by the faculty as having shown an ability for leadership, performed willing service for his school and department, and who gives promise of real professional merit through his attitude and personality.

## 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.

## SCARAB MEDAL IN ARCHITECTURE

The Scarab Fraternity provides an annual silver medal, to be awarded to the student winning first place in a designated design competition in the regular work of the junior year in the course in architecture.

THE DU PONT FELLOWSHIP IN CHEMISTRY AND  
CHEMICAL ENGINEERING

This fellowship, established by E. I. du Pont 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.

## SHEVLIN FELLOWSHIP IN CHEMISTRY

A fellowship of \$500 open to graduates of any acceptable college or university.

## ALPHA CHI SIGMA TWIN CITY ALUMNI PRIZE IN CHEMISTRY

The Twin City Alumni Association of Alpha Chi Sigma Fraternity offers an annual prize of books to the value of \$10 to that male sophomore in the School of Chemistry having the highest scholastic average at the end of the winter quarter.

## FACULTY PRIZE IN THE SCHOOL OF CHEMISTRY

Gift of \$25 annually from the faculty of the School of Chemistry for the establishment of an annual prize of \$25 in scientific books or journals to the senior who, while registered in the School of Chemistry, has attained the highest scholastic average in the work of the sophomore and junior years and the first two quarters of the senior year.

## PHI LAMBDA UPSILON PRIZE IN CHEMISTRY

Phi Lambda Upsilon, national honorary chemical fraternity, offers an annual prize of \$15 to that male sophomore student registered in the School of Chemistry, or specializing in agricultural biochemistry, who shall have the highest scholastic standing up to the beginning of the spring quarter, as certified by the registrar upon a prescribed basis.

## LAW

## LAW ALUMNI ASSOCIATION SCHOLARSHIP

A varying number of scholarships of \$150 each are awarded to the students of the junior and senior classes who have made the most meritorious records in their work and qualify for the Board of the *Minnesota Law Review*.

## LAW FACULTY SCHOLARSHIPS

Law faculty scholarships of \$150 each are awarded to students in the senior class of the Law School who have done meritorious work in their classes and on the *Minnesota Law Review* up to the date of the award.

## MINNESOTA LAW REVIEW SCHOLARSHIP

A scholarship of \$150 awarded to a student in the senior class who has done meritorious work in his classes and on the *Minnesota Law Review* up to the date of the award.

## LAW ALUMNI LOAN FUND

A sum has been provided by the alumni of the Law School for loans to law students. Loans are made in sums not exceeding \$200. Preference is given to students on the Editorial Board of the *Minnesota Law Review*. Application may be made to the dean of the Law School.

## MEDICINE

## 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.

## CHARLES LYMAN GREENE PRIZE IN PHYSIOLOGY

Certificate of merit and a prize of \$100 from the Minnesota Society of Internal Medicine for the establishment of the Charles Lyman Greene Prize in Physiology. It is offered to an undergraduate medical student for the most meritorious thesis upon a subject in physiology which is closely related to clinical medicine.

## MINNEAPOLIS GENERAL HOSPITAL FELLOWSHIPS

Gift provides four fellowships in medicine, two in surgery, and one in pediatrics. These are first year fellowships at \$500 per year.

## RAMSEY COUNTY MEDICAL AUXILIARY LOAN FUND

Gift of \$300 from the Ramsey County Medical Auxiliary for two loan funds of \$150 each available for needy and worthy students in the Medical School.

MINNESOTA STATE ORGANIZATION FOR PUBLIC HEALTH NURSING  
LOAN FUND

The sum of \$500 has been donated from the Minnesota Organization for Public Health Nursing to be available for loan fund purposes for deserving and needy students in Public Health Nursing.

## LOUISE M. POWELL PRIZE

A gift of \$50 annually from the Alumnae Association of the School of Nursing for the establishment of the Louise M. Powell Prize of \$25 to be awarded at the March and June commencements to the student in the School of Nursing of the University of Minnesota who has attained the highest degree of efficiency in practical work.

## MARION L. VANNIER SCHOLARSHIP

Gift of \$100 annually from the Nurses Self-Government Association of the University of Minnesota for the establishment of the Marion L. Vannier Scholarship. The recipient of this scholarship must be a graduate of the School of Nursing of the University of Minnesota. The scholarship is to be used for the purpose of higher education only, within two years after recipient's graduation.

## SOUTHERN MINNESOTA MEDICAL ASSOCIATION MEDAL

An annual gold medal and scroll to the member of the senior class of the Medical School showing the greatest degree of excellency in the clinical fields of medicine during his two last years in the Medical School.

## E. R. SQUIBBS AND SONS RESEARCH

A gift of \$1,000 for a fellowship in the Department of Pharmacology for the study of the properties of neocarsphenamine.

## MINES AND METALLURGY

## 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 and Metallurgy. The financial needs of the applicant, his scholarship, moral character, enthusiasm shown in his work, and promise of usefulness in the profession will be taken into consideration. Application may be made to the dean of the School of Mines and Metallurgy.

## TAU BETA PI PRIZE

The Minnesota Chapter of Tau Beta Pi awards annually a prize of the value of \$25 to a freshman in the College of Engineering and Architecture, the School of Chemistry, or the School of Mines and Metallurgy on the basis of high scholarship and merit.

## PHARMACY

## MINNESOTA STATE PHARMACEUTICAL ASSOCIATION SCHOLARSHIP

A scholarship amounting to \$105 in cash 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 first two years 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.

## LEHN AND FINK GOLD MEDAL

Messrs. Lehn and Fink, of New York City, award annually a gold medal to that student in the College of Pharmacy who graduates with the highest general average rating.

## SCIENCE, LITERATURE, AND THE ARTS

## THE AMERICAN LEGION AUXILIARY SCHOLARSHIP

The American Legion Auxiliary established a scholarship of \$100 a year, the award to go to some woman student majoring in sociology with special service among the foreign born.

## DELTA PHI DELTA LOAN FUND

A gift of \$100 from the above organization to be used as a loan fund to students whose major subject is art.

## DELTA SIGMA PSI SCHOLARSHIPS

One or more scholarships of \$25 each are offered annually by Delta Sigma Psi, honorary Norwegian culture fraternity. The applicants must have at least 25 university credits or their equivalent in Norse and promise to continue the study of Norse so as to earn 9 additional credits after applying for the scholarship. Applications must be made to the secretary not later than May 1.

## CAPTAIN DeWITT JENNINGS PAYNE MEMORIAL SCHOLARSHIPS

Under the will of the late Olive Payne Stover, of Chicago, the University was given securities amounting to \$15,615.24. This bequest was for the purpose of establishing one or more scholarships in the Department of English. Only the income is to be used.

## HORTON ART SCHOLARSHIP AND LOAN FUND

Annual income from \$1,000, donated by Edith Lee Horton as a memorial to her father, Dr. William Dixon Horton, is available for loans or scholarships to junior and senior students in art classes.

## THE MOSES MARSTON SCHOLARSHIP IN ENGLISH

This scholarship of \$75 is to be used to further English study, and is awarded to the English Department as a recognition of special capacity for literary and linguistic studies.

## THE MINNESOTA GRAND ARMY OF THE REPUBLIC AND WOMEN'S RELIEF CORPS SCHOLARSHIP AND LOAN FUND

A gift of \$100 from the Department of Minnesota Women's Relief Corps, Auxiliary to the Grand Army of the Republic, for a scholarship and loan fund for a student in the College of Science, Literature, and the Arts, preference to be given to a descendant of a member of the Grand Army of the Republic.

## MU PHI EPSILON SCHOLARSHIP

Gift of \$50 from the Phi Beta Chapter of Mu Phi Epsilon Sorority for the establishment of an annual scholarship for junior and senior women music students.

## MUSIC SCHOLARSHIP

A gift of \$250 to a music student who shall be selected by the president and the head of the Music Department, who shall be guided solely by consideration of merit.

## THE '89 MEMORIAL PRIZE IN HISTORY

A prize of \$100 is offered biennially (odd years) for the best thesis in history, written from the sources. It is open to undergraduate and graduate students. It will not be offered until 1933.

## LAMBDA ALPHA PSI PRIZE

Lambda Alpha Psi, the honorary language society, in order to encourage independent work in languages and literature among the undergraduates of the University, offers two annual prizes of \$50 and \$25 for the best essays in this field.

## H. P. LINNER PRIZES

Gift of \$200 from Dr. H. P. Linner for three prizes—first, \$100; second, \$60; and third, \$40, to be awarded annually upon the recommendation of the Department of Scandinavian Languages for exceptional progress in the study of the Swedish language, for general scholarship, and for character and extra-curricular activities in promoting Swedish cultural interests at the University of Minnesota.

## 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 10,000 words, must be handed to one of the instructors in political science by May 1. The next award will be made in 1934.

## 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 field 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.

## CHI OMEGA PRIZE

The Chi Omega prize of \$25 is awarded annually to the woman student who has excelled in social work in the Department of Sociology. All senior women following the training course for social and civic work or one of the sequences of applied sociology are eligible for consideration. The award is made on the basis of academic standing plus personality, judged not only by instructors in the courses, but by the supervisors in social agencies who direct the practical work.

## HELEN DWAN PRIZE

Gift of \$2,100 from Mrs. Helen R. Dwan for the establishment of the Helen Dwan Fund, with the understanding that the income from this fund will be used as a prize to be awarded each year to a student in the Department of Music, junior or senior, and with the further understanding that the principal and income, either or both, may be used as a loan fund in the Department of Music.

## 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 clubhouse for such purpose." All men students of the University are active members of the Union. The membership fee is included in the incidental fee paid each quarter. The administration of the affairs of the Union is intrusted to a Board of Governors consisting of a male representative from each college or school elected at the annual spring election.

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, rooms for games, private dining rooms for students and faculty luncheons, and a ballroom.

The Union gives periodical social activities in the nature of an open house. Reservations for meeting rooms are made through the manager's office.

*The Women's Self-Government Association* is composed of all the women students of the University. Membership is automatic on the payment of registration fees. 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. Headquarters 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 *All-University Council* is composed of representatives of the senior and junior classes. There is one senior representative from each of the twelve colleges, and one junior representative elected for a term of two years, from each of three groups of colleges—professional, technical and academic-education. Its functions are: to recognize the common purpose and responsibility of students and faculty in the development and safeguarding of the University; to build and develop a spirit of co-operation; to represent the whole student body in matters affecting student interest; to afford a suitable medium for communication and contact between the student body and the university authorities; and to exercise general supervision over student activities of any all-university character.

*College councils.*—Most colleges of the University have their own councils articulating with the All-University Council and have similar functions.

### MISCELLANEOUS ORGANIZATIONS

There are at the University more than two hundred student organizations representing religious, ethical, literary, scientific, technical, 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 bulletin of general information, the annual announcement of individual colleges of the University, announcements of special courses of instruction, reports of officers, etc.

*The University Press.*—The University of Minnesota Press is a department of the University devoted primarily to the publication of books, both of general and of special scholarly and scientific interest. It also issues at irregular intervals the following series of research publications: Social Science Monographs, Publications of the Bureau for Research in Government, Monographs, Studies, and Reports in Education, Child Welfare Monographs, Language and Literature Series, Biological Sciences Series (including Minnesota Studies in Plant Science), Bulletins of the Minnesota Geological Survey, Bulletins of the Employment Stabilization Research Institute, Studies in Engineering, Bibliography Series, Syllabus Series. These publications are not for free distribution.

A complete catalog of the University of Minnesota Press will be furnished by the Press upon request.

*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 Official Daily Bulletin, published in *The Minnesota Daily*, 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 Gopher*, the senior annual, is a book published annually by the senior class of the University.

*The Minnesota Alumni Weekly*, issued each Wednesday during the university year, is published in the interests of alumni and the University.

*Minnesota Chats* is a monthly publication of general university character designed to carry to the Minnesota public the more interesting problems and achievements of the state's principal educational institution. It is sent without charge to those who ask to be placed on its lists.

*The Minnesota Quarterly*, a literary magazine, is published three times during the university year, by a student editorial board of five members. It is devoted to the publication of the best literary work done by the students of the University.

*The Bulletin of the Engineering Experiment Station* is devoted to reports and announcements regarding the activities of the station and the various investigations carried on under its auspices.

*The Techno-Log* is issued monthly during the academic year by students in the College of Engineering and Architecture, and the School of Chemistry. It is devoted to articles on engineering subjects and to student and alumni news.

*The Minnesota Mentor* is issued at least three times a year by students in the College of Education. It is devoted to matters of interest to undergraduate and graduate students in education.

*The Interpreter*, issued by the General Extension Division monthly, September to June, is a four-page paper containing articles pertaining to adult education and news of interest to those served through the General Extension Division.

*The Minnesota Business Review* is a quarterly published by a board of faculty and student members. It is devoted to articles of current interest in fields of business and economic research.

*The Agricultural Experiment Station Bulletins* give the results of experiments carried on at University Farm and at the branch stations at Crookston, Morris, Grand Rapids, Duluth, Waseca, Cloquet, and Zumbra Heights, as rapidly as such work is completed or as soon as conclusions of economic value are reached. At least four bulletins are published annually; usually the number is much larger. An *Annual Report* of the station and branch stations summarizes the work accomplished from year to year.

*The Agricultural Extension Division Special Bulletins*, and *Circulars*, are series of popular pamphlets issued by the Agricultural Extension Division, designed to inform farmers and others interested as to methods tried out at the Experiment Station and its branches, or elsewhere under the direction of the station staff, and approved as good practice in Minnesota.

*The News Letter* is a weekly clip sheet issued by the Agricultural Extension Division, containing items of news and agricultural information for reprinting in the newspapers of the state.

*The Minnesota Extension News* is a monthly publication intended as a medium for the exchange of news among those connected with the agricultural extension activities in the state.

*The Visitor* is a news letter issued monthly by the Division of Agricultural Education of the College of Education and the College of Agriculture, Forestry, and Home Economics, for teachers of agriculture, superintendents of schools, and students of education under the division named.

*The Gopher Peavey* is a booklet published annually by the students in the Forestry course of the College of Agriculture, Forestry, and Home Economics.

*The News of the School of Agriculture* is a newspaper issued during the months of October, November, December, January, February, March, June, and August by the Central School of Agriculture as a means of keeping students and alumni informed of the activities of the school and its students.

*The Agrarian* is a book published annually by the senior class of the Central School of Agriculture.

*The Northwest Monthly* is a small paper published to report activities at the Northwest School and Station at Crookston.

*The West Central School News* is a quarterly, four-page newspaper, giving reports of the activities of the West Central School of Agriculture and the Experiment Station at Morris.

*The Red River Aggie* is a book published annually by the Northwest School of Agriculture.

*The Moccasin* is a book published annually by the West Central School of Agriculture.

*Minnesota Law Review*.—A legal magazine published monthly, December to June, inclusive, by the faculty and students of the Law School. It is the official journal of the Minnesota State Bar Association.

*School of Mines and Metallurgy Experiment Station Bulletins* contain reports 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 co-operation 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 Reports 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*; *Foundry Sands of Minnesota*; *A Contribution to the Geology of the Mesabi Range*; *A Guidebook to Minnesota Trunk Highway No. 1*; *The Geology and Magnetite Deposits of Northern St. Louis County*; *Geology and Water Resources of Northwestern Minnesota*. These are for sale by the University Press. A complete list will be sent on request.