

The Bulletin
of the
University of Minnesota



Course in
Applied Mortuary Science
1945-1946

CALENDAR

1945-46

Medical examination	Thursday, Friday, Saturday September 27, 28, 29, 1945
Last day for fall quarter registration	Saturday, September 29
Fall quarter classes begin	Monday, October 1
Armistice Day, a holiday	Monday, November 12
Thanksgiving Day, a holiday	Thursday, November 22
Fall quarter closes (Christmas recess)	Friday, December 21
Last day for winter quarter registration	Saturday, January 5, 1946
Winter quarter classes begin	Monday, January 7
Lincoln's Birthday, a holiday	Tuesday, February 12
Washington's Birthday, a holiday	Friday, February 22
Winter quarter closes	Friday, March 22
Last day for spring quarter registration	Saturday, March 30
Spring quarter classes begin	Monday, April 1
Memorial Day, a holiday	Thursday, May 30
Minnesota State Board examination (Final examinations)	Monday, Tuesday, Wednesday, June 17, 18, 19
Spring quarter closes	Friday, June 21

Students in the Course in Applied Mortuary Science will have a Christmas recess from December 21 to January 7.

EXAMINATIONS

On June 17, 18, 19, 1946, will be held the State Board examination for license, as well as the final examinations of the Course in Applied Mortuary Science.

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April 18, 1945

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The Course in Applied Mortuary Science

The University of Minnesota, through the co-operation of the Medical School and other schools of the University, the Minnesota State Department of Health, and the Minnesota Funeral Directors' Association, announces the thirty-third annual session of the Course in Applied Mortuary Science, October 1, 1945 to June 21, 1946. This is a nine-month course, conducted in three university quarters of twelve weeks each. The course is open to both men and women. The Course in Applied Mortuary Science is accredited by the National Council on Mortuary Education.

HISTORY

The course of instruction for the mortician was established at the University of Minnesota by act of the Board of Regents on April 4, 1908. No effective organization was made, however, and the work lapsed until it was resumed in 1914 by the Medical School. The first session began January 5, 1914, and lasted six weeks; only an eighth grade education was required for entrance. In 1916 the course was extended to eight weeks, and one year of high school work was required for admission. Since then, the length of the course has been successively extended to twelve weeks, twenty-four weeks, and in 1932 to thirty-six weeks. Graduation from high school is now required for entrance. Since 1921, the General Extension Division has had the administrative control of the course. In 1944 the name was changed from Course in Embalming to Course in Applied Mortuary Science.

PURPOSE

The work of the Course in Applied Mortuary Science combines instruction in the necessary basic sciences, training in the technical details of practical embalming, and instruction in business methods and procedures and in those subjects required by the State Department of Health as essential to the welfare of the community. The aim is to convey that knowledge which is requisite to conducting a business of this kind in the interest of the general public. All instruction is on the college level.

ADVANTAGES

A student in the Course in Applied Mortuary Science at the University of Minnesota has certain advantages. The instruction is given by members of the faculties of the Medical School, Institute of Technology (School of Chemistry, School of Architecture—Art, Design, Modeling, and School of Mines and Metallurgy), School of Business Administration, College of Science, Literature, and the Arts, and Division of Forestry. All necessary laboratory and classroom facilities of the several departments of the University are utilized, and equipment and supplies are adequate. University standards of instruction and achievement are maintained. This course is

comparable to other university courses, and students who successfully complete it are granted a university certificate.

The Twin Cities, Minneapolis and St. Paul, with a population of nearly a million people offer abundant facilities for clinical study.

VOCATIONAL ADVICE

If prospective students have any doubt as to their probable success or satisfaction as morticians it would be well for them to consult all available sources of information regarding the nature of the work and the personal traits necessary for success in it. Two sources are: a monograph entitled *Mortuary Operation As a Career*, published and sold by the Institute of Research, 537 South Dearborn Street, Chicago, Illinois and a vocational guidance booklet now being published by the National Funeral Directors Association, 111 West Washington St., Chicago, Illinois. Another source is T. J. Bonniwell's *We Have To Die*, published by the Worthington Press, New York. Additional sources of information are the trade journals. Practicing embalmers and funeral directors should also be consulted.

ADVISERS

Mr. F. Lloyd Hansen, 405 Administration Building
Mr. Watson Dickerman, 404 Administration Building

These men are available for consultation in person or by letter with prospective students. They may be reached by calling the University of Minnesota, Main 8177, Station 244.

SPECIAL NOTICE FOR VETERANS

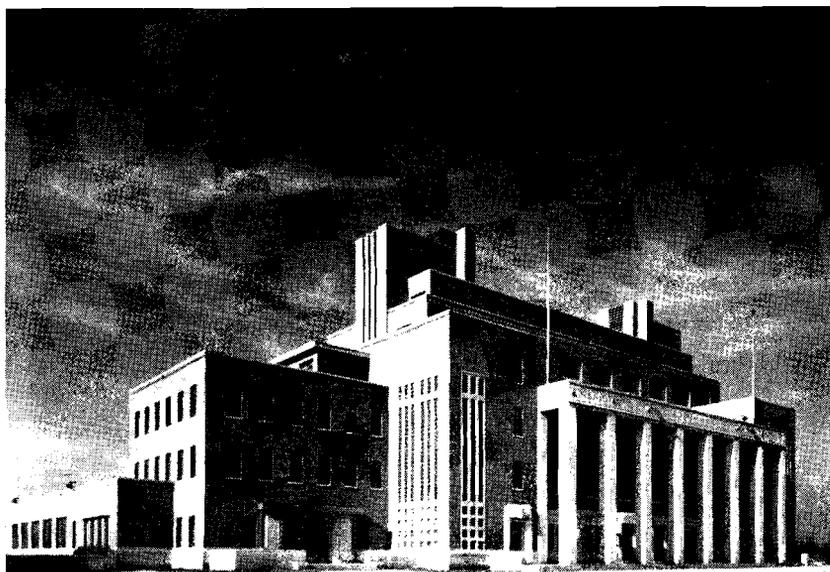
The Course in Applied Mortuary Science is approved by the Veterans Administration for training under Public Law No. 346 (popularly known as the G. I. Bill of Rights), and Public Law No. 16 (commonly known as Vocational Rehabilitation). Veterans who are interested in securing financial assistance from the government to pursue this course under either law can establish their eligibility by contacting the nearest Veterans Administration office.

SPECIAL NOTICE FOR WOMEN

In view of the present national emergency and the critical manpower shortage, it is strongly urged that women investigate the opportunities in this field. Women of all ages have successfully completed this course and obtained positions as embalmers and funeral directors.

AWARD

The Minnesota Funeral Director's Association will award at the graduation exercises, a certificate of merit to the outstanding student in Applied



Coffman Memorial Union Social Center

Mortuary Science. The student will be selected by a committee from the association, on the basis of scholarship, citizenship, professional attitude, and personality.

HEADQUARTERS OF THE COURSE

The office of the General Extension Division is also the office for the Course in Applied Mortuary Science in Room 402, Administration Building, on the University campus. This building may be reached by the Minneapolis-St. Paul street cars running via Washington and University Avenues. Passengers should get off at Washington Avenue S.E. and Church Street.

GENERAL INFORMATION

ADMISSION

General—As the Minnesota Department of Health admits to its examination for license only persons who are at least twenty years of age at the date of examination (June 17, 1946), applicants desiring a Minnesota license should be at least nineteen years of age when entering the Course in Applied Mortuary Science. Eighteen-year-old applicants from states other than Minnesota will be admitted to the Course in Applied Mortuary Science, provided they meet other necessary requirements. All applicants must be graduates of a four-year high school or of a three-year high school preceded by junior high school. An equivalent education properly certified may be accepted by the director. No previous experience in embalming is required for entrance to the course.

Special notice for Minnesota students—Students who desire to become eligible for the embalmer's license in the state of Minnesota (see pages 10-11) must have completed a year (45 quarter credits, or 30 semester credits, or their equivalent) of general study in an accredited college or university before entering the Course in Applied Mortuary Science. The General Extension Division will determine for applicants whether their work has been in an acceptable accredited institution. Those who do not conform to this rule will not be considered candidates for a license to practice in Minnesota. The subject matter to be covered in this study is not prescribed. It is recommended, however, that it include a full year of English composition, together with some work in general biology (botany, zoology, or human physiology), and in the social sciences (economics, political science, or sociology). Introductory work in such Course in Applied Mortuary Science subjects as accounting, art, and chemistry will also be useful.

N.B.—This year of college study must not be considered as prerequisite to admission to the Course in Applied Mortuary Science. Those not interested in a license to practice in Minnesota or in any other state having a college requirement may disregard it.

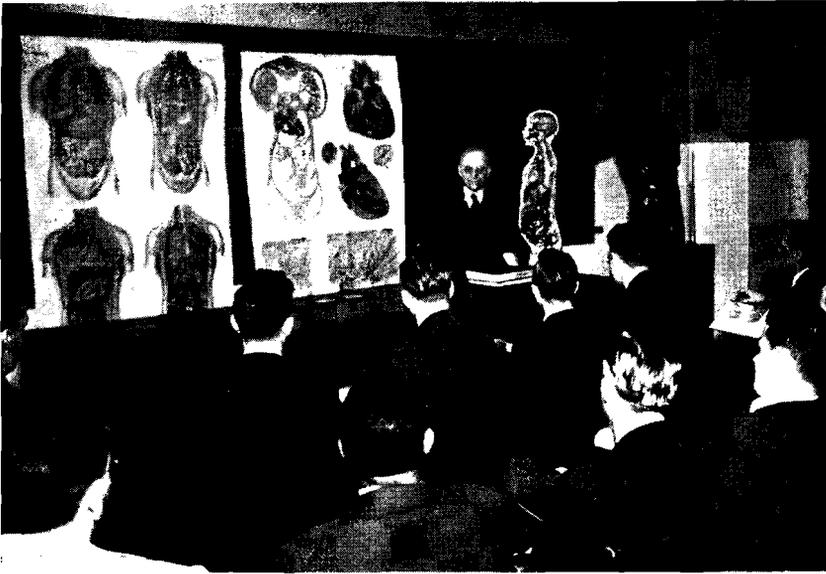
But prospective students should ascertain the exact requirements of their own state, or the state in which they hope to secure a license, before entering this or any other school.

Application for admission—Applicants for admission will be supplied with a standard blank which asks for certain information. This includes a certified statement from the high school principal, or other proper official, covering the applicant's high school record and an estimate of his probable success. If the applicant has studied at a collegiate institution beyond high school, the certified statement by the high school principal may be omitted but a similar certified statement must be submitted by the collegiate institution attended, showing the applicant's complete record, including an honorable dismissal. The application for admission, properly and completely filled out, should be sent to the General Extension Division for consideration. Applications, if satisfactory, will be accepted in the order of their receipt, and application for admission should therefore be filed as much in advance of the registration date as possible.

N.B.—The entrance date for the Course in Applied Mortuary Science is at the beginning of the fall quarter; students are ordinarily admitted only at this time.

REGISTRATION

Registration days—Persons whose applications have been accepted will register at Room 402, Administration Building, on the campus of the University of Minnesota. This registration must be completed by the payment of fees on or before Saturday, September 29, 1945, by twelve o'clock



Class in Lecture Room

noon. Late registrations accepted are subject to an extra fee (see Fees and Expenses, below).

FEES AND EXPENSES

Tuition—The tuition fee for residents of the state of Minnesota is \$50 for each of the three quarters; or \$150 for the school year, for residents of other states, \$70 per quarter or \$210 for the school year. For less than a full program of work: residents \$2.50 per clock hour, non-residents \$3.50 per clock hour. Fees are payable by the quarter, at registration. All checks should be made payable to the University of Minnesota, and should be drawn for not more than the amount due.

Incidental fee—All students of the University are charged an incidental fee of \$9.65 per quarter, payable at registration, covering the following services: the privileges of the Coffman Memorial Union, the Counseling Bureau, the *Minnesota Daily* including the Official Daily Bulletin, the university post-office service, *University Address Book*, the University Health Service which includes a complete medical examination, and other items.

General deposits—At the student's first registration a deposit fee of \$5 is required. From this are deducted from time to time such charges as may arise for locker rental, laboratory breakages, library fines, damage to university property, or any other similar matters. If the deposit becomes exhausted at any time another deposit of \$5 must be paid. The unused balance of the deposit will be returned at the close of the course, or upon withdrawal of the student at any earlier time.

Privilege fees—Registration, for each quarter, must be completed and fees paid before noon of the Saturday preceding the first meeting of the classes. The fee for the privilege of late registration, or late payment of fees, is \$2 through the third day of classes; on the fourth day the fee is \$2.50 and then increases 50 cents per day to a maximum of \$5.

Chemical laboratory—Each student at the beginning of the course will purchase at the bursar's office a \$5 card; against this will be charged the laboratory fee of \$2, and materials and breakage for the quarter. Subsequent cards will be required in succeeding quarters, but unused portions may be returned for refund.

Books—The student should be prepared to purchase textbooks to the amount of at least \$25.

Living expenses—Good rooms for lodging may be secured in the vicinity of the campus for from \$15 to \$18 per month per student. This cost may be somewhat reduced when two students occupy the same room. These charges do not include personal laundry. Board may be obtained for from \$8 to \$10 per week. The Coffman Memorial Union maintains a cafeteria at which meals are furnished at a moderate cost. Information about lodgings may be obtained from the Housing Bureau, 230 Northrop Memorial Auditorium, Main Campus.

STUDY REGULATIONS

Each student will complete the entire amount of work prescribed in the course of study, except in cases where some part of the required work has previously been satisfactorily completed. In all cases, attendance is required for the full three quarters. (See Course of Study, page 11.) This work is not measured in credits, except in limited amounts, and is ordinarily not transferable to other institutions or to other divisions of this University in terms of credits toward a degree.

Quality of work—A, B, C, and D are passing grades. A student who receives a grade of I, incomplete, or F, failure, should immediately consult one of the advisers of the course about making up the deficiency. A failure in an early quarter of a class which runs two or more quarters may be offset by satisfactory performance in a later quarter of such class. But a failure in a class which runs only one quarter, or a final failure in a class which runs two or more quarters, usually means that the student must make up the failure by repeating the class. A student who is deficient in an inordinate amount of work in any quarter may be required to withdraw from the course.

Altho this is an intensive course, high school graduates find it possible to complete the prescribed work by reasonable application to their studies. Instructors in the various subjects are available to counsel and assist the student who has scholastic difficulties. Students who have difficulties of adjustment are urged to seek advice from the advisers for the Course in Applied Mortuary Science.

Attendance—Students are expected to attend regularly all classes, laboratory sessions, lectures, and clinical calls.

MISCELLANEOUS

Employment—Students of this course sometimes obtain part-time employment in the mortuaries of Minneapolis and St. Paul. A list of these mortuaries is available on request. The cost of room rent is thus defrayed and perhaps some additional money earned. *The student should be advised, however, that he may carry only a limited amount of such outside work if he expects to complete the course successfully. The curriculum is crowded and will demand most of his time and energy. Moreover, he is on call at all daytime hours to attend autopsies or to take part in the technical work of clinical cases. Students are strongly advised not to attempt to attend this course unless they are able to make adequate provision for financing the year's work.*

Freshman Week—Students in the Course in Applied Mortuary Science are invited to take part in the exercises of Freshman Week, September 24-28, provided for all new entering students. These days are occupied with a variety of events that have been found profitable to new students.

How To Study Institute—Students in the Course in Applied Mortuary Science are also welcome to attend without charge the series of five lectures on how to study given at seven o'clock Monday to Friday evenings, September 24-28.

Medical examination—At some time during the three days, September 27, 28, 29, all new students will present themselves at the Health Service for the required medical examination.

University Library—The University of Minnesota General Library, one of the most complete in the country, with a special division in the biological and medical sciences, is available for use by students in this course.

Athletic recreation—The university facilities for physical education, recreational sports, and intramural activities are open to students of the Course in Applied Mortuary Science. Participation is invited. A booklet, giving detailed information regarding physical education and athletics for men and women, is issued to all students at the time of the medical examination, September 27, 28, 29. Additional information may be obtained at the Intramural Athletics office, 203 Cooke Hall. Since membership on intercollegiate squads is limited to students who are candidates for a degree it is not open to students of this course.

Athletic tickets—Students in the Course in Applied Mortuary Science are eligible to obtain the regular university athletic season tickets at the customary reduced rates. Directions for obtaining these tickets and schedules of games may be found in the Official Daily Bulletin of the *Minnesota Daily*.

EXAMINATIONS FOR UNIVERSITY CERTIFICATE

At the end of the last quarter of any class running more than one quarter, examinations are given which cover the work of all preceding quarters in this class. The degree of success attained by any student in these examinations determines his final grades. At the close of the spring quarter the University Certificate in Applied Mortuary Science is

issued to those students who have successfully completed all the work of the course. This is the University's recognition of satisfactory work; it should be understood that the certificate is issued entirely without reference to the legal requirements for the issuance of the Minnesota state embalmer's license. The requirements for that license and the qualifications for applicants are given below.

EXAMINATION FOR MINNESOTA STATE LICENSE

Candidates for a Minnesota embalmer's license must pass satisfactorily the examination given by the Minnesota Department of Health. The examination is conducted annually and is open to all applicants who have complied with the requirements of the law and the regulations of the Minnesota Department of Health; it is given at the close of the school year. The Department of Health is responsible for its examination and collects a fee of \$10 from each applicant. After complying with the necessary requirements given below and passing this examination, the applicant will receive the state license. Students in this course should discriminate carefully between the state requirements for a license and the requirements of the University for a certificate.

Necessary qualifications—The Minnesota Department of Health requirements for embalmer's license are as follows:

Embalmers—Examination and License

29. Every funeral director or embalmer who wishes to qualify as competent to prepare a body for burial or transportation, as required by the laws of the State of Minnesota (Sections 5817-5822, inclusive, *Mason's Minnesota Statutes, 1927*), shall comply with the following requirements:

He shall make application to the Minnesota State Board of Health for a license. Such application shall contain the name of the applicant in full, age, and place of residence. It shall be endorsed by a licensed embalmer and two registered physicians of good repute as to the applicant's general standing.

Necessary Qualifications (Embalmer's License)

The applicant must be at least twenty-one years of age; must have satisfactorily completed at least one scholastic year in a general educational course at an accredited college or university, and in addition thereto must have completed a course of study and secured a certificate of graduation from the Course in Applied Mortuary Science conducted by the University of Minnesota or any established school of embalming recognized and graded "AA" or "A" by the Conference of Funeral Service Examining Boards of the United States, Incorporated. Provided that any person who has attended a one-year course in embalming conducted by the University of Minnesota, but who has failed in the examinations for the university certificate in not more than two of the subjects, shall be permitted to take the board's examination for license and the subjects he passes in such examination shall be recorded and upon obtaining the university certificate he shall be required to pass the board's examination only in the subjects in which he may have failed.

Provided, further, that following the educational work outlined herein, said applicant has had at least one year of practical experience (apprenticeship) under a licensed embalmer, during which he has embalmed or helped to embalm at least twenty-five bodies, and on condition applicant has been registered with the State Board of Health during the full period of his practical experience, or apprenticeship. Applicant must attain a pro-



Students in Professor Burton's Art Class

iciency of at least seventy-five (75) per cent in each of the following subjects, in which he shall be examined by the State Board of Health:

Anatomy	10 questions
Bacteriology	10 questions
Elementary Chemistry	10 questions
Public Health, Sanitation, and Laws and Regulations	20 questions
The Practice of Embalming	20 questions
Business Methods	5 questions

Note: The year of college work to be taken in advance of the Course in Applied Mortuary Science.

N.B.—By action of the Minnesota State Board of Health no examination for a license will be given to anyone under twenty years of age.

For further information concerning the state embalmer's license apply to the State Department of Health, State Office Building, St. Paul 1.

COURSE OF STUDY

The following subjects constitute the work of the Course in Applied Mortuary Science; hours indicated are approximate. These subjects are divided among the three quarters which constitute the year and a program of their times and places of meeting is issued at the beginning of each quarter. Each student will be required to do all the work prescribed.

ACCOUNTING AND BUSINESS METHODS

Reuel I. Lund, Ph.D., C.P.A., Instructor in Accounting

60 hours. This course will include financial records, periodic adjustments, and closing entries, accounting statements, and control accounts for business in general. Suitable records and statements for a funeral establishment. A set of transactions for a funeral business has been devised, which the student carries through typical records and statements. Methods of obtaining cost data for a variety of priced cases are demonstrated.

ANATOMY

Shirley P. Miller, Ph.D., Assistant Professor of Anatomy, and assistants

200 hours. Lectures, recitations, and laboratory demonstrations of the thoracic and abdominal viscera. The laboratory work will deal with both microscopic anatomy and gross dissection. Each student will obtain experience in personally raising different arteries, and will familiarize himself with the anatomy relating to practical embalming. Subjects of study:

1. The cells, tissues, organs
2. The framework of the body
3. The musculature: topography of the viscera
4. The alimentary canal
5. The circulatory systems
6. The respiratory system
7. The urinary system
8. The reproductive system

ART

S. Chatwood Burton, M.A., Professor of Fine Arts

36 hours. Lectures and practical demonstrations in sculpture, color, light, and design. Subjects of study:

Sculpture—(1) The art of modeling and cosmetics as applied to the rebuilding of the human face and body. (2) The structure of the skull. (3) Muscular structure. (4) Differences in the muscular coverings. (5) Forms to be found in the eyes, mouth, nose, and other portions of the face, head, and body. (6) Methods and materials used in the making of death masks.

Color—(1) Analyses of color. (2) How color reveals or destroys form. (3) Color to give the effect of beauty. (4) Effect of environment on the appearance of color. (5) Subtractive and additive methods of mixing colors.

Light and shade—(1) Light and shade in vision and the arts. (2) Light and its effect on form. (3) Exterior lighting. (4) Reflective light and its uses. (5) Light to express moods. (6) Light to present beauty and character.

Design—Its application to floral arrangements, caskets, and interiors.

BACTERIOLOGY

Winford P. Larson, M.D., Professor of Bacteriology, and assistants

72 hours. Lectures, recitations, demonstrations, and practical work for each student. Subjects of study:

1. Classification of bacteria. Morphological types
2. Saprophytic bacteria in their relation to the natural processes of putrefaction, liquefaction, and oxidation of animal and vegetable tissues
3. Parasitic or disease-producing bacteria
4. Methods of differentiating bacteria
5. Methods of cultivating bacteria
6. Methods of estimating the number of bacteria in measured quantities of material
7. Practical studies of disinfection and disinfectants

CHEMISTRY

Norville C. Pervier, Ph.D., Associate Professor of Chemistry

150 hours. Lectures, demonstrations, and individual laboratory work covering fundamental ideas of inorganic and organic chemistry. The chemistry of the body and of disinfection and sanitation and certain general chemical actions involved in the work of the morticians will be presented.

Subjects of study:

1. General principles: (a) the science of chemistry, (b) the structure of matter, (c) the behavior of matter, (d) chemical action, (e) types of chemical change.
2. Inorganic chemistry: (a) typical nonmetallic elements, (b) solutions, (c) acids, bases, and salts, (d) ionization, (e) typical metallic elements, (f) naming of chemical compounds.
3. Organic chemistry: (a) classification, (b) structure, (c) reaction, (d) naming.
4. Physiological chemistry: (a) enzymes and enzyme action, (b) compounds usual in organized life, (c) respiratory processes, (d) digestive processes, (e) chemical actions in the tissues, (f) colloids.
5. Toxicology: (a) classification of poisons, (b) action in the body, (c) diagnosis of poisoning, (d) tests, (e) antidotes, (f) Minnesota law.
6. Chemical changes in cadavers: (a) signs of death, (b) rigor, (c) autolysis, (d) putrefaction, (e) adipocere, (f) tissue gas, (g) lividities.
7. Disinfection: (a) standardization, (b) chemicals and concentrations used, (c) methods, (d) calculations.
8. Embalming fluids: (a) ingredients, (b) chemical actions in the body, (c) testing, (d) compounding, (e) analysis, (f) calculations.

ENGLISH

60 hours. The fundamentals of good spoken and written English. Lectures and drills on the fundamentals of grammar and rhetoric. Practice in writing themes, research papers, and business correspondence.

FIRST AID

24 hours. First aid techniques for accidents and other emergencies. Concerned primarily with general first aid but will also include instruction useful to persons who may be called upon to operate ambulances. The course will correspond to the Standard American Red Cross Course, and those who pass the required examinations will receive the Standard Red Cross Certificate.

FUNERAL LAW

Arthur L. H. Street, LL.B., Attorney, Lecturer

12 hours. Lectures on basic funeral law and mortuary jurisprudence.

FUNERAL MANAGEMENT

Twin City funeral directors and university instructors

24 hours. These lectures are intended to acquaint the student with the best current practice in funeral management. They offer an opportunity to meet local morticians of long experience and high standing, and to acquire practical, dependable information about the important aspects of operating a funeral establishment—an opportunity whose value students will readily appreciate. The lectures will deal with such subjects as the following:

History of embalming	Metal caskets and vaults
Literature of mortuary practice	Wooden materials used in mortuary practice
Funeral directing as a career	Showrooms and salesmanship
Ethics of funeral directing	Costs and overhead expenses
Conduct of Catholic, Episcopal, Jewish, fraternal organizations, and military funerals	Advertising
Funeral arrangements	Selling
Cosmetics and hairdressing	Credits and collections
Floral arrangements	The funeral director's place in the community
Lighting and music	The state association of funeral directors

PATHOLOGY

Elexious T. Bell, M.D., Professor of Pathology, and assistants

96 hours. Lectures on gross pathology, with demonstration. Attendance at autopsies when arrangements can be made.

PERSONAL HEALTH III

William A. O'Brien, M.D., Professor of Preventive Medicine and Public Health

24 hours. Right living habits as related to physical and mental health. Attention to the chief causes of disability and death from the point of view of personal hygiene.

PRACTICAL EMBALMING AND FUNERAL DIRECTION

F. Lloyd Hansen, M.A., Assistant Professor

170 hours. Lectures, demonstrations, and other visual presentations, laboratory practice, and clinical work. Class participation in actual embalming will be emphasized. Subjects of study will include the following:

1. Scope of profession
2. Modes of death
3. Signs of death
 - a. Livoris mortis
 - b. Algor mortis
 - c. Rigor mortis
 - d. Decomposition and putrefaction
4. Discoloration
 - a. Cause
 - b. Prevention
 - c. Removal
5. Embalming
 - a. Pre-embalming technique
 - b. Arterial
 - c. Penetration
 - d. Hypodermic
 - e. Cavity
6. The arterial and venous systems
 - a. Superficial venous blood return
 - b. Deep venous blood return
 - c. Arteries employed in embalming
7. Violent deaths
 - a. Poisons
 - b. Gunshot wounds
 - c. Mutilated cases
8. First call
9. Pressure injection
10. Analysis of cases
 - a. Tissue gas and gas gangrene
 - b. Edema
 - c. Jaundice
 - d. Frozen bodies
 - e. Burns
 - f. Communicable diseases
 - g. Preparation for transportation
 - h. Autopsies
11. Embalming hygiene
12. Funeral directing and management
 - a. Pricing
 - b. Salesroom arrangement and selling
 - c. Advertising

EMBALMING CLINICS

Throughout the year all students will be subject to call to attend cases made available through the courtesy of Twin City funeral directors, the local morgues, or other agencies. These clinics are under the direction of Mr. Hansen. Every possible opportunity will be given students to assist in preparations. Students will gain additional practical experience through preserving bodies for subsequent medical, dental, and anatomical dissection.

PSYCHOLOGY

Wendell White, Ph.D., Associate Professor of Psychology

24 hours. This course will present those principles of psychology most helpful to the prospective funeral director in dealing tactfully with the

people he comes in contact with—especially persons who are under severe emotional stress.

PUBLIC HEALTH

The Minnesota Department of Health staff will give a series of lectures arranged by the executive officer, Dr. Chesley, and the directors:

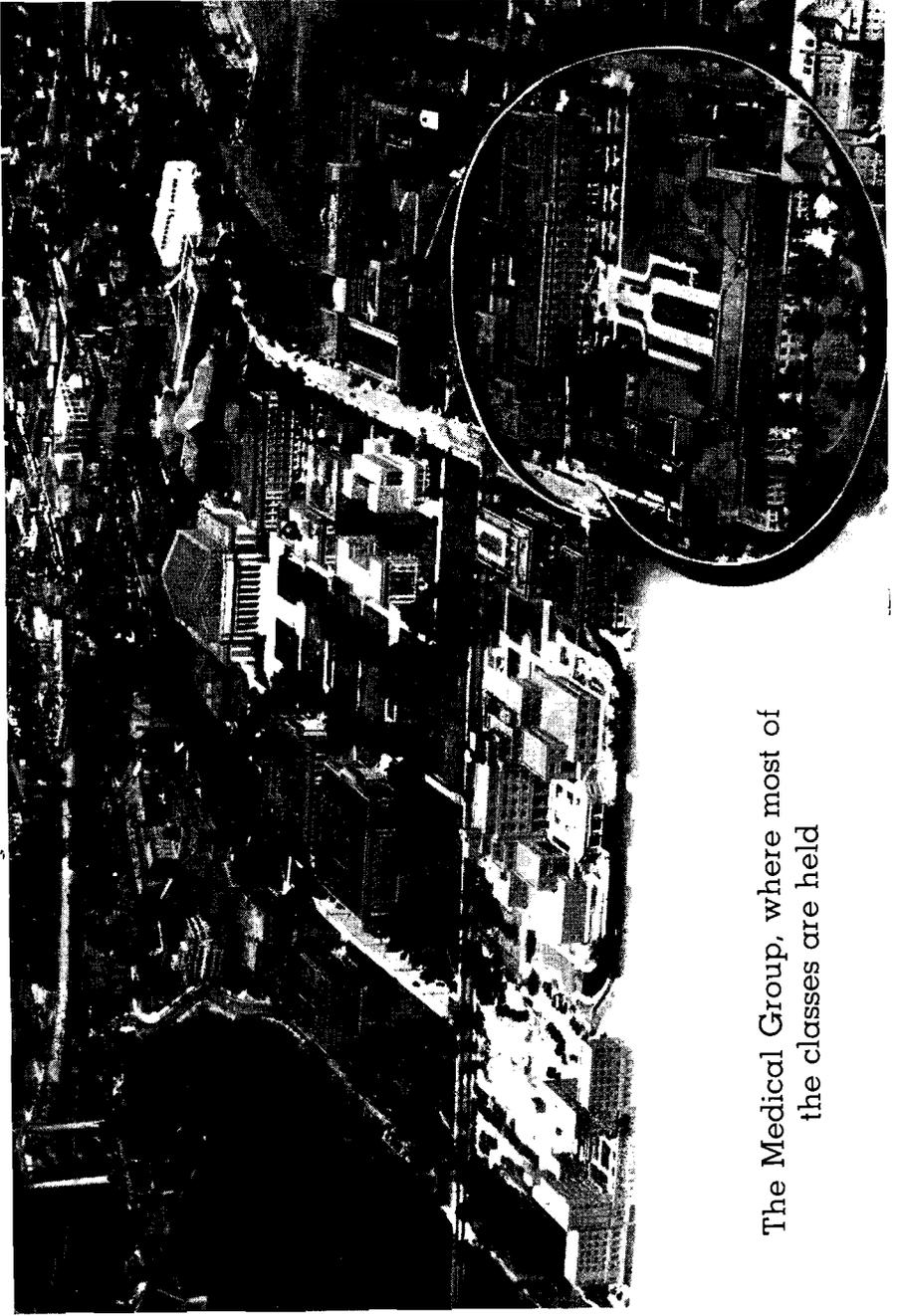
Donald A. Dukelow, M.D., Director, Health Education
Harold A. Whittaker, B.A., Director, Division of Sanitation
H. G. Irvine, Consultant in Venereal Diseases
Gerda C. Pierson, Director, Division of Vital Statistics
Viktor O. Wilson, M.D., Director, Division of Child Hygiene
O. C. Pierson, Director, Division of Administration

36 hours. The purpose of this series of lectures is to set forth the basic principles of public health, the official federal, state, and local public health organizations for the protection of the public health and the powers and duties of such organizations, and the relations of embalmers and funeral directors to such activities. It offers the future embalmer and funeral director valuable orientation in his responsibilities for the health of his community and in his relationships with the local health boards and the State Department of Health. Presentation will be through lectures and motion pictures. Subjects of study will include:

- | | |
|---------------------------------------|----------------------|
| 1. Public health laws and regulations | 4. Venereal diseases |
| 2. Preventable diseases | 5. Vital statistics |
| 3. Public sanitation | 6. Child hygiene |

Correspondence should be addressed to

F. Lloyd Hansen, Adviser
Course in Applied Mortuary Science
The General Extension Division
University of Minnesota, Minneapolis 14



The Medical Group, where most of
the classes are held

The Bulletin of the UNIVERSITY of MINNESOTA

The College of Pharmacy Announcement
for the Years 1945-1947

( Paper is a critical material. Please save this
bulletin or give it to someone else who is interested.)



Volume XLVIII, Number 16

April 26, 1945

*Entered at the post office in Minneapolis as second-class matter, Minneapolis, Minnesota.
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October 3, 1917, authorized July 12, 1918*

ADMINISTRATIVE OFFICERS

Walter C. Coffey, M.S., LL.D., President
Charles H. Rogers, D.Sc., Dean of the College of Pharmacy and Professor of Pharmaceutical Chemistry
Malcolm M. Willey, Ph.D., Vice President, Academic Administration
William T. Middlebrook, B.A., M.C.S., Vice President, Business Administration
Anne D. Blitz, M.A., LL.D., Dean of Women
Ruth E. Boynton, M.S., M.D., Director of Students' Health Service
True E. Pettengill, M.S., Acting Director of Admissions and Records and Recorder
Edmund G. Williamson, Ph.D., Dean of Students

GENERAL INFORMATION

The fifty-third course of the College of Pharmacy begins October 1, 1945.

COURSES OF STUDY

At the beginning of the fall quarter, 1944-45, the course in Pharmacy was decelerated for all classes. This means that the College of Pharmacy is now offering one undergraduate course of four years' duration leading to the degree bachelor of science in pharmacy (B.S. in Phm.).

The College of Pharmacy and the School of Business Administration offer an optional combined five-year course in Pharmacy and Business Administration leading to the degree bachelor of science in pharmacy (B.S. in Phm.) and bachelor of business administration (B.B.A.). This optional course is open only to those students who register in the College of Pharmacy either with or without advanced standing and who can present evidence of better than average ability. Students who are permitted to register for this course of study must take the professional and business administration courses in the sequences in which they are offered. Due to schedule difficulties, this optional five-year course is suspended for the duration of the war.

Graduate study with major work in pharmaceutical chemistry and pharmacognosy, leading to the degrees of master of science (M.S.) and doctor of philosophy (Ph.D.) respectively, is offered by the Graduate School. The graduate work is open to those who have received the degree bachelor of science in pharmacy from the four-year course of this or some other college of pharmacy of equal standing. Only those who have shown exceptional scholarship and ability in the undergraduate course will be accepted for work at the graduate level. Detailed information on graduate courses in pharmaceutical chemistry and pharmacognosy is contained in the Announcement of the Graduate School which may be obtained from the office of the Graduate School, University of Minnesota.

ADMISSION BY CERTIFICATE

Diplomas or other evidences of the completion of an accredited four-year high school course, or of its educational equivalent, are required for admission. For details concerning the requirements for admission, consult the Bulletin of General Information.

ADMISSION BY EXAMINATION

Students who do not meet the requirements for admission by certificate may qualify for admission on the basis of entrance tests as described in the Bulletin of General Information.

PROSPECTIVE STUDENTS

All applicants for admission, either with or without advanced standing, should request the high schools or colleges they attended to send complete transcripts of their records to the director of admissions and records of the University as soon as possible. A student's credentials will not be reviewed unless a completed official application form (obtained from the office of admissions and records) has been filed by him with the director of admissions and records. The submitting of an Application for Admission form does not obligate a student to enroll in the University. As soon as an applicant's official transcript has been reviewed, he will be notified of his admission status and directions for registration sent to him.

It is recommended that those students who are still in high school and who contemplate making application for admission to the College of Pharmacy upon their graduation, include in their high school courses, higher algebra, solid geometry, botany, chemistry, physics, and physiology.

Students who have graduated from high school and wish to complete the first year of the pharmacy curriculum at another college or university and enter here upon the professional pharmaceutical work of the sophomore year should arrange their programs so as to include all subjects listed in the first year of the curriculum on page 8.

Due to the fact that a revised pharmacy curriculum will become effective in 1945-46, all students who are preparing themselves, either at the University of Minnesota or elsewhere, to enter upon the professional studies of the sophomore year at the beginning of the fall quarter, 1945-46, will pursue a curriculum that is somewhat modified from the one published in this announcement. Freshmen entering in 1945-46 will follow the published curriculum in its entirety.

A review of the pharmacy curriculum will show it to be comprised of 208 credit hours of work in professional, scientific, and business administration courses (most of it required) of which approximately 50 per cent is laboratory instruction. It follows that if a student is to do creditably in his studies, he is precluded from engaging in outside work which will interfere with his application and study both in and out of school. A student who finds it necessary to wholly or partially support himself is advised to take five years or more to complete the work of the four-year course. Arrangements to do this can be made with the dean or chairman of the Students' Work Committee.

THOSE WITH 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 an accredited institution, and must pass the examinations of all departments in which they desire credit, if such examinations are deemed necessary by the professors in charge.

ADULT SPECIAL STUDENTS

Persons meeting the entrance requirements and desiring to do less than the work of the regular course may be admitted as adult special students, provided laboratory space is available. Work completed satisfactorily will be credited should the student subsequently wish to enter the regular course. Registered pharmacists who desire to pursue the work of any one or more of the courses offered in the curriculum may do so with the approval of the dean.

EXAMINATIONS AND STANDING

Examinations are held during the last week of each quarter, and are supplementary to the written and practical tests 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), I (Incomplete), and F (Failure). The grade of I (Incomplete) is a temporary grade indicating that a student has a satisfactory record in work completed and, for justifiable reasons satisfactory to the instructor in charge, was unable to complete the work of the course. Any student receiving this grade is required to complete the work of the course within the first thirty days of his next quarter in residence. A grade of I (Incomplete) which is not removed within the first thirty days of the student's next quarter in residence will be marked cancelled without grade. An extension of time may be permitted for removal of incomplete grades upon recommendation of the instructor concerned and approval of the Students' Work Committee of the college in which the student is registered. If a petition is presented after the end of the thirty-day period, a restoration of the mark of incomplete may be permitted by the Students' Work Committee of the college concerned upon the recommendation of the instructor but would be considered in the nature of a special examination for which a fee of \$5 is required.

Absences will not be excused unless satisfactory reasons are given. Habitual absence without a satisfactory excuse, continued indifference to study, or persistently poor scholarships may subject the student to probation or temporary or permanent suspension.

FEES AND EXPENSES

For a detailed statement of fees and expenses, see Bulletin of General Information.

GRADUATION REQUIREMENTS

Beginning with the entering class of 1945-46, a "C" average will be a requirement for graduation.

In order to become a candidate for a degree, a student must be of good moral character and must have completed the work of the senior year in residence.

PHARMACY LAW REQUIREMENTS

Section 10 of the pharmacy laws of the State of Minnesota, as amended by the Legislature on March 28, 1941, reads as follows:

To be entitled to examination by the State Board of Pharmacy as a pharmacist, the applicant shall be a citizen of the United States, of good moral character, at least twenty-one years of age, and shall be a graduate of the College of Pharmacy of the University of Minnesota or of a college or school of pharmacy in good standing, of which the Board shall be the judge, and shall have at least one year of practical experience in pharmacy.

On July 18, 1941, the Minnesota State Board of Pharmacy issued the following regulation on above passage:

Only graduates of the College of Pharmacy of the University of Minnesota and graduates of other schools and colleges of pharmacy accredited by the American Council on Pharmaceutical Education will be eligible for licensure examination.

The College of Pharmacy of the University of Minnesota is not only specifically named in the law but it is also accredited by the American Council on Pharmaceutical Education.

In January, 1940, the Minnesota State Board of Pharmacy issued a regulation to the effect that an official or certified transcript of scholastic work must accompany the application for examination for licensure to practice pharmacy in this state. Transcripts of Minnesota graduates may be obtained from the office of admissions and records of the University. Requests for transcripts should be made not later than ten days prior to the date upon which the application is to be filed with the Board of Pharmacy. No person will be charged for the transcript unless three transcripts have been issued previously to him. A fee of 50 cents will then be charged.

In order that practical experience obtained as an apprentice during summer vacations may be credited toward the year of practical experience required by law, a student must file two statements with the Board of Pharmacy, one form showing the date such apprentice began his experience, and another showing the date on which it ended, this regardless of the length of time employed. These forms may be obtained from the Secretary of the State Board of Pharmacy. A complete file of those registered pharmacists who have signified their willingness to serve as preceptors is available in the office of the dean.

STATE BOARD OF PHARMACY

The State Board of Pharmacy meets at the college at least twice each year to examine candidates for registration. For information concerning the State Board examinations, address Secretary of the State Board of Pharmacy, 3965 Minnehaha Avenue South, Minneapolis 6, Minnesota.

MEDICINAL PLANT LABORATORY AND GARDEN

The facilities of the medicinal plant garden, plant laboratory, and conservatory afford opportunity for instruction in methods of cultivating, collecting, preparing, drying, and milling many official and nonofficial drugs. Approximately five hundred species of plants of medicinal and economic importance grown in the garden and greenhouses provide ample and varied material for study of the gross anatomical, histological, and chemical characteristics of these plants, for the preparation of herbarium specimens, for research in medicinal plant cultivation, etc.

DISPENSARY PRESCRIPTION PRACTICE

Practical experience in dispensing is obtained in the pharmacy of the University of Minnesota Hospitals where, under supervision, the students compound prescriptions written by the physicians in the University of Minnesota Hospitals, Outpatient Department, and Students' Health Service. During the past year more than one hundred thirteen thousand prescriptions were compounded.

SPECIAL LECTURES

From time to time throughout the school year, outstanding men in the fields of pharmacy and related sciences address the students of the College of Pharmacy. Students are required to attend.

MELENDY MEMORIAL LECTURES

Annually some pharmacist of national reputation delivers a lecture at the College of Pharmacy on a subject intended to advance the interests of the profession. This lectureship has been made possible by the Samuel W. Melendy Memorial Fund.

PHARMACEUTICAL EDUCATIONAL TRIP

Once during the academic year, usually during the spring vacation, an opportunity is afforded students in the College of Pharmacy to visit the laboratories of at least one pharmaceutical or biological manufacturer. Students are urged to make at least one of these trips at some time during their four years in college. These visitations have been discontinued for the duration of the war.

ELECTIVES IN OTHER COLLEGES OF THE UNIVERSITY

All of the facilities of the University are open to students of this college. Therefore, students having the necessary prerequisites may elect subjects in other colleges of the

University, if such election does not interfere with the required work in the College of Pharmacy. Subjects elected must be approved by the dean.

TEXTBOOKS

Textbooks used in all courses may be obtained after coming to the University.

SCHOLARSHIPS, FELLOWSHIPS, AND PRIZES

SCHOLARSHIPS*

Open to veterans† and undergraduate students regularly enrolled in the College of Pharmacy.

One \$225 Minnesota State Pharmaceutical Association Scholarship and a token awarded to that student who is a citizen of the United States and who has earned the highest general average rating at the completion of the first two years of professional pharmaceutical work up to ten days before Cap and Gown Day and who intends to become a candidate for the degree B.S. in Pharmacy from this college. If the student receiving this award should fail to return to the college the following year to complete his senior work, the said sum will be awarded to the student next highest in standing who also meets the other requirements.

Three \$200 Samuel W. Melendy Scholarships are available to sophomore students in the College of Pharmacy.

Three \$200 Samuel W. Melendy Scholarships are available to junior students.

Three \$200 Samuel W. Melendy Scholarships are available to senior students.

The bases upon which these scholarships are awarded are: (1) outstanding scholarship in academic and professional courses of study of the preceding year; and (2) character, personality, and general outstanding qualities of leadership.

One \$740 William S. Merrell Company Scholarship through the American Foundation for Pharmaceutical Education. To be used for tuition, fees, and books for four school years or equivalent, (\$740 or \$185 per year). Any student to whom this scholarship has been awarded must maintain an average of "C" or better or further support from this fund for such student will be withdrawn.

It is anticipated that several \$200 American Foundation for Pharmaceutical Education Scholarships will be available for the 1945-46 school year.

FELLOWSHIPS‡

Open to graduate students with majors in pharmaceutical chemistry or pharmacognosy in the College of Pharmacy, University of Minnesota.

One \$500 Minnesota State Pharmaceutical Association Fellowship, with exemption from tuition, open to sufficiently qualified graduates of the College of Pharmacy of the University of Minnesota.

Three \$1,000 Samuel W. Melendy Memorial Fellowships, without exemption from tuition, to be offered annually. The major study must be in pharmaceutical chemistry or pharmacognosy and full time devoted to graduate study and researches.

Three \$1,000 Lederle Laboratories, Inc., Fellowships, without exemption from tuition, to be offered annually. The major study must be in pharmaceutical chemistry and full time devoted to graduate study and research.

* Applications for scholarships should be made to the dean of the College of Pharmacy.

† Awards to veterans will be based upon their scholarship during the last year they were in attendance before entering the service.

‡ Applications for fellowships should be made to the office of Graduate School and applications for scholarships should be made to the dean of the College of Pharmacy.

It is anticipated that funds for graduate fellowships in pharmaceutical subjects will also be made available by the American Foundation for Pharmaceutical Education prior to the opening of the fall quarter, 1945.

PRIZES

Kappa Epsilon Prize

The Alumnae Chapter of Kappa Epsilon, national pharmacy sorority, offers the interest on \$425 as a prize to the Kappa Epsilon student who has earned the highest scholastic average at the end of four years. The sum is to be used to defray the expenses of the State Board examination and registration.

Lehn and Fink Gold Medal

Lehn and Fink Products Corporation, of New York City, awards annually a gold medal to that student in the College of Pharmacy who graduates with the degree B.S. in Pharmacy who has earned the highest general average rating during the four years of undergraduate study.

Wulling Club Key

The Wulling Club of the College of Pharmacy awards annually an appropriate gold key to that student in the College of Pharmacy who graduates with the degree B.S. in Pharmacy and who has earned the second highest general average rating during the four years of undergraduate study.

Rho Chi Award

Mu Chapter of the Rho Chi Society, a national honorary pharmacy organization, annually presents to the highest ranking sophomore student a membership for one year in the American Pharmaceutical Association. This includes a one-year subscription to the *Journal of the American Pharmaceutical Association*.

COMMUNICATIONS

Communications relating to registration or advanced standing should be addressed to the Board of Admissions and Records, University of Minnesota, Minneapolis 14, Minnesota. Official transcripts for advanced standing will be evaluated by the office of admissions and records only when accompanied by a completed Application for Admission form. All other inquiries should be addressed to Dean Charles H. Rogers, College of Pharmacy, University of Minnesota, Minneapolis 14, Minnesota.

CURRICULUM

FOUR-YEAR COURSE

First Year

SUMMARY OF CLOCK HOURS AND QUARTER CREDIT HOURS

Course	Didac- tic	Labora- tory	Total	Credit Hours
<i>First Quarter (12 weeks)</i>				
Pharmacy 1f	24	.....	24	2
General Inorganic Chemistry 6f.....	36	72	108	5
Composition 4f	36	.....	36	3
Zoology 1f	24	48	72	3
Total	120	120	240	13
<i>Second Quarter (11 weeks)</i>				
General Inorganic Chemistry 7w.....	33	66	99	5
Composition 5w	33	.....	33	3
Zoology 2w	22	44	66	3
Mathematics 1 or 6w*.....	55	.....	55	5
Total	143	110	253	16
<i>Third Quarter (11 weeks)</i>				
Qualitative Pharmaceutical Chemistry 1s†.....	33	66	99	5
Composition 6s	33	.....	33	3
Zoology 3s	22	44	66	4
Mathematics 6 or elective*.....	55	.....	55	5
Total	143	110	253	17
Total for first year.....	406	340	746	46

* A student who has completed one year of higher algebra in high school may: (1) substitute a 5-credit course in college algebra or some other 5-credit course having the approval of the Students' Work Committee; or (2) substitute Mathematics 15 and 16 for college algebra and trigonometry or for trigonometry and an elective.

† Any standard 5-credit course in qualitative chemical analysis completed at an accredited institution will be accepted for qualitative pharmaceutical chemical analysis.

CURRICULUM

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Second Year

SUMMARY OF CLOCK HOURS AND QUARTER CREDIT HOURS

Course	Didac- tic	Labora- tory	Total	Credit Hours
<i>First Quarter (12 weeks)</i>				
Pharmacy 1f* .....	.....	.....	.....	.....
Pharmacy 2f	12	.....	12	1
Pharmaceutical Chemistry 2f.....	24	72	96	4
Pharmacognosy 1f	12	36	48	2
Botany 17f	24	48	72	3
Public Health 3f	24	.....	24	2
Physics 1af	36	24	60	4
Total	132	180	312	16
<i>Second Quarter (11 weeks)</i>				
Pharmaceutical Chemistry 3w.....	22	66	88	4
Pharmacognosy 2w	11	33	44	2
Botany 18w	22	44	66	3
Physics 2aw	33	22	55	4
Organic Chemistry 1w.....	55	44	99	4
Total	143	209	352	17
<i>Third Quarter (11 weeks)</i>				
Pharmacy 3s	33	33	66	4
Pharmacognosy 3s	11	66	77	3
Botany 19s	22	44	66	3
Physics 3as	33	22	55	4
Organic Chemistry 2s.....	55	44	99	4
Total	154	209	363	18
Total for second year.....	429	598	1,027	51

* Students who have completed the work of the first year with the exception of Pharmacy 1f (2 cred.), must take this course concurrently with their sophomore work.

THE COLLEGE OF PHARMACY

Third Year

SUMMARY OF CLOCK HOURS AND QUARTER CREDIT HOURS

Course	Didactic	Laboratory	Total	Credit Hours
<i>First Quarter (12 weeks)</i>				
Pharmacy 54f	36	72	108	5
Pharmaceutical Chemistry 161f	36	.....	36	3
Pharmacognosy 54f	24	36	60	3
Pharmacognosy 55f	36	.....	36	3
Pharmacy 57f	12	.....	12	1
Economics 10f	36	.....	36	3
Total	180	108	288	18
<i>Second Quarter (11 weeks)</i>				
Pharmacy 55w	33	66	99	5
Pharmaceutical Chemistry 162w	33	.....	33	3
Pharmacognosy 56w	33	.....	33	3
Economics 30w	33	.....	33	3
Bacteriology 53w	33	66	99	5
Total	165	132	297	19
<i>Third Quarter (11 weeks)</i>				
Pharmacy 56s	33	66	99	5
Pharmaceutical Chemistry 163s	33	.....	33	3
Pharmacognosy 57s	33	.....	33	3
Pharmacognosy 58s .....	.....	.....	.....	.....
Business Administration 67s	33	.....	33	3
Physiology 4s	44	.....	44	4
Total	176	66	242	18
Total for third year	521	306	827	55

Fourth Year

SUMMARY OF CLOCK HOURS AND QUARTER CREDIT HOURS

Course	Didactic	Laboratory	Total	Credit Hours
<i>First Quarter (12 weeks)</i>				
Pharmacy 58f	24	72	96	4
Pharmacy 61f* .....	.....	8	8	.....
Pharmacy 70f	24	.....	24	1
Pharmaceutical Chemistry 54f	24	72	96	4
Pharmacognosy 59f	36	.....	36	3
Pharmacology 2ft	36	.....	36	3
Public Health 51f	36	.....	36	3
Total	180	152	332	18
<i>Second Quarter (11 weeks)</i>				
Pharmacy 59w	22	66	88	4
Pharmacy 62w .....	.....	8	8	.....
Pharmacy 64w	22	.....	22	2
Pharmacy 65w	11	33	44	2
Pharmaceutical Chemistry 55w	22	66	88	4
Pharmacology 3wt	33	66	99	5
Professional electives§	11	66	77	3
Total	121	305	426	20
<i>Third Quarter (11 weeks)</i>				
Pharmacy 60s	22	66	88	4
Pharmacy 63s .....	.....	8	8	1
Pharmacy 71s	22	.....	22	2
Pharmaceutical Chemistry 56s	22	66	88	4
Pharmaceutical Chemistry 57s	33	33	66	4
Professional electives	11	66	77	3
Total	110	239	349	18
Total for fourth year	411	696	1,107	56
Grand total	1,767	1,940	3,707	208

* One credit for three quarters' work.

† Subject to change.

§ Professional electives:

Pharmacy 66w-67s (Industrial Manufacturing Pharmacy)—6 cred.

Pharmacy 68w-69s (Hospital Pharmacy)—6 cred.

Pharm. Chem. 164w-165s (Special Analytical Methods)—6 cred.

Pharmacog. 60w-61s (Pharmacognosy and Pharmaco-Histology)—6 cred.

Pharmacog. 162w (Biological Assay of Drugs)—3 cred. (Students who elect either biological assay of drugs or veterinary products as their professional elective for the winter quarter, must take insecticides and fungicides for their spring quarter professional elective.)

Pharmacog. 164s (Insecticides and Fungicides)—3 cred.

Pharmacy 72w (Veterinary Products)—3 cred. (Students who elect either biological assay of drugs or veterinary products as their professional elective for the winter quarter, must take insecticides and fungicides for their spring quarter professional elective.)

Elementary Organic Chemistry 156s, 159s—5 cred. (See pages 14 and 17.)

DESCRIPTION OF COURSES

COURSES OFFERED IN THE COLLEGE OF PHARMACY

Following each course is a statement in parentheses of credits, classes of students eligible, and prerequisites. Thus (3 cred.; sr.; prereq. Pharm. 56s) means the course carries three credits, is open to seniors, and that Pharmacy 56s is a prerequisite.

PHARMACY

Professors Gustav Bachman, Phm.D., Head, Charles H. Rogers, D.Sc.; Associate Professor Charles V. Netz, Ph.D.; Instructors Ragnar Almin, B.S. in Phm., Hallie Bruce, Phm.G.; Special Lecturers, Richard H. Bachelder, LL.B., John R. Hartmann; teaching assistants; Head Pharmacist Stewart Brokaw, B.S. in Phm.

- 1f. Orientation. A general survey of the field of pharmacy and related sciences including a cursory description of the courses offered in the pharmacy curriculum. The accomplishments and aims of some of the state and national pharmaceutical, medical, and chemical organizations are presented. (2 cred.; fr., soph.; no prereq.) Mr. Rogers.
- 2f. Pharmaceutical Latin. A study of those Latin and latinized words and constructions commonly encountered in pharmaceutical practice. (1 cred.; soph.; no prereq.) Mr. Almin.
- 3s. Pharmaceutical Calculations. A study of weights and measures; thermometry and calorimetry; specific gravity; calculations of doses; and percentage and stock solutions. Laboratory exercises emphasize practical application of the basic principles involved and acquaint the student with fundamental pharmaceutical techniques. (4 cred.; soph.) Mr. Netz and assistants.
- 54f-55w. Pharmaceutical Preparations. A study of some of the preparations and processes of the United States Pharmacopoeia and National Formulary, including aromatic waters, infusions, decoctions, syrups, solutions, lotions, magmas, mixtures, spirits, tinctures, fluidextracts, extracts, powders, mucilages, glycerites, liniments, collodions, and sprays. (10 cred.; jr.; prereq. Pharm. Chem. 1s, Pharm. 3s.) Mr. Netz and assistants.
- 56s. Pharmaceutical Preparations. Continuation of Pharm. 55w. Resins, oleoresins, elixirs, soaps, plasters, ointments, cerates, effervescent salts, masses, pills, emulsions, dental preparations, etc., are included in this course. (5 cred.; jr.; prereq. Pharm. 55w.) Mr. Bachman and assistants.
- 57f. History of Pharmacy. A study of the development of pharmacy from 1500 B.C. to the present time, including the development of pharmaceutical literature, education, legislation, and organizations. (1 cred.; jr.; no prereq.) Mr. Netz.
- 58f-59w-60s. Prescription Compounding. A critical study of the prescription and the practical work involved in the compounding and dispensing of a wide range of prescriptions written in actual medical practice. Special attention is given to incompatibilities. A large number of prescriptions are compounded, packaged, labeled, wrapped, and priced as in actual practice. During the winter and spring quarters the student is given practice in taking physicians' prescriptions over the telephone. (12 cred.; sr.; prereq. Pharm. Chem. 3w, Pharmacog. 57s, Pharm. 56s, Pharm. Chem. 163s.) Mr. Bachman, Mr. Almin, and assistants.

- 61f-62w-63s. Dispensary Prescription Practice. Practical experience in prescription compounding is received in the pharmacy of the University of Minnesota Hospitals where the students, under supervision, compound prescriptions written by staff physicians. These courses run concurrently with Pharm. 58f-59w-60s, respectively. (1 cred.; sr.; prereq. same as for Pharm. 58f.) Miss Bruce and assistants.
- 64w. Pharmaceutical Jurisprudence. Fundamental principles of law and legal procedure, legal duties, and public responsibilities of the retail pharmacist; analysis of federal and Minnesota State Laws and regulations affecting the practice of pharmacy; and a discussion of a select group of common legal problems of practical importance to the pharmacist. (2 cred.; sr.; no prereq.) Mr. Bachelder.
- 65w. Cosmetics. A study of the composition and methods of manufacture of powders, creams, lotions, soaps, and other cosmetic products. (2 cred.; sr.; prereq. Org. Chem. 2, Pharm. 56s.) Mr. Netz and assistants.
- 66w-67s. Industrial Manufacturing Pharmacy. This course deals with typical problems incident to the production of pharmaceutical preparations on an industrial scale. Laboratory work includes manufacture of compressed tablets, granulating of salts and mixtures of salts preparatory to tablet-making, coating and polishing of tablets and pills, milling of ointments and tooth pastes, filling of collapsible tubes, etc. Registration in this course is limited to available instructional facilities. Professional elective. (6 cred.; sr.; prereq. Pharm. 56s.) Mr. Almin and assistants.
- 68w-69s. Hospital Pharmacy. Special pharmaceutical training for those who expect to practice in a hospital pharmacy. It includes a study of hospital administration and procedure, instruction in purchasing supplies (drugs, rubber goods, surgical supplies, etc.), stock control, records, manufacture of pharmaceutical preparations, prescriptions, and the preparation of parenteral solutions and allergens. Registration in this course is limited to available instructional facilities. Professional elective. (6 cred.; sr.; prereq. Pharm. 58f, 61f.) Miss Bruce and assistants.
- At the conclusion of the spring quarter, students who have completed the course in Hospital Pharmacy are offered the opportunity to acquire an additional two weeks' full-time training in the dispensary of the University Hospitals. No fee will be charged for this extra instruction, neither will there be any financial remuneration nor scholastic credit given for it.
- 70f. First Aid. The Standard American Red Cross First Aid course. (1 cred.; sr.; no prereq.) Mr. Hartmann.
- 71s. New Pharmaceutical Specialties. A consideration of many new drugs and medicinal preparations as they are introduced to the medical profession. The lectures are given by representatives of pharmaceutical manufacturers. (2 cred.; sr.; prereq. Pharm. Chem. 163s.) Mr. Soine.
- 72w. Veterinary Products. The chemical, pharmaceutical, and pharmacological study of recognized therapeutic agents used in the prevention and treatment of disease in domestic animals and poultry. Professional elective. Students who elect this course as their professional elective for the winter quarter, must take Pharmacog. 164s, (Insecticides and Fungicides) for their spring quarter professional elective. (3 cred.; sr.; prereq. Pharm. 56s.) Mr. Netz.

PHARMACEUTICAL CHEMISTRY

Professors Ole Gisvold, Ph.D., Head, Charles H. Rogers, D.Sc.; Associate Professor Charles O. Wilson, Ph.D.; Instructor Taito O. Soine, Ph.D.; teaching assistants; Head Pharmacist Henry Sperling, B.S. in Phm.

- 1s. Qualitative Pharmaceutical Chemistry. This course consists of lectures on solution, ionization, chemical and physical equilibria, oxidation and reduction, hydrogen ion concentration and pH , together with a consideration of a systematic means of identification of the common cations and anions pertinent to pharmacy. The laboratory work consists of the identification of the constituent ions of unknown compounds or mixtures of compounds. (5 cred.; fr.; prereq. Chem. 7.) Mr. Soine and assistants.
- 2f-3w. Inorganic Pharmaceutical Products. The histories, sources, methods of manufacture, common impurities, formation in pharmaceutical preparations, properties, characteristic reactions, and uses of the inorganic chemicals employed in pharmacy are studied in this course. The laboratory work includes the preparation and purification of typical inorganic compounds of special pharmaceutical interest. (8 cred.; soph.; prereq. Pharm. Chem. 1s or any standard 5-credit course in qualitative chemical analysis.) Mr. Soine and assistants.
- 54f. Quantitative Pharmaceutical Chemistry. A didactic and laboratory course consisting of the fundamental principles, methods, and procedures of gravimetric analysis as applied to the analyses of inorganic pharmaceutical products. (4 cred.; sr.; prereq. Pharm. Chem. 1s and Org. Chem. 2.) Mr. Wilson and assistants.
- 55w. Quantitative Pharmaceutical Chemistry. A didactic and laboratory course dealing with the fundamental principles, methods, and procedures of volumetric analysis as applied to the analyses of inorganic and organic pharmaceutical products. (4 cred.; sr.; prereq. Pharm. Chem. 54f.) Mr. Wilson and assistants.
- 56s. Quantitative Pharmaceutical Chemistry. A substantial portion of the course deals with oxidation-reduction methods of analysis. The remainder is essentially the application of the preceding fundamentals to the analysis of volatile oils and alkaloids. Laboratory work consists of assaying pharmaceutical products by oxidation-reduction procedures; alkaloidal assays and the assays of volatile oils are also included. (4 cred.; sr.; prereq. Pharm. Chem. 55w.) Mr. Wilson and assistants.
- 57s. Pharmaceutical Biochemistry. A study of the constituents of normal and pathological urine; a consideration of some of the therapeutic agents excreted by the kidney; also a consideration of the normal constituents of the blood and the effect of pathological conditions upon these constituents. Laboratory work includes qualitative and quantitative tests for albumen, sugar, acetone, acetoacetic acid, hemoglobin, etc.; in urine, the determination of erythrocyte and leucocyte counts, the typing of blood, and other clinical determinations. (4 cred.; sr.; prereq. Pharm. Chem. 55w.) Mr. Fischer, Mr. Wilson, and assistants.
- 161f-162w-163s. Organic Pharmaceutical Products. This course treats of the sources, methods of production, properties, reactions, relationships of structures to activity, and uses of the natural and synthetic organic compounds used as therapeutic agents. (9 cred.; jr., sr., grad.; prereq. Org. Chem. 2.) Mr. Gisvold.
- In 161f, the above considerations deal with hydrocarbons, halogenated hydrocarbons, alcohols, aldehydes, ketones, acids, phenols, ethers, and esters.
- Likewise, 162w considers analgesics, organometallics, (i.e., mercurials, silver compounds, arsenicals, bismuth compounds), dyes, surface active agents, miscellaneous antiseptic agents, sulfonamides and antibiotics.
- In 163s, the above treats of pressor principles, myotics, mydriatics, antispasmodics, local anesthetics, barbiturates and related compounds, alkaloids, tannins, cardiac glycosides, sex hormones and structurally related compounds, and vitamins.
- 164w-165s. Special Analytical Methods. A consideration of the Food, Drug, and Cosmetic Act and of many of the official analytical methods of the United States Pharmacopoeia, National Formulary, and the Association of Official Agricultural Chemists. The laboratory work consists of special analytical methods, both physical and chemical, employed in the analyses of some drugs and foods. The viscosimeter

Abbé and Zeiss refractometers, polariscope, Duboscq colorimeter, photoelectric colorimeter, cryoscope, and other special instruments are used in the laboratory for quantitative measurements. Professional elective. (Students contemplating pursuing graduate work with a major in pharmaceutical chemistry and a minor in organic chemistry should elect Pharm. Chem. 164w (3 cred.) for their winter professional elective and Org. Chem. 156s (3 cred.) and 159 (2 cred.) for their spring quarter professional elective.) (6 cred.; sr., grad.; prereq. Pharm. Chem. 3w, 54f, Org. Chem. 2.) Mr. Wilson or Mr. Soine and assistants.

PHARMACOGNOSY

Professor Earl B. Fischer, Ph.D., Head; Instructor Charles E. Smyithe; teaching assistants; Gardner George Balok.

- 1f. Thallophtes. A classification and study of drugs obtained from the thallophtes. Lecture and laboratory work include a consideration of the life histories of members of this group with particular reference to the development, function, and nature of the plant parts which furnish pharmaceutical products. (2 cred.; soph.; no prereq.) Mr. Smyithe and assistants.
- 2w. Bryophytes, Pteridophytes, and Spermatophytes. This course deals with the drugs obtained from bryophytes, pteridophytes, and spermatophytes, and is a continuation of Pharmacog. 1f. The life histories and microscopic characteristics of the members of these groups and drug products obtained from them are studied. (2 cred.; soph.; prereq. Pharmacog. 1f.) Mr. Smyithe and assistants.
- 3s. Angiosperms. This course in microscopy and micrometry includes a detailed study of the inner structure of vegetable drugs derived from the angiosperms. Special consideration is given cell contents and cell forms by means of which vegetable drugs may be identified, and adulteration detected. (3 cred.; soph.; prereq. Pharmacog. 2w.) Mr. Smyithe and assistants.
- 54f. Drug Collection and Medicinal Plant Study. The course consists of the study of a large number of plants grown in the University of Minnesota medicinal plant gardens. Attention is given to the methods of cultivating and preparing crude drugs; the macroscopic characteristics of the living plants from which they are obtained; the preparation of herbarium specimens; the cleaning and milling of drugs, etc. (3 cred.; jr.; prereq. Pharmacog. 3s, Bot. 19s.) Mr. Fischer, Mr. Smyithe, and assistants.
- 55f.‡ Vegetable Drugs. This course treats of the identification, nature, and properties of official, and some of the more important nonofficial, drugs belonging to plant families from the Algae through the Chenopodiaceae. The order of presentation is based upon the taxonomic classification of plant families. (3 cred.; jr.; prereq. Bot. 19s, Pharmacog. 3s.) Mr. Fischer, Mr. Smyithe, and assistants.
- 56w.‡ Vegetable Drugs. A course complementary to Pharmacognosy 55f. It includes the study of the drugs belonging to plant families from the Phytolaccaceae through the Malvaceae. (3 cred.; jr.; prereq. same as for Pharmacog. 55f.) Mr. Smyithe and assistants.
- 57s.‡ Vegetable and Animal Drugs. This course further complements Pharmacognosy 55f and 56w and includes the study of drugs belonging to plant families from the Sterculiaceae through the Compositae. In addition, U.S.P. and N.F. drugs of animal origin are studied with respect to the identification, nature, and properties of each. (3 cred.; jr.; prereq. same as for Pharmacog. 55f.) Mr. Fischer, Mr. Smyithe, and assistants.

‡ A fee of \$2 is charged for this course.

- 58s. **Field Work.** The classes in pharmacognosy are taken on searches for native medicinal plants. Trips are arranged to include different localities such as swampland, upland, wooded tracts, etc. By so doing, the environmental and other characteristics of medicinal plants are brought to the attention of the students. (No cred.; soph., jr.; required of all students taking Pharmacog. 3s and 54f.) Mr. Fischer and assistants.
- 59f. **Biological Products.** This course is limited to the study of the preparation and pharmaceutical properties of the important official and nonofficial vaccines, toxins, antitoxins, serums, and diagnostic biological reagents. (3 cred.; sr.; prereq. Bact. 53.) Mr. Fischer.
- 60w-61s. **Pharmacognosy and Pharmaco-Histology.** These are courses in continuation of Pharmacog. 3s for those students wishing to elect further work in this field. Consideration is given to the microscopic appearance, structure, and function of drug tissues, cells and cell contents by means of which the identity and purity of vegetable drugs are determined. Instruction is given in the use of microscopical accessories such as the micropolariscope, microtome, microphotographic camera and in staining techniques. Registration is limited to available instructional facilities. Professional elective. (6 cred.; sr.; prereq. Pharmacog. 54f.) Mr. Fischer and assistants.
- 162w-163s.†† **Biological Assay of Drugs.** This course includes didactic and laboratory considerations of the biological assays of the vegetable and animal drugs of the U.S.P. and N.F. Registration in this course is limited to available instructional facilities. Professional elective. Students who elect Pharmacog. 162w as their professional elective for the winter quarter, must take Pharmacog. 164s (Insecticides, and Fungicides) for their spring quarter professional elective. (3 cred.; sr., grad.; prereq. Pharmacog. 57s, Pharm. Chem. 56s.) Mr. Fischer and assistants.
- 164s. **Insecticides and Fungicides.** Discussion of the principle types of insects and fungi which attack farm and garden crops or cultivated medicinal plants or which may be injurious in the household. Consideration is given to the methods and substances used for the prevention or control of damage caused by such plant insects and diseases. Professional elective. (3 cred.; sr., grad.) Mr. Fischer.

COURSES INCLUDED IN THE PHARMACY CURRICULUM
AND OFFERED BY

OTHER DEPARTMENTS OF THE UNIVERSITY

BACTERIOLOGY AND IMMUNOLOGY

Professor Winford P. Larson, M.D., Head; and instructors.

- 53f,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.; jr.; prereq. one yr. biol., one yr. chem.) Ar.

BOTANY

Professors Ernst C. Abbe, Ph.D., Chairman, Frederic K. Butters, Ph.D.; and assistants.

- 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. (3 cred. per qtr.; soph.; no prereq.) (Credits earned in Bot. 1, 5, 7 are accepted in lieu of Bot. 17, 18, 19.) Mr. Butters and assistants.

† A fee of \$2 is charged for this course.

†† A fee of \$5 per quarter is charged for this course.

CHEMISTRY: INORGANIC

Professor M. Cannon Sneed, Ph.D., Chief; Associate Professor Lillian Cohen, Ph.D.; and assistants.

6f-7w.‡ General Inorganic Chemistry. A study of the general laws of chemistry and of the nonmetals, metals and their compounds. (5 cred. per qtr.; fr.; no prereq.) (Credits earned in Gen. Inorg. Chem. 9 and 10 or 14 and 15 are accepted in lieu of Gen. Inorg. Chem. 6-7.) Miss Cohen and assistants.

CHEMISTRY: ORGANIC

Professors Lee I. Smith, Ph.D., Chief, Walter M. Lauer, Ph.D.; Associate Professors Richard T. Arnold, Ph.D., C. Frederick Koelsch, Ph.D.

1fw-2ws.‡ Elementary Organic Chemistry. Discussion of important classes of organic compounds, both aliphatic and aromatic. Laboratory work includes the preparation of typical substances. (4 cred. per qtr.; pharm., premed., predent.; prereq. Inorg. Chem. 12 or 11, or Qual. Pharm. Chem. 1s.) Mr. Arnold, Mr. Koelsch, and assistants.

156s. Elementary Organic Chemistry. Lecture course. Discussion of the important classes of organic compounds, both aliphatic and aromatic, together with some heterocyclic compounds. Courses 156 and 159 are prerequisite to all other advanced courses in organic chemistry. Those senior pharmacy students who have shown exceptional ability in Org. Chem. 1 and 2, and who contemplate pursuing graduate work in a major in pharmaceutical chemistry and a minor in organic chemistry may elect this course and Course 159 as their professional elective of the spring quarter. They will be required to take Pharm. Chem. 164w (Special Analytical Methods) as their professional elective for the winter quarter. (See page 14.) (3 cred.; prereq. two quarters of organic chemistry.) Mr. Smith, Mr. Lauer, Mr. Arnold.

159s.‡ Elementary Organic Chemistry. Laboratory course. To accompany Course 156s. Preparation of typical substances, some original work. Must be accompanied or preceded by Course 156. (Courses 156 and 159 take the place of Course 153.) (2 cred.; 1 lect. and 6 hrs. lab. work weekly.) Mr. Lauer, Mr. Arnold.

ECONOMICS AND BUSINESS ADMINISTRATION

ECONOMICS

Professors Richard L. Kozelka, Ph.D., Dean, Ernest A. Heilman, Ph.D., Roland S. Vaile, M.A.; Associate Professors A. Hamilton Chute, Ph.D., Harry J. Ostlund, B.A.; and instructors.

Econ.10f. An Introduction to Economics. The organization of modern industry; the various forces that influence prices, such as consumer demand, cost, degree of competition or monopoly, the quantity and rate of circulation of money, etc. (3 cred.; open only to College of Pharmacy students; no prereq.) Ar.

Econ.30w. Elements of Retail Accounting. The principles of accounting applied to retail record keeping, adjustment, and closing of records. The construction and analysis of statements (3 cred.; open only to College of Pharmacy students; prereq. Econ. 10.) Mr. Ostlund.

‡ A fee of \$2 per quarter is charged for this course. The student should purchase a \$5 chemistry deposit card from the bursar, in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The \$2 course fee, laboratory material, and breakage will be charged against this deposit.

BUSINESS ADMINISTRATION

B.A.67s. Retail Store Management. The principles of retail store management, including the planning and control of store operation, the nature of consumer demand, and the analysis of retailing costs. (3 cred.; open only to College of Pharmacy students; prereq. Econ. 10 and 30.) Mr. Chute.

ENGLISH

Professor Joseph W. Beach, Ph.D., Chairman; and instructors.

4f-5w-6s. Freshman Composition. (3 cred. per qtr.; fr.; prereq. placement test.)

MATHEMATICS

Professor Raymond W. Brink, Ph.D., Chairman; and instructors.

1f. Higher Algebra. (5 cred.; fr.; prereq. one year of elementary algebra. Open for credit to any student offering not more than one-half year of high school higher algebra for entrance.) Ar. For class hours, see Combined Class Schedule.

6f,w. Trigonometry. (5 cred.; fr.; prereq. plane geometry and Course 1 or high school higher algebra.) Ar. For class hours, see Combined Class Schedule.

7f,w. College Algebra. (5 cred.; fr.; prereq. 6 or high school trigonometry if approved by the department chairman.) Ar. For class hours, see Combined Class Schedule.

15f-16w. Elementary Mathematical Analysis. A course for pharmacy, premedical and other students who desire a survey of college mathematics including trigonometry, algebra, and calculus with emphasis on fundamental ideas rather than on technical preparation for more advanced courses in mathematics. (10 cred.; prereq. plane geometry and Course 1 or high school higher algebra.) Ar. For class hours, see Combined Class Schedule.

For advanced mathematics courses consult the Combined Class Schedule.

PHARMACOLOGY

Professor Raymond N. Bieter, M.D., Ph.D., Head; Associate Professor Harold N. Wright, Ph.D.; Assistant Professor John T. Litchfield, Jr., M.D.

2f. Pharmacology for Pharmacy Students. A detailed study of the actions of drugs and therapeutic uses, and their toxic manifestations. (3 cred.; sr.; prereq. Physiol. 4.) Dr. Bieter.

3w. Pharmacology for Pharmacy Students. The lectures are a continuation of Course 2f. Laboratory exercises on the important types of drug reactions *in vitro* and *in vivo*. (5 cred.; sr.; prereq. Pharmacol. 2f.) Dr. Bieter.

PHYSICS

Professor J. William Buchta, Ph.D., Chairman; and instructors.

1af-2aw-3as.†† Introduction to Physical Science. Laboratory included. Lectures and experimental demonstrations of the principles underlying physical phenomena. (12 cred.; all; prereq. high school algebra and geometry.) Mr. Buchta.

†† A fee of \$2 per quarter is charged for this course.

PHYSIOLOGY

Professor Maurice B. Visscher, M.D., Ph.D., Head; Associate Professor Joseph T. King, M.D., Ph.D.; and instructors.

4s. Human Physiology. Lecture, demonstrations, and quiz. (4 cred.; Pharm., S.L.A., H. Econ., and others; prereq. one qtr. zool., one qtr. chem.) Dr. King and others.

SCHOOL OF PUBLIC HEALTH

Professors Gaylord W. Anderson, B.A., M.D., Head, William A. O'Brien, M.D.; Associate Professor Donald W. Cowan, M.D., M.S.; and assistants.

3f,w,s. Personal Health. Elementary principles of normal body functions; predisposing and actual causes of disease; ways in which disease may be avoided. (2 cred.; fr., soph.; no prereq., not open to students who have taken Human Biology (G.C. 10C) in General College.) Dr. O'Brien.

51s. Community Hygiene. Elementary concepts of development, spread, and prevention of preventable diseases; community programs for their control. (3 cred.; jr., sr.; prereq. 3 or Human Biology in the General College; not open to students who have taken 4, 50, 52, or 53.) Dr. Cowan.

ZOOLOGY

Professors Dwight E. Minnich, Ph.D., Chairman, Jerry E. Wodsedalek, Ph.D.; and assistants.

1f-2w-3s.*‡ General Zoology. (10 cred.; all; no prereq.) (Pharmacy students should register for lecture section 3 and laboratory section 4.) Mr. Wodsedalek and assistants.

* To receive credit for any part of this course a student must complete the parts preceding the asterisk.

‡ A fee of \$1 per quarter is charged for this course.

Return to Editors Office

The Bulletin of the
UNIVERSITY of MINNESOTA

School of Public Health
Announcement for the Years 1944-1946



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February 13, 1945

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UNIVERSITY CALENDAR, 1945-46

1945

Fall Quarter

September	17	Monday	Extension registration, first semester begins
September	20	Thursday	Fall quarter fees due for students in residence spring quarter in the Institute of Technology, Business Administration, Dentistry, Dental Hygiene, Law, Nursing, Pharmacy, and Agriculture, Forestry, and Home Economics
September	24	Monday	Entrance tests ¹
September	24-25		Registration for Freshman Week for new students entering the freshman class
September	24-28		Freshman Week; Registration, ² College of Science, Literature, and the Arts, and General College
September	27-28		Registration, ² all colleges except Institute of Technology. Fall quarter fees due for all students in Science, Literature, and the Arts, General College, Education, Medical School, Medical Technology, Public Health, Physical Therapy, University College, and for new students in other undergraduate colleges
September	28	Friday	Registration, ² Institute of Technology
October	1	Monday	Fall quarter classes begin 8:30 a.m. ³ First semester extension classes begin ⁴
October	4	Thursday	Opening convocation 11:30 a.m.
October	6	Saturday	Last day for extension registration
October	11	Thursday	Senate meeting, 3:30 p.m.
October	13	Saturday	Last day for registration and payment of fees for the Graduate School, teachers in service, and adult special students
November	12	Monday	(Sunday, November 11, Armistice Day); holiday (except extension)
November	22	Thursday	Thanksgiving Day; holiday
December	13	Thursday	Senate meeting, 3:30 p.m.
December	14-15 and 17-20		Final examination period
December	20	Thursday	Fall quarter ends 6:00 p.m. ⁵ ; Commencement, 8:00 p.m.

Winter Quarter

December	27	Thursday	Winter quarter fees due for students in residence fall quarter in undergraduate colleges
1946			
January	4	Friday	Entrance tests ¹
January	4-5		Registration ² for new students in all colleges except Institute of Technology
January	5	Saturday	Registration for Institute of Technology. Registration and payment of fees for new students in all undergraduate colleges closes at noon
January	7	Monday	Winter quarter classes begin 8:30 a.m. ³
January	19	Saturday	Last day for registration and payment of fees for the Graduate School, teachers in service, and adult special students
January	28	Monday	Extension registration, second semester begins
February	9	Saturday	First semester extension classes close

CALENDAR

3

February	11	Monday	Second semester extension classes begin ⁴
February	12	Tuesday	Lincoln's Birthday; holiday (except extension)
February	14	Thursday	Senate meeting, 3:30 p.m.
February	16	Saturday	Last day for extension registration
February	21	Thursday	Charter Day Convocation, 11:30 a.m.
February	22	Friday	Washington's Birthday; holiday (except extension)
March 15-16 and 18-21			Final examination period
March	21	Thursday	Spring quarter fees due for students in residence winter quarter in undergraduate colleges. Winter quarter ends 6:00 p.m.; Commencement, 8:00 p.m.

Spring Quarter

March	29	Friday	Entrance tests ¹
March	29-30		Registration ² for new students in all colleges except Institute of Technology
March	30	Saturday	Registration for Institute of Technology. Registration and payment of fees for new students in all undergraduate colleges closes at noon
April	1	Monday	Spring quarter classes begin 8:30 a.m. ³
April	13	Saturday	Last day for registration and payment of fees for the Graduate School, teachers in service, and adult special students
April	19	Friday	Good Friday; holiday (except extension)
May	9	Thursday	Senate meeting, 3:30 p.m.
May	16	Thursday	Cap and Gown Day Convocation; Senate meeting 4:30 p.m.
May	30	Thursday	Memorial Day; holiday (except extension)
June	7	Friday	Second semester extension classes close
June 7-8 and 10-14			Final examination period
June	9	Sunday	Baccalaureate service
June	14	Friday	Spring quarter ends 6:00 p.m.; Seventy-fourth annual commencement, 8:00 p.m.

Summer Session

June	17-18		Registration, ² first term. First term fees due for students in all colleges
June	19	Wednesday	First term Summer Session classes begin 8:30 a.m. ³
July	4	Thursday	Independence Day; holiday
July	25	Thursday	Commencement, 8:00 p.m.
July	27	Saturday	First term closes
July	29	Monday	Registration, ² second term. Second term fees due for students in all colleges
July	30	Tuesday	Second term classes begin 8:30 a.m. ³
August	31	Saturday	Second term closes

¹ Applicants are urged to take entrance tests a month in advance of the quarter for which admission is desired. Tests may be taken at the Student Counseling Bureau. See Admission, in the Bulletin of General Information.

² Registration subsequent to the date specified will necessitate the approval of the college concerned. See privilege fees for late registration or late payment of fees, in the Bulletin of General Information. No student may register in the University after one week from the beginning of the quarter except in unusual cases wherein circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

³ First hour classes begin at 8:15 a.m. at University Farm.

⁴ This date does not refer to correspondence study courses, which may be started at any time during the year.

⁵ Extension classes continue through Friday, December 21, and will resume Monday, January 7, 1946.

FACULTY

ADMINISTRATIVE OFFICERS

Walter C. Coffey, M.S., LL.D., President of the University
Malcolm M. Willey, Ph.D., Vice President, Academic Administration
William T. Middlebrook, B.A., M.C.S., Vice President, Business Administration
Gaylord W. Anderson,* B.A., M.D., Dr.P.H., Director, School of Public Health
Theodore C. Blegen, Ph.D., L.H.D., Litt.D., Dean of the Graduate School
Ruth E. Boynton, M.S., M.D., Acting Director, School of Public Health
Harold S. Diehl, M.A., M.D., D.Sc., Dean of the Medical Sciences
Ruth B. Freeman, R.N., M.A., Director of the Course in Public Health Nursing
True E. Pettengill, M.S., Acting Director of Admissions and Records and Recorder

SCHOOL OF PUBLIC HEALTH

PUBLIC HEALTH ADMINISTRATION AND EPIDEMIOLOGY

Harold S. Diehl, M.A., M.D., D.Sc., Dean of the Medical Sciences
Gaylord W. Anderson,* B.A., M.D., Dr.P.H., Professor and Director
Ruth E. Boynton, M.S., M.D., Professor; Acting Director; Director of Students' Health Service
Albert J. Chesley, M.D., Clinical Professor; Executive Officer, Minnesota State Board of Health
Francis E. Harrington, B.S., M.D., Clinical Professor Emeritus
J. Arthur Myers, M.D., Ph.D., Professor
Ruth B. Freeman, R.N., M.A., Associate Professor
Ruth E. Grout, Ph.D., C.P.H., Associate Professor
Orianna McDaniel, M.D., Clinical Associate Professor Emeritus; Director of the Division of Preventable Diseases, Minnesota Department of Health
Lucy S. Heathman, Ph.D., M.D., Clinical Associate Professor; Chief of Laboratories and Assistant Director of the Division of Preventable Diseases, Minnesota Department of Health
Alan E. Treloar, Ph.D., Associate Professor
Haven Emerson, M.A., M.D., Professorial Lecturer
Floyd Feldman, M.D., M.P.H., Dr.P.H., Lecturer; City Health Officer, Rochester, Minnesota
Elsmere R. Rickard, M.S., M.D., M.P.H., Special Lecturer; Field Staff Member of the International Health Division of the Rockefeller Foundation
Robert N. Barr,* M.D., M.P.H., Clinical Instructor; Director of Rural Health Unit Services, Minnesota Department of Health
Leslie W. Foker, M.D., M.P.H., Clinical Instructor; Medical Director, Industrial Hygiene Unit, Minnesota Department of Health
Vern D. Irwin, D.D.S., M.P.H., Clinical Instructor; Director, Division of Dental Health, Minnesota Department of Health
Paul W. Kabler,* M.D., Ph.D., Clinical Instructor; Bacteriologist, Division of Preventable Diseases, Minnesota Department of Health
Viktor O. Wilson, M.D., M.P.H., Clinical Instructor; Director, Division of Child Hygiene, Minnesota Department of Health

* On leave of absence in military service.

PUBLIC HEALTH ENGINEERING AND SANITATION

- Charles A. Mann, Ph.D., Professor of Chemical Engineering and Chief of the Division of Chemical Engineering
- Harold A. Whittaker, B.A., Clinical Professor; Director of the Division of Sanitation, Minnesota Department of Health
- George O. Pierce,* M.S., C.P.H., Associate Professor; Public Health Engineer, Division of Sanitation, Minnesota Department of Health
- Theodore A. Olson,* M.A., Assistant Professor; Biologist, Division of Sanitation, Minnesota Department of Health
- Harold S. Adams, B.S., Special Lecturer; Senior Assistant Sanitarian Reserve, United States Public Health Service
- Richard G. Bond, M.S., Lecturer; Assistant Public Health Engineer, Iowa State Department of Health, Des Moines, Iowa
- Herbert M. Bosch,* B.S., M.P.H., Lecturer; Public Health Engineer, Division of Sanitation, Minnesota Department of Health
- Philip R. Carter,* D.V.M., M.P.H., Lecturer; Sanitarian, Division of Sanitation, Minnesota Department of Health
- Jack J. Handy, B.S., Lecturer; Public Health Engineer, Minneapolis Health Department
- Samuel P. Kingston, B.Ch.E., M.S., Lecturer; Public Health Engineer, Rochester, Minnesota
- George S. Michaelson, B.Ch.E., M.S., Lecturer; Assistant Public Health Engineer, Minnesota Department of Health
- Harvey G. Rogers,* Lecturer; Public Health Engineer, Division of Sanitation, Minnesota Department of Health
- Dean M. Taylor, B.Ch.E., Lecturer; Associate Public Health Engineer, Division of Sanitation, Minnesota Department of Health

PUBLIC HEALTH NURSING

- Ruth B. Freeman, R.N., M.A., Associate Professor and Director of the Course in Public Health Nursing
- Olivia T. Peterson,† R.N., Clinical Assistant Professor; Director of the Division of Public Health Nursing, Minnesota Department of Health
- Pearl Shalit, R.N., M.S.S., Clinical Assistant Professor; Director of Family Nursing Service of St. Paul
- Ruth von Bergen, R.N., B.S., Instructor
- Marie I. Bestul, R.N., B.S., Instructor
- Heide L. Henriksen, R.N., B.S., Instructor
- Katherine McMillan, R.N., B.S., Clinical Instructor
- Evelyn C. Nelson, R.N., B.S., Clinical Instructor
- Wancye C. Sandve, R.N., B.S., Instructor
- Catherine E. Vaura, R.N., B.S., Teaching Assistant

PERSONAL HEALTH AND HEALTH EDUCATION

- Ruth E. Boynton, M.S., M.D., Professor; Director of the Students' Health Service
- J. Arthur Myers, M.D., Ph.D., Professor
- William A. O'Brien, M.D., Professor; Director of Postgraduate Medical Education
- Donald W. Cowan, M.D., M.S., Associate Professor
- Ruth E. Grout, Ph.D., C.P.H., Associate Professor

* On leave of absence in military service.

† On leave of absence with the American Red Cross.

Carl J. Potthoff, M.D., M.P.H., Associate Professor
 Helen Starr, M.A., Associate Professor
 Myron M. Weaver, Ph.D., M.D., Assistant Professor
 Marie I. Bestul, R.N., B.S., Instructor
 J. Horton Daniels, M.A., M.D., Instructor
 Donald A. Dukelow, M.S., M.D., Clinical Instructor, Director of Public Health Education, Minnesota Department of Health
 Hally J. Fisher, R.N., Instructor Emeritus
 William H. Hollinshead,* M.D., Instructor
 Phillip D. Kernan, B.S., M.D., Clinical Instructor
 Ramona L. Todd, M.D., Ph.D., Instructor

BIOSTATISTICS

Alan E. Treloar, Ph.D., Associate Professor
 Borghild G. Behn, Ph.D., Assistant Professor

SPECIAL LECTURERS, 1943-44

Margaret Arnstein, R.N., M.A., C.P.H., Consultant in Public Health Nursing (District Supervisor) N. Y. State Department of Health
 Carl Buck, B.S., C.P.H., Field Director, American Public Health Association
 Orin Graff, Ph.D., Superintendent of Education, Norris School, University of Tennessee, Norris, Tennessee
 Lily Hagerman, R.N., B.S., Public Health Nursing Consultant, U. S. Public Health Service, Kansas City, Missouri
 F. Ruth Kahl, C.P.H.N., Public Health Nursing Consultant, U. S. Public Health Service, Bethesda, Maryland
 Pearl McIver, R.N., M.S., Senior Public Health Nursing Consultant, U. S. Public Health Service, Washington, D. C.
 James G. Townsend, M.D., Sr. Surgeon, U. S. Public Health Service, Washington, D.C.
 Clair E. Turner, Ph.D., Professor of Public Health, Massachusetts Institute of Technology, Cambridge, Massachusetts

MEMBERS OF OTHER DEPARTMENTS OF THE UNIVERSITY GIVING COURSES IN PUBLIC HEALTH

William F. Lasby, B.S., D.D.S., Dean of the School of Dentistry
 Lawrence R. Boies, M.A., M.D., Professor and Head of the Division of Ophthalmology and Otolaryngology and Director of Division of Otolaryngology
 Erling Hansen, M.D., Professor and Director of the Division of Ophthalmology
 Eva G. Donelson, Ph.D., Associate Professor, Division of Home Economics
 Henry E. Michelson, M.D., Professor, Division of Dermatology

FIELD ASSOCIATES

Roberta E. Foote, R.N., M.A., Educational Director, St. Louis County Health Department, Clayton, Missouri
 Eva Woerth Hague, R.N., B.S., Associate Director, Division of Public Health Nursing, Des Moines, Iowa

* On leave of absence in military service.

- Adah Hershey, R.N., Director of the Public Health Nursing Association, Des Moines, Iowa
- Leeta Holdrege, R.N., Director, Omaha Visiting Nurse Service, Omaha, Nebraska
- Mary A. Johnson, R.N., B.S., Field Advisory Nurse, Division of Child Hygiene, Minnesota Department of Health
- Janice Mickey, R.N., M.S., Supervising Nurse, City Department of Health, Rochester, Minnesota
- Marie Neuschaeffer, R.N., B.S., Director, Division of Public Health Nursing, State Department of Health, Des Moines, Iowa
- Ann Nyquist, R.N., Field Advisory Nurse, Division of Child Hygiene, Minnesota Department of Health
- Mellie F. Palmer, R.N., M.S., Director, Division of Public Health Nursing, City Department of Health, Peoria, Illinois
- Cornelia Van Kooy, R.N., Director, Division of Public Health Nursing, Wisconsin State Health Department, Madison, Wisconsin

COURSES IN PUBLIC HEALTH

General statement—The School of Public Health offers a wide selection of general and professional courses in the field of preventive medicine and public health. The general courses are designed for the student who desires some knowledge of personal health and an understanding of the community program that exists for the promotion of the public health. The professional courses are intended to furnish technical training for those who seek a career in public health work or who wish to use technical knowledge and procedures in their future work in allied fields. Because of its close relationship to public health work the biostatistical instruction at the University is incorporated as a part of the work of the School of Public Health.

Professional training courses in public health—Instruction in preventive medicine and public health has been conducted at the University of Minnesota for more than half a century. In 1922 the Department of Preventive Medicine and Public Health was authorized and established by the Board of Regents in response to the increasing demand for health education and for trained leaders in public health. Graduate courses in public health have been offered since that time. The course in public health nursing, one of the first in the country, was established in 1918. In 1935 the University of Minnesota was selected by the health officers of the states of this area as the institution to which they desired to send personnel for public health training under the provisions of the Social Security Act. Formal, organized curricula for the training of health officers and public health engineers were established at that time. In 1944 the Board of Regents authorized the expansion of the Department of Preventive Medicine and Public Health into a School of Public Health.

The School of Public Health provides courses for the training of health officers, public health engineers, public health nurses, and public health educators. Arrangements can also be made for special courses of study for other persons with professional training and public health experience, notably dentists, veterinarians, statisticians, and laboratory personnel.

Courses of study in public health nursing have been designed to prepare nurses for staff positions in public health agencies, and also for supervision, consultant service, and teaching in that field. The supervisory sequence may be taken as part of the work for a baccalaureate degree in some instances, but is more often incorporated into the program leading to the master of science or master of public health degree. Suitable professional experience as well as educational preparation is a prerequisite for training for more advanced positions in public health nursing.

In response to a growing demand for qualified health educators, a professional curriculum in the field of health education recently has been established at the University under a co-operative arrangement between the School of Public Health and the College of Education. Programs of study which include suitable courses and three months of practical field work are offered through a plan whereby a student may elect either of the two groups as his major department. Health education offerings also have been expanded for all students in public health and education in order that they may have better preparation for assuming their share of responsibility in community-wide programs.

The course of study in public health nursing leads to either a Bachelor's or a Master's degree; the program for the other professional groups leads to the degree of master of public health or master of science; or, for certain qualified students wishing to prepare for an academic or research position, the doctor of philosophy degree.

The School of Public Health has developed a teaching program in close collabora-

tion with other departments in the medical sciences group and with other departments of the University dealing with collateral fields of knowledge; in particular, engineering, biology, education, nutrition, and social sciences. The training of personnel for public health service is a part of the special interest of the University in training individuals for public service. Unusually broad facilities are afforded for acquiring factual material, techniques and points of view which are conducive to an intelligent approach to the problems of the various fields of public health service.

Equally important in this type of education is the opportunity to observe the application of these principles by official and voluntary agencies. To this end, a close working relationship has been developed with the Minnesota State Department of Health. Its Divisions of Preventable Diseases, Sanitation, Child Hygiene, and Public Health Nursing are housed on the University campus. Teaching has been recognized as one of its legitimate activities. The state health officer, his division heads, and technical assistants have therefore assumed a responsible and interested part in the instruction of students enrolled in the University. The directing heads and technical assistants of a large number of official and voluntary health organizations in Minnesota, Iowa, Missouri, Nebraska, and Wisconsin have also assisted in the effort to give supervised experience in field activities in both urban and rural areas. With the establishment of a School of Public Health at the University of Minnesota it has been further possible to invite health officers and sanitary engineers from neighboring states and officers of the United States Public Health Service to participate in planning the curriculum and, as guest lecturers, to discuss problems peculiar to their fields of interest. The teaching program has been aided by funds made available under the Social Security Act.

The rapid expansion in public health work in recent years has created a demand for trained personnel. The postwar period will undoubtedly see even greater demands for such professional people. The University recognizes that adequate training for this field cannot be acquired in a few weeks. There is a general consensus of opinion that the training period should extend over at least one academic year or three university quarters of postgraduate study. As far as possible, those students entering the University for this type of study should, therefore, attempt to devote a year to this training. The arrangement of courses by academic quarters is designed to present a logical sequence of material. In some fields an additional three months of field experience beyond the three academic quarters is required.

Short courses—Owing to the present war conditions, the demands for public health personnel are so acute that students may frequently be unable to devote more than one or two quarters to study at this time, being compelled to return to their posts before completing their training. For the benefit of such students the school has attempted to concentrate certain fundamental courses in a single quarter and, if the demand warrants, will repeat such courses in other quarters. In this way the student who can attend the University for only one or two quarters is able to obtain a maximum number of fundamental courses in the time available but will miss the supplemental and collateral courses needed for a degree. All courses so taken will be of usual academic grade and will count toward a degree if the student returns at a later date.

Summer Session—The Summer Session at the University of Minnesota consists of two terms each of between 5 and 6 weeks. In each of these terms are concentrated certain courses in preventive medicine and public health that are spread over one or two quarters during the regular year. Altho the offerings for the Summer Session vary somewhat from year to year, they are planned to make available some of the important fundamental courses each year with variation as to the supplemental courses. Visiting lecturers each summer bring new points of view in courses that are not available during the regular year. Special workshops lasting two weeks are offered in certain fields

during some of the summer sessions. In the summer of 1945 a workshop in supervision in public health nursing is to be offered. As there are demands for such workshop courses in other fields of public health they will be made available. The student should consult the Bulletin of the Summer Session for details or communicate with the School of Public Health.

In-service training courses—Non-credit, in-service training courses are offered at the University at the Center for Continuation Study through the co-operation of the School of Public Health and the director of postgraduate medical education. These courses vary in length from three days to two weeks and are offered to physicians, engineers, nurses, educators or other groups within the public health field. The faculty for these in-training courses is recruited from the regular university staff, supplemented by special lecturers.

COURSES FOR MEDICAL HEALTH OFFICERS

Major Adviser: Gaylord W. Anderson,§

Committee on Curriculum for Physicians: Gaylord W. Anderson,§ Albert J. Chesley, Harold S. Diehl.

Requirements for admission—

1. The degree of doctor of medicine from an acceptable institution (i.e., in Class A of the American Medical Association).
2. One year's experience as an intern in an approved hospital, or an acceptable substitute.

Application blanks for admission will be supplied by the School of Public Health upon request. They should be filed with the University at least two weeks before reporting for registration. A letter from the registrar of the college of graduation, *certifying to the professional degree and including an official transcript of the student's college record*, should accompany the application.

PLAN OF INSTRUCTION

The course of study leading to the degree of master of public health covers three academic quarters. These quarters may be taken in a single academic year or divided among two or more years according to the preference of the student. The following program of courses is suggested. (See page 20 for description of courses.)

Recommended Courses

No.	Title	Credits
P.H. 102*	Environmental Sanitation I	3
P.H. 104*	Epidemiology I	5
P.H. 105	Epidemiology II	3
P.H. 106*	Public Health Administration	3
P.H. 107	Child and Adult Hygiene	3
P.H. 109	Epidemiology III	3
P.H. 118	Environmental Sanitation II	2
P.H. 122	Public Health Administration Problems	3
P.H. 125*	The Community Health Education Program	3
P.H. 170†	Supervision in Public Health Nursing	3
P.H. 210	Seminar in Preventive Medicine and Public Health	1
Bact. 124	Filterable Viruses	4
H.Ec. 170	Nutrition of the Family	3
Med. 205	Tuberculosis	2
Ped. 158	Contagious Diseases	1
Pol.Sci. 120	Municipal Functions	3
Pol.Sci. 121	Municipal Administration	3

* Required course.

† Required course. P.H. 171 may be substituted for P.H. 170.

§ On leave of absence in military service.

Elective Courses

P.H. 108	Care of the Handicapped Child	2
P.H. 110	Biometric Principles	3
P.H. 111	Biostatistics Laboratory	2
P.H. 126	Industrial Health Problems	3
Bact. 101, 102	Medical Bacteriology	5
Bact. 116	Immunity	3
Bact. 120	Diseases of Animals Transmissible to Man	3
C.W. 130-131	Child Development	6
Ed.C.I. 114	The School Health Education Program	3
Ed.C.I. 217	Seminar in the School Health Education Program	Ar.
Med. 269	Syphilis Therapy	2
Ped. 102	Fundamental Principles of Nutrition and Metabolism as Applied to Children	1
Pol.Sci. 122	Municipal Problems	3
Psy. 144-145	Abnormal Psychology	6
Soc. 100	Social Psychology	3
Zool. 144-145-146	Animal Parasites and Parasitism	9

Requirements for degrees—See page 18.

COURSES FOR PUBLIC HEALTH ENGINEERS

Major Adviser: George O. Pierce.*

Committee on Curriculum for Engineers: Gaylord W. Anderson,* George O. Pierce,* Harold A. Whittaker.

Requirements for admission—Entrance upon work for which credit may be applied toward the degree of master of public health or master of science with a major in public health engineering is limited to those who have (a) an engineering degree, preferably with a major in sanitary, civil, or chemical engineering, or (b) a university degree with adequate training in the basic and applied sciences, including bacteriology. It is desirable, tho not required, that applicants shall have had some actual experience and have demonstrated an interest in the field of public health engineering.

Application blanks will be supplied upon request to the School of Public Health. They should be filed with the University at least two weeks before reporting for registration. A letter from the registrar of the college of graduation, *certifying to the professional degree, and a transcript of the applicant's college record*, should accompany the application. Applicants who are deficient in any of the above requirements but who are otherwise acceptable, may register as special students for such courses as may be available in the desired subjects. The School of Public Health will advise applicants and assist them in registering in such courses.

PLAN OF INSTRUCTION

The course of instruction leading to the Master's degree covers a minimum of three quarters of study. These quarters may be taken in a single academic year or divided among two or more years according to the preference of the student.

The program of study to be followed should include such courses as will supplement the engineer's previous education and experience in order that he may acquire a training in all phases of environmental sanitation and in other important branches of public health work. The program therefore includes courses dealing with water, milk, and food sanitation; sewage, excreta, and waste disposal; air hygiene; occupational hygiene; control of animals and insects involved in the spread of disease; sanitation of building and recrea-

* On leave of absence in military service.

tional areas; public health administration; epidemiology; public health nursing; biometry; and health education.

The following program of courses is suggested. (See page 20 for description of courses.)

<i>Recommended Courses</i>		
No.	Title	Credits
P.H. 102*	Environmental Sanitation I	3
P.H. 104*	Epidemiology I	5
P.H. 105	Epidemiology II	3
P.H. 106	Public Health Administration	3
P.H. 110	Biometric Principles	3
P.H. 111	Biostatistics Laboratory	2
P.H. 112	Water Supply Sanitation	4
P.H. 113	Sewage, Excreta, and Waste Disposal	4
P.H. 115	Food Sanitation	3
P.H. 116	Public Health Engineering Administration	2
P.H. 125*	The Community Health Education Program	3
P.H. 171†	Problems in Public Health Nursing	3

Elective Courses

P.H. 117	Sanitary Biology	2
P.H. 120	Correlation Analysis	3
P.H. 121	Correlation Analysis Laboratory	2
P.H. 125	The Community Health Education Program	3
P.H. 130	Statistical Inference	3
P.H. 131	Sampling Laboratory	2
Anal. Chem. 140	Water Analysis	3
Bact. 53§	General Bacteriology	(5)
Bact. 120	Diseases of Animals Transmissible to Man	3
Bact. 123	Applied Bacteriology	3
C.E. 161	Hydrology	4
C.E. 162, 163	Water Supply and Sewerage	3
C.E. 167	Industrial Hygiene Engineering	3
C.E. 172	City Planning	3
Ch.E. 131	Inorganic Industrial Chemistry	3
Ch.E. 132	Organic Industrial Chemistry	3
Ch.E. 140	Sanitary Chemistry	3
D.H. 51	Market Milk	(3)
D.H. 102	Dairy Bacteriology	3
M.E. 160	Heating, Ventilating, and Air Conditioning	3
M.E. 165	Advanced Heating, Ventilating, and Air Conditioning	3
M.E. 166	Refrigeration	3
M.E. 167	Advanced Heating, Ventilating, and Air Conditioning	3
M.E. 169	Heating, Ventilating, and Air Conditioning Laboratory	2
Pol.Sci. 120	Municipal Functions	3
Pol.Sci. 121	Municipal Administration	3

Requirements for degrees—See page 18.

COURSES FOR PUBLIC HEALTH NURSES

Major Adviser: Ruth B. Freeman.

Committee on Curriculum for Public Health Nurses: Gaylord W. Anderson,† Ruth B. Freeman, Katharine Densford, Ann Nyquist.

Courses for public health nurses are designed to meet the needs of the following students:

* Required course.

† P.H. 170 may be substituted for this.

§ No graduate credit allowed for this course.

¶ On leave of absence in military service.

(a) Those who have graduated from a school of nursing which does not grant an academic degree at the completion of the course. These students are admitted with advanced standing as candidates for the bachelor of science degree.

(b) Students who have graduated from a school of nursing and completed the work for a baccalaureate degree, with a major in some field other than public health nursing. Such students are admitted as candidates for a certificate in public health nursing.

(c) Students who have completed the work for a baccalaureate degree, with a major in public health nursing, or its equivalent, and who have had suitable professional experience to qualify them for advanced work in their professional field. These students may enroll for either the master of science or the master of public health degree.

(d) Students who are completing a five-year degree course in nursing, with a major in public health nursing. Such students are admitted through an affiliation agreement with the School of Nursing as candidates for the certificate, or under certain conditions as transfer students and candidates for the bachelor of science degree.

Students may enroll in the School of Public Health or under certain conditions jointly in the School of Public Health and the College of Education; candidates for the master of science degree register in the Graduate School.

REQUIREMENTS FOR ADMISSION

1. Candidates for the bachelor of science degree

(a) Ability to meet regular entrance requirements of the University. Occasionally students who are not eligible for matriculation at the University may be accepted as "special students" upon approval of the public health nursing committee. When admission is granted on this basis, the student is *not eligible for a degree or certificate* until her entrance status has been satisfactorily adjusted. If unable to present approved high school credentials, the student must demonstrate ability to carry university work through satisfactory completion of entrance examinations. Students who plan to take entrance examinations should come to the University four days in advance of the date set for registration. (See Bulletin of General Information, which may be obtained from the director of admissions and records.)

(b) Graduation from an accredited school of nursing offering a satisfactory theoretical and clinical experience.

(c) Approval of the Public Health Nursing Committee.

Advanced standing for those transferring from other schools of nursing will be determined upon review of the nursing records of the applicant. Approximately 45 credits may be allowed, but there is some variation depending upon the amount and type of preparation afforded by the school of nursing attended. If essential services have been inadequate in the basic nursing program of the student, she may be required to complete additional hospital service before advanced standing will be granted, though not necessarily before admission to the course.

Field observation or experience is a prerequisite for the course in public health nursing. The student should, where possible, arrange for at least a week of observation in a public health agency in her own community. If this is not possible the University will arrange for this observation prior to registration. Requests for such observation should be sent to the director of the Course in Public Health Nursing, University of Minnesota, at least one month in advance.

2. Candidates for a certificate in public health nursing

(a) Baccalaureate degree.

(b) Courses in bacteriology, psychology, and sociology. Admission without these courses may be approved subject to their completion before awarding of the certificate.

They may not, however, be substituted for the required courses.

- (c) Basic nursing education as described in 1 (b).

3. Candidates for the master of science degree

Candidates for the master of science degree must meet the regular requirements of the Graduate School as described in the bulletin of that school. They must have:

- (a) Baccalaureate degree.
- (b) Major sequence in public health nursing, certificate in public health nursing, or equivalent.
- (c) Suitable professional experience and personal qualifications.

4. Candidates for the master of public health degree

- (a) Baccalaureate degree.
- (b) Major sequence in public health nursing, certificate in public health nursing, or equivalent.
- (c) Suitable professional experience and personal qualifications.

PLAN OF INSTRUCTION

1. Undergraduate program

Students may attend the University for the entire period necessary to secure a degree or may attend for as short a time as a single quarter. In general, it is advisable to plan for at least two quarters of work, since this lends a greater amount of continuity. Students who plan to remain at the University for a period longer than one year are urged to register for general academic subjects in advance of their professional courses.

Those entering during the fall quarter, even though admitted with advanced standing, are eligible to take advantage of Freshman Week activities. The Freshman Week Handbook, "Introduction to the University," may be secured from the director of admissions and records. Students are particularly urged to attend the lectures on the library, tour of the library, and lectures on "How to Study."

Field work is an essential part of the program. Supervised practice in a family health agency, and in rural and school services, is required for either the degree or certificate in public health nursing. Opportunities to participate in closely supervised field experience have been arranged through collaboration with the state departments of health of Iowa, Minnesota, and Wisconsin; the city health departments of Duluth, Minneapolis, Rochester, and St. Paul, Minnesota, and Peoria, Illinois; the Department of Health of St. Louis County, Missouri; the Minneapolis Community Health Service; the Public Health Nursing Association of Des Moines, Iowa; the St. Paul Family Nursing Service; and the Visiting Nurse Association of Omaha, Nebraska.

Application for field experience should be made at least three months before the period when it is desired. More valuable rural experience is available for those who can provide their own cars.

Students are required to furnish their own uniforms, transportation to and from the field, and board and lodging during this experience. With the exception of field work in supervision, students are expected to devote full time to field work, and may not carry other university courses concurrently.

Required Courses

No.	Title	Credits
English		9-15
(The required course will depend upon the results of the English Placement Test which must be taken before the date of registration.)		
Social Sciences		
Soc. 1	Introduction to Sociology	5
Soc. 49	Social Pathology	3
Soc. 90, 91, or 129	Principles of Social Case Work	3
	Elective in child welfare group	3
	Courses from social science group exclusive of sociology (history, political science, economics)	9
		23
Natural Sciences		
Psy. 1-2	General Psychology	6
Bact. 53 or 101	General Bacteriology or Medical Bacteriology	5
	Courses from science group (bact., chem., zool., etc.)	14
		25
Professional Courses		
P.H. 53	Elements of Preventive Medicine and Public Health	5
P.H. 62-63	Principles of Public Health Nursing	6
P.H. 65	Field Work in School Nursing	} 15-23*
P.H. 66	Field Work in Rural Nursing	
P.H. 67	Field Work in Family Health Agency	
P.H. 133 or 61	Mental Hygiene Aspects of Public Health Nursing	3
Ed. 81	Introduction to Education for Public Health Nurses	3
	Electives from School of Public Health	5
	Free electives from any department	27-41
		72-78
		135
	Advanced standing for three years of hospital training approximately	45
		180

The curriculum in the College of Education leading to a bachelor of science degree with a major in public health nursing differs from the above curriculum only in that 26 credits in education are required, and this leaves 0-15 credits for electives.

2. Certificate program

The certificate program extends over a period of three to three and one-half quarters. The student who enrolls for the certificate course without having had either field work or suitable experience in public health nursing may need to spend 3½ quarters at the University in order to complete the necessary requirements.

Required Courses

No.	Title	Credits
P.H. 53	Elements of Preventive Medicine	5
P.H. 62-63	Principles of Public Health Nursing	6
P.H. 65	Field Work in School Nursing	} 15-23*
P.H. 66	Field Work in Rural Nursing	
P.H. 67	Field Work in Family Health Agency	
P.H. 133 or 61	Mental Hygiene Aspects of Public Health Nursing	3
Ed. 81	Introduction to Education for Public Health Nurses	3
Soc. 90, 91, or 129	Principles of Social Case Work	3-5
	Electives from School of Public Health	3
	Electives from related departments to make a total of at least 45 credits.	

* Exemption for part of this requirement may be given for satisfactory prior experience received in an approved agency offering suitable supervision.

3. Graduate program

The graduate program ordinarily extends over a minimum of three quarters.

Students enrolled for the M.P.H. or M.S. degree are expected to take certain courses which are designed to familiarize them with the problems of professional groups with whom they will work in the public health field.

<i>Required Courses</i>		
No.	Title	Credits
P.H. 102	Environmental Sanitation I	3
P.H. 104	Epidemiology I	5
P.H. 106	Public Health Administration	3
P.H. 125	The Community Health Education Program	3
P.H. 140*	Vital Statistics	3
P.H. 170	Supervision in Public Health Nursing	3
P.H. 171	Problems in Public Health Nursing	3

Required courses have been reduced to the minimum to facilitate individual planning for each student. Courses offered in other schools and colleges of the University are freely available to qualified students, and offer an almost unlimited range of possibilities for supplementary courses. It is possible to secure a concentration of work in a related field, such as child welfare, social case work, health education, or nutrition where it seems desirable to do so.

COURSES FOR HEALTH EDUCATORS

Major Adviser: Ruth E. Grout.

Committee on Curriculum for Health Educators: Gaylord W. Anderson,§ Ruth E. Grout, Helen Starr.

In the rapidly growing field of health education there is urgent need for professionally prepared personnel. An increasing number of health departments are adding health educators to their staffs, and schools and other agencies are demanding competent health education leadership. As a contribution toward meeting these field demands, the University of Minnesota offers a new graduate curriculum in health education for qualified candidates.

The program of study now available in the School of Public Health may lead to the degree of master of public health, master of science, or the doctor of philosophy.†

REQUIREMENTS FOR ADMISSION

1. A Bachelor's degree from an acceptable institution. (Qualified students who have not received the Bachelor's degree and are not candidates for the Master's degree may be admitted as special students.)
2. Evidence of a satisfactory background in (a) the basic health sciences; (b) education and educational psychology; and (c) the social sciences.
3. Personality qualifications essential for satisfactory leadership in health education.

PLAN OF INSTRUCTION

The course of study leading to the Master's degree covers at least three academic quarters. One quarter of field work in an approved training center or equivalent experience will be expected of all students. These quarters may be taken in a single academic year or divided among two or more years according to the preference of the student.

Candidates for the Doctor's degree must spend at least three years of graduate study in approved subjects. The first two years or the last year must be spent in residence at the University of Minnesota.

* Required unless student elects P.H. 105 and 109.

† The program of study in the College of Education may lead to the degree of master of arts or doctor of philosophy.

§ On leave of absence in military service.

The program of study to be followed should include such courses as will supplement the student's previous education and experience in order that he may acquire a well-balanced training in the branch of health education for which he is preparing.

The following program of courses for the Master's degree is suggested. Courses taken for this degree shall include those listed in Group A unless the student has taken the course as an elective toward the Bachelor's degree. Recommended supplementary courses are listed in Group B.

Group A. Recommended

No.	Title	Credits
P.H. 102	Environmental Sanitation I	3
P.H. 104	Epidemiology	5
P.H. 106	Public Health Administration	3
P.H. 125	The Community Health Education Program	3
P.H. 140	Vital Statistics	3
P.H. 171	Problems in Public Health Nursing	3
P.H. 210	Seminar in Public Health	3
P.H. 227	Problems in the Community Health Education Program	Cr. ar.
Ed.C.I. 114	The School Health Education Program	3
Phys.Ed. 115*	Philosophy and Current Problems of Physical Education	2
	Electives in Education	
and		
P.H. 190	Field Work in the Community Health Education Program	Cr. ar.

Group B. Supplementary

P.H. 108	Care of the Handicapped Child	2
P.H. 126	Industrial Health Problems	3
Bact. 101-102	Bacteriology	6-9
C.W. 131	Child Welfare	3
C.W. 170	Parent Education	3
Ed.Ad. 124	Public School Administration	3
Ed.C.I. 104	Adult Education	2
Ed.C.I. 105	Visual Aids in Teaching	2
Ed.C.I. 107	Radio in Education	3
Ed.C.I. 129	Principles and Problems of Teaching Social Hygiene	3
Ed.C.I. 170	Curriculum and Course of Study Construction	3
Ed.C.I. 217	Seminar in the School Health Education Program	Cr. ar.
Ed.Psy. 133	Guidance in Secondary Schools	2
Ed.Psy. 293	Psychology of Learning	3
H.E. 170	Nutrition of the Family	3
H.E. 171	Child Nutrition	3
Jour. 101	The Reporting of Public Affairs	3
Psy. 156	Psychology of Advertising	3
Pol. Sci. 120	Municipal Functions	3
Pol. Sci. 121	Municipal Administration	3
Soc. 129	Principles of Social Case Work	3
Soc. 139	Personality Development	3
Speech 106	Public Speaking and Discussion	3

Requirements for degrees—See page 18.

All candidates for a Master's degree must complete a program of at least three quarters of approved study totaling 45 credit hours. One quarter of field work in public health education will be required of most candidates for the Master's degree or the doctor of philosophy degree.

* This course is to be approved by the College of Education.

DEGREES AND CERTIFICATES

The emphasis of the instructional program for the school is directed primarily toward postgraduate study. The professional training courses in public health lead to degrees of bachelor of science, master of science or master of public health, and doctor of philosophy. The certificate of public health nursing is offered only to nurses who have already received the baccalaureate degree.

The certificate of public health nursing and the degree of master of public health are awarded on joint recommendation of the School of Public Health and the Medical School. The master of science and doctor of philosophy degrees are awarded on recommendation of the Graduate School in accordance with provisions established for the University at large.

Opportunity for completing a full course of study at the undergraduate level is provided as a special undertaking of the School of Public Health only in the field of public health nursing. Those wishing to receive the baccalaureate degree with a major in any other public health specialty may make arrangements to do so by enrolling in the College of Science, Literature, and the Arts or in the College of Education, thereafter electing a major in one of the divisions of the School of Public Health. Such students should receive approval of their programs from the college adviser in the major field selected. At the present time, statistics is the only field other than public health nursing within the scope of the school in which there is justification for undergraduate specialization if that is to serve as a basis of employment following graduation with the bachelor of science degree. Undergraduate specialization preliminary to postgraduate study in public health is, however, desirable in all fields covered by the school curricula.

The requirements for the several degrees and certificates may be summarized as follows:

Doctor of philosophy—Major fields of study available for additional degrees in the School of Public Health include biostatistics as well as public health. A major in biostatistics may be elected by those whose interests lie in statistical theories and their application and do not otherwise include the public health field.

Entrance upon work for the doctor of philosophy degree with a major in public health will be limited to those who have: (a) the degree of doctor of medicine from an acceptable institution; or (b) the Bachelor's degree in engineering; or (c) the Bachelor's degree with a satisfactory major in biological sciences.

A three-year program of study, approved by a committee of the Graduate School, together with a thesis meeting prescribed standards, is required. A minimum of three quarters must be spent in residence at the University of Minnesota. Limited transfer of credits from other approved institutions will be permitted under specified conditions. The general requirements are set forth fully in the Bulletin of the Graduate School.

Master of science—This degree is available under two plans, the one involving a minimum of course work plus preparation of a thesis, and the other embracing more extended course work and the formulation of brief reports in lieu of a thesis. Three quarters of study in residence at the University are required in each case, and no transfer of credits is allowed. Major fields and advisers may be selected as in the Ph.D. program. For more detailed information, see the Bulletin of the Graduate School.

Master of public health—When the student wishes advanced professional preparation for work in public health, the curriculum leading to this degree may be elected. Students will be admitted to candidacy who have already obtained basic professional training in medicine, dentistry, engineering, public health nursing, public health education, veterinary medicine, or other related fields. This must be certified by prior graduation from an approved institution with at least a bachelor of science degree.

All candidates for the master of public health degree must complete a program of at least three quarters of approved study in courses at the University of Minnesota. This must include a *minimum* of 45 credits in courses of graduate grade, including public health administration, epidemiology, sanitation, public health nursing, health education, and vital statistics. The program selected must have the approval of the student's adviser, and a grade average of not less than 1.5 (based on: A = 3, B = 2, and C = 1) must be attained.

Certificate in public health nursing—A certificate in public health nursing is awarded simultaneously with the bachelor of science degree to those who complete the prescribed curricula with a major in public health nursing at the University of Minnesota. Others who have received the baccalaureate degree in any field from an approved institution and who have been graduated with satisfactory theoretical and clinical experience from an accredited school of nursing, may become candidates for the certificate in public health nursing. A total of 45 credits must be earned in approved courses and field work conforming to the curriculum set forth in this bulletin. Thirty of the 45 credits for the certificate in public health nursing must be taken at the University of Minnesota. Candidates for the certificate must have an adequate background in the basic principles of bacteriology, psychology, and sociology. Students who cannot meet these latter requirements may be admitted on condition that they take the necessary courses to remedy this deficiency *in addition* to the prescribed curriculum.

Bachelor of science—The School of Public Health contributes special training curricula for this degree primarily in the field of public health nursing. The degree may also be earned with a major in biostatistics by those who wish to secure preparation for a career in statistical work, and with a major in public health by those who desire to give emphasis to basic courses in public health as part of their pre-professional training. The requirements for these major fields are as follows:

1. *Major in public health nursing*—Students may register for this degree in either the School of Public Health or in the College of Education. The curriculum in the College of Education differs from that in the School of Public Health only in that 26 credits in prescribed education courses must be taken in addition to required professional courses.

A total of 180 credits in approved courses is required. The usual course load per quarter is 15 credits, therefore the curriculum normally requires four academic years of three quarters each for its completion. The student is expected to maintain a satisfactory academic standing while attending the University and may not graduate with less than a C average in all work as well as a C average in the major sequence. For every five honor points in excess of one honor point per credit (A = 3, B = 2, C = 1), the credit hours required for graduation are diminished by one, but the student must complete all the required courses.

At least three quarters in residence are required for the bachelor of science degree; at least two of these quarters must be in the senior year.

2. *Major in biostatistics or public health*—Registration for courses leading to the bachelor of science degree with a major in biostatistics or public health may be made either in the College of Science, Literature, and the Arts or the College of Education. The curricula are, in general, of a broadly elective type and designed for a normal period of study covering four academic years. An adviser in the major field should be selected, preferably on admission to the University, and certainly not later than the beginning of the junior year. Full details concerning registration and courses will be found in the Bulletin of General Information and in the bulletins of the respective colleges.

DESCRIPTION OF COURSES

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 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.

Room schedules will be posted on the Public Health bulletin board in 121 Millard Hall.

ABBREVIATIONS AND SYMBOLS

I, II, III, etc.	Main campus, 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).
Ar.	To be arranged or assigned.
Cred.	Credits.
Lab.	Laboratory.
Lect.	Lecture.
MTWThFS	Monday, Tuesday, etc.
Prereq.	Prerequisite.
Rec.	Recitation.
Sec.	Section.

A parenthetical statement after the title of each course gives the following information: the number of credits the course carries, the classes to whom it is open, and the courses prerequisite to it. *Abbreviated statement:* (5 cred.; jr., sr.; prereq. 6). *Expanded statement:* This course carries five credits, is open to juniors and seniors only, and has for a prerequisite, Course 6 in the same department.

SUBCOLLEGIATE COURSES IN SCHOOL OF AGRICULTURE

A1. Hygiene. Methods of promotion of health and prevention of disease; fundamentals of healthful living; individual and community activities against the spread of disease. (1 cred.)			
(Fall)	III	S	Dr. Weaver
(Winter)	III	S	Dr. Weaver
A2. First Aid. Emergency care of accidents and injuries. Lectures and demonstrations. (1 cred.)			
(Fall)	VIII-IX	M	
(Winter)	VIII-IX	M 01MeH(UF)	Dr. Daniels
A3. Family Care. Hygiene of infancy, childhood, and womanhood; care of illness in the home. (5 cred.)			
(Winter) Sec. 1	I-II	TThS	313HE
2	VII-VIII-IX	MW	01MeH Miss Bestul (UF)

A4. Rural Sanitation. Disposal of excreta, sewage, and other waste; location, construction, and operation of rural water supplies; sanitary production, handling, processing, and serving of food; control of animals and insects involved in the spread of disease; ventilation and air conditioning; farm and home safety. (3 cred.)

(Winter)	IV	TThS	Mr. Pierce, Mr. Bond
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PUBLIC HEALTH

3f,w,s.* Personal Health. Elementary principles of normal body function; predisposing and actual causes of disease; ways in which disease may be avoided. (2 cred.; fr., soph.; no prereq. Not open to students who have taken Human Biology (G.C.10C.) in the General College.

(Fall)	VI	MW	BuAud	Dr. O'Brien
(Winter)	VII	TTh	BuAud	Dr. O'Brien
(Spring)	VI	MW	BuAud	Dr. O'Brien

4w,s.* Health Problems of the Community. Personal health and prevention of disease in the family; relation to community health and disease control, important diseases and their prevention. (2 cred.; prereq. 3. Not open to students who have taken Human Biology (G.C.10C.) in the General College.) VI TTh. Dr. Potthoff.

50w,s.* Public and Personal Health. Causes of diseases and of physical defects; fundamental principles and working methods of health conservation and disease prevention. Lectures, discussions, and directed readings. (3 cred.; open to students who have not taken 3, 4, 52, 53, or Human Biology (G.C.10C.) in the General College; no prereq.)

(Winter)	III	MWF	Ar	Dr. Potthoff
(Spring)	II	MWF	Ar	Dr. Potthoff

51f,w.* Community Hygiene. Elementary concepts of development, spread, and prevention of preventable diseases; community programs for their control. (3 cred.; jr., sr.; prereq. 3, 50, or Human Biology (G.C.10C.) in the General College; not open to students who have taken 4, 52, or 53.)

(Fall)	II	MWF	Ar	Dr. Potthoff
(Winter)	VII	MWF	Ar	Dr. Potthoff

52a,b;f,w,s.*† Health Care of the Family. Factors affecting the health of the family as a unit; environmental factors, including elementary sanitation; prevention of accidents; communicable diseases, their transmission and prevention; prenatal and infant hygiene and care; principal problems in preschool and school hygiene; care of the sick room; observation and care of the patient; elementary symptomatology. For home economics students. (3 cred.; soph., jr., sr.; prereq. Bact. 53, Human Physiol. 4 Not open to students who have taken 50 or 51.)

52a Lect., f,s—2 cred.

52b Lab., f,w,s—1 cred.

VI	MW	313HE
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Sec. 1

2

VII-VIII

VII-VIII

T

Th

Dr. Todd,

Miss Bestul

53f,s.† Elements of Preventive Medicine and Public Health. Susceptibility and resistance to disease; occurrence and prevention of communicable, degenerative, and industrial diseases; protection of food, water, and milk; school health work; vital statistics. (5 cred.; nurses and students in pre-soc. work; prereq. 3 or 50, or equiv. and a course in Bacteriology.)

Lect.

Rec. Sec. 1

2

II

III

VI

MWF Ar

TTh Ar

TTh

Dr. Cowan

* No credit granted for this course in major sequence in public health nursing.

† Lectures given fall and spring quarters only. Laboratory sections given fall, winter, and spring quarters.

54. Principles of Public Health Nursing for Nursing School Personnel. Health teaching in the various services of a public health program with particular emphasis on the public health nurse's part in each phase of the program (morbidity, maternity, infancy, preschool, school, and adult health problems; communicable disease, tuberculosis, venereal disease, orthopedic problems; and accident prevention). Brief consideration of the organization and administration of public health nursing programs. (3 cred.) Not offered 1944-46 except in Extension. Miss Freeman.

55w. Nursing and Social Problems in the Control of Gonorrhoea and Syphilis. History, prevalence, and epidemiology of gonorrhoea and syphilis, public health control measures; individual and family problems resulting from these diseases. Provision will be made for conferences and case discussion. (2 cred.; prereq. 53 and 62;) Soc. 90 or 109 may be substituted by pre-social work students; may be taken simultaneously with any of these prerequisites.) VI MW. Miss Freeman.

56s. First Aid and Safety for Nurses. Principles of first aid in home, industry, and community; prevention of accidents; organization of community programs in first aid and safety; professional and legal responsibilities of nurses in administering first aid. (3 cred.; nurses only.) VI, VII, VIII, TTh. Dr. Weaver.

57w.* Health of Infant and Preschool Child. Maternal and child health in public health program, problems of infant and maternal mortality, growth and development of infant and young child, care and feeding of normal infant; prevention and correction of physical defects. (2 cred.; jr., sr.; prereq. 4, or 50, or 51, or 52, or 53.) II MF. Dr. Boynton.

58w. Maternal and Child Hygiene. 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. (3 cred.; nurses; prereq. 53 and 62.) II MF and one hr. ar. Dr. Boynton.

59f,s. § Health of the School Child. Mental and physical growth; prevention and control of diseases common to the school-age child; health appraisal; correction of physical defects; emotional problems; care of the handicapped; the school environment and its effect on child health; accident prevention and emergency care; practical problems of health supervision and administration. (3 cred.; prereq. 3 and 4, or 3 and 51, or G.C.10C and 4, or G.C.10C and 51, or 50, or 53; will be waived for teachers and school nurses, but cred. granted only after completion of prereq.)

(Fall)	VI	MWF	Miss Grout,
(Spring)	VIII	MWF	Miss Bestul, Dr. Todd

60f,s. Tuberculosis and Its Control. History of tuberculosis movement and campaign in the United States; early diagnosis and sanatorium treatment; tuberculosis in children; psychology of tuberculosis; supervision of returned sanatoria patients; state program for eradication of tuberculosis; legislation. (2 cred.; nurses, others admitted by special permission; prereq. 4, or 50, or 51, or 52, or 53, and 62.) IV TS. Dr. Myers.

62f. † Principles of Public Health Nursing I. Trends, principles and techniques in public health nursing service including family health guidance. (3 cred.; public health nurses; others admitted by permission; prereq. 53 or equiv. but may be taken concurrently.)

Sec. 1 †	IV	MWF	Ar	Miss Freeman
2 †	VI	MWF	Ar	and associates

* No credit granted for this course in major sequence in public health nursing curriculum.

† To receive credit for this course the student must also complete Course 63.

‡ Students cannot receive credit for both Courses 59 and 69.

§ Section 1 is for students who have not had practical experience in public health nursing; section 2 is for students who have had such experience.

63w.* Principles of Public Health Nursing II. Organization of public health nursing services; program planning; evaluation; professional problems in public health nursing. (3 cred.; public health nurses; others admitted by permission; prereq. 53 or equiv. but may be taken concurrently.)

Sec. 1§	IV	MWF	Ar	Miss Freeman
2§	VI	MWF	Ar	and associates

63s.* Principles of Public Health Nursing II. (See 62f, 63w.) IV MWF. Miss Freeman and associates.

65f,w,s.‡ Field Work in School Nursing.† Credits allowed according to experience in this field. Working with the school nurse the student observes and participates in the activities included in the school nursing program; special attention to organization, relationships, techniques, methods of informal health teaching, provision for handicapped children, and home visiting. (Cred. ar.; public health nurses only; jr., sr.; prereq. 53, 62, and 67.) Miss Freeman and associates.

66f,w,s.‡ Field Work in Rural Nursing.† Credits allowed according to experience in this field. The student accompanies the rural nurse on her rounds and observes and participates in the activities in a rural nursing program. Special attention to organization for rural health work, methods of health teaching, development of community leadership, planning and conducting classes of various types for differing age groups, home visiting, etc. (Cred. ar.; public health nurses only; jr., sr.; prereq. 53, 62, and 67.) Miss Freeman and associates.

67f,w,s,su.‡ Field Work with Family Health Agency.† Credits allowed according to experience in this field. Lectures, demonstrations, and supervised experience in prenatal and infant clinics and in home visiting. This includes bedside care of all types of cases, with emphasis on promotion of physical and mental health and recognition of social problems. (Cred. ar.; public health nurses only; jr., sr.; prereq. 53, 62.) Miss Freeman and associates.

70w,s.‡‡ Practice Teaching in Home Nursing for Public Health Nurses. (Same as Ed.T.50.) Includes practice in planning instruction and in teaching adults. (Cred. ar.; jr., sr.; prereq. P.H.67, Ed.81, or permission of instructor.) (Enrolment limited.) Ar. Miss Grout, Miss Bestul.

76f. Nutrition in Public Health Nursing. (Same as H.E. 76.) Principles of nutrition applied to family teaching, consideration of diet for normal living, at special periods in life, and for certain diseases. Discussion of diet problems of low income groups. (3 cred.; prereq. 62 or may be taken concurrently.) II TThS. Miss Donelson.

80w.‡‡ Elementary Vital Statistics. Sources of data on population, mortality, morbidity and natality. Calculation of rates and graphical comparison of time and age trends. (3 cred.; public health nurses and special; permission of instructor.) Ar. Mr. Treloar.

90. Measurement in Medicine. Classification and measurement as descriptive methods in medicine; frequency proportions and probability; errors of random sampling and judgment of significance by statistical methods. (2 cred.; freshman medical and special; permission of instructor.) Ar. Mr. Treloar.

91. First Aid. Principles of first aid in home, industry and community; first aid for war injuries. (22 hours; 1 cred.; freshman medical students only.) Ar. Dr. Potthoff.

* To receive credit for this course the student must also complete Course 62.

† Students must maintain a C average in theory completed before they are admitted to any field work.

‡ A fee of \$50 a month is charged for this course.

‡‡ A fee of \$1 per credit is charged for this course.

§ Section 1 is for students who have not had practical experience in public health nursing; section 2 is for students who have had such experience.

100. Preventive Medicine. Environmental and biologic factors concerned in the maintenance and transmission of disease, and the possibilities of control or prevention through the efforts of the private physician alone or in collaboration with community, state, or federal agencies. (4 cred.; sophomore medical students only.) Dr. Anderson, Dr. Boynton.
- 101f,w,s,su. Public Health Administration and Field Work. A series of field trips to acquaint the student with the activities of the State Board of Health and with problems of water filtration, sewage disposal, and milk sanitation. (2 cred.; senior medical students only.) Dr. Anderson, Dr. Boynton.
- 102f. Environmental Sanitation I. Methods for promoting man's health and comfort by controlling his environment; water supply, sanitation, food sanitation, pollution abatement; sewage, excreta, and waste disposal; bathing place sanitation, air hygiene, illumination, housing, control of insect and animal vectors of disease, industrial hygiene and sanitation. (3 cred.; sr., grad.; prereq. 50 or 51 or 53 or 100 or by permission or may be taken concurrently with any of these.) I MWF. Mr. Whittaker, Mr. Pierce, Mr. Bond.
- 103f,w,s. Public Health Bacteriology. Bacteriologic and serologic diagnosis, public health laboratory administration and methods. (Cred. ar.; grad.; prereq. Bact. 101-102, 116 and permission of instructor.) Dr. Heathman.
- 104w. Epidemiology I. Factors underlying the spread of infectious diseases, with detailed discussion of selected diseases; simple statistical and epidemiologic methods in the study of diseases. Lectures and laboratory. (5 cred.; jr., sr., grad.; prereq. 53 or 100 and consent of instructor; physicians, others by permission.) I TThS and IV TS. Dr. Anderson, Dr. Diehl, Mr. Treloar.
- 105w. Epidemiology II. Epidemiology of intestinal and insect-borne infections; further statistical methods. (3 cred.; prereq. 104.) III TThS. Dr. Anderson, Mr. Treloar.
- 106f. Public Health Administration. Structure, basic functions, and activities of public health agencies; public health laws and regulations; administrative procedures in public health practice; relationship to other governmental and social activities. (3 cred.; physicians, engineers, nurses, social workers, and others by arrangement; prereq. 53, 100, 109, or equiv. or to be taken simultaneously with any of these prereq.) I TThS. Dr. Anderson
- 107f. Child and Adult Hygiene. Promotion of hygiene through public health and community effort, maternal, infant, preschool, school, college, industrial, and adult. Lectures and field trips. (3 cred.; physicians and graduate students in public health nursing or medical social work; prereq. 53 or 100.) II, III, IV MF. Dr. Boynton and associates.
- 108w. Care of the Handicapped Child. Extent of problem; history and development of program for care; types of physical defects; means of prevention and correction; medical social aspects; mental and emotional aspects; vocational training and placement. (2 cred.; prereq. 53, 57, 58, or 100.) VI TTh.
- 109s. Epidemiology III. Further consideration of selected diseases, with statistical applications. (3 cred.; prereq. 104 and 105 or permission of instructor.) Hrs. ar. Dr. Anderson, Mr. Treloar.
- 110f,s. Biometric Principles. Introduction to statistical analysis with emphasis on basic principles of statistical reasoning. The description of univariate distributions, normal correlations, simple tests of significance, and goodness of fit. (3 cred.; jr., sr., grad.; prereq. 18 cred. in biol. sci. or math. through anal. geom.; to be taken with 111.)
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|----------|-----|------|----|-------------|
| (Fall) | III | TThS | Ar | Mr. Treloar |
| (Spring) | I | TThS | Ar | Mr. Treloar |

- 111f.s.‡ Biometry Laboratory. Practical training in machine calculation and statistical techniques discussed in 110, with which it is to be taken concurrently. (2 cred.) Ar. Mrs. Behn.
- 112w.* Water Supply Sanitation. Sanitary problems associated with the location, construction, and operation of water supplies, purification works, and distribution systems. Public health supervision of water supplies. Lectures, field and laboratory demonstrations. (4 cred.; prereq. 102 and 104.) I MWF, VI-IX Th. Mr. Pierce, Mr. Olson.
- 113w.* Sewage, Excreta, and Waste Disposal. Public health supervision of, and methods for, the treatment and disposal of sewage, excreta, garbage and other wastes; methods for the study and control of stream, lake, and ground water pollution. Lectures, field and laboratory demonstrations. (4 cred.; prereq. 102 and 104.) III MWF, VI-IX T. Mr. Pierce, Mr. Olson.
- 115s. Food Sanitation. Sanitary problems associated with the production, processing and distribution of milk, meat, shellfish, and other foods, methods of public health supervision. Lectures, field and laboratory demonstrations. (3 cred.; prereq. 102, 104, 106.) III WF, VI-IX Th. Mr. Pierce, Mr. Olson, Mr. Adams.
- 116s.* Public Health Engineering Administration. Sanitary problems of urban and rural communities, administrative methods and procedures for their solution; organization of activities in the field of environmental sanitation. Lectures, seminars, field and laboratory demonstrations. (2 cred.; prereq. 102, 104, 106 and at least two of the following: 112, 113, 115.) III, V-VIII M. Mr. Whittaker, Mr. Pierce, and special lecturers.
- 117f. Sanitary Biology. Plant and animal forms of importance in water supply, sewage disposal and bathing places; biology of shellfish, rodents, mosquitoes, flies, and other organisms as it pertains to public health. Lectures and laboratory work. (2 cred.; prereq. 102 or consent of instructor.) Not offered in 1944-45. Mr. Olson.
- 118w.* Environmental Sanitation II. Public health supervision of activities in the field of urban and rural sanitation. Demonstration of methods of sanitary control of environmental factors. Lectures, field and laboratory demonstrations. (2 cred.; physicians, nurses, veterinarians, and others by arrangement; prereq. 102 or may be taken concurrently.) VI-IX W. Mr. Whittaker, Mr. Pierce, Mr. Olson.
- 119f,w,s,su. Field Practice in Environmental Sanitation. Credits allowed according to experience in this field. (Cred. ar.; by permission.) Mr. Whittaker, Mr. Pierce.
- 120w. Correlation Analysis. Total, partial, and multiple normal correlation and regression; correlation ratio; contingency; biserial methods; tetrachoric correlation; rank-order correlation; the symmetrical table and intra-class correlation. Course 121 to be taken concurrently. (3 cred.; prereq. 110.) III TThS. Mrs. Behn.
- 121w.‡ Correlation Laboratory. Practical training in the techniques of 121, with which it is to be taken concurrently. (2 cred.) Ar. Mrs. Behn.
- 122w. Public Health Administration Problems. Conference discussion of selected problems; budgeting and program planning; appraisal of public health procedures and activities. (3 cred.; prereq. 106.) III MWF. Dr. Anderson.
- 123f,w,s. Topics in Public Health. Selected readings in public health with discussion based on these readings. (Cred. ar.; prereq. permission of instructor.) Dr. Anderson, Dr. Boynton, and associates.
- 125w. The Community Health Education Program. A course intended primarily for those preparing for leadership in community health education to include organization, administration, and evaluation of community health education programs and the

* Students who have taken Courses 112, 113, or 116 will not be given credit for Course 118.

‡ A fee of \$1 is charged for this course.

selection, preparation, and use of media commonly employed in health education. (3 cred.; prereq. 53 or 104, and 106, or to be taken concurrently with 106.) VIII-IX WF. Miss Grout.

- 126s. Industrial Health Problems. Organization of industrial health services, state programs in industrial hygiene. Industrial hazards and their control. Procedures in industrial health services. (3 cred.; prereq. 53, Chemistry 1-2 or equivalent, or permission of department.) Ar. Dr. Foker, Miss Henriksen.
- 130s. Random Sampling Distributions. A discussion of the sampling distributions of the more familiar statistics, the principles of statistical inference, and analysis of the problems of interpretation of differences, with special reference to small samples. Course 131 should be taken concurrently. (3 cred.; prereq. 110.) III TThS. Mr. Treloar.
- 131s.‡ Sampling Laboratory. Study of the distributions of statistics derived from small samples by practical test. To be taken concurrently with 130. (2 cred.) Ar. Mrs. Behn.
- 133w. Mental Hygiene Aspects of Public Health Nursing. (Same as Med. 133.) Discussion of emotional factors underlying wholesome family relations and of problems which interfere with successful adjustment in family and community life. Illustrative case material related to problems met by the public health nurse will be used. (3 cred.; prereq. 62 or experience.)

Lect.		II	TTh	
Rec.	Sec. 1	II	S	Miss Shalit
	2	III	S	Miss Shalit

- 135s. Conservation of Hearing. Detection, prevention, and amelioration of hearing impairments as related to public health education, school, industrial, and public health nursing, and medical social service. (1 cred.; prereq. 53 and 62 or to be taken concurrently.) I M. Dr. Boies and associates.
- 136s. Sight Conservation. Conditions that impair human vision; community programs of vision testing and correction of defects; sight conservation programs. (1 cred.; prereq. 53 and 62 or to be taken concurrently.) I W. Dr. Hansen and associates.
- 137s. Dental Hygiene. Conditions resulting in tooth decay and loss; preventive and corrective measures; mouth hygiene; community programs for dental health. (1 cred.; prereq. 53 and 62 or to be taken concurrently.) I F. Dr. Lasby.
- 140w.‡ Vital Statistics. Study of official sources of vital statistics, including population changes, calculation of rates, and graphical exposition of trends. (3 cred.; permission of instructor.) Ar. Mr. Treloar.
- 150w.‡ Life Tables. Mortality rates and the construction of the life table. Laboratory course with discussions, offered when sufficient demand exists. (3 cred.; permission of instructor.) Ar. Mr. Treloar.
- 170s. Supervision in Public Health Nursing. Nature of supervision, classification of activities; methods of supervision, including field visitation, individual counseling, group conferences, staff education programs, administrative functions of supervisors, preparation and selection of supervisors. (3 cred.; prereq. 53, 61, 63 and experience in public health nursing, or by permission.) III TThS. Miss Freeman.
- 171f,w,s. Problems in Public Health Nursing. For advanced students who wish to work on special problems in public health nursing. (Cred. ar.; prereq. 170 or permission of instructor.) Ar. Miss Freeman and associates.
- 173f,w,s.‡‡ Field Work in Supervision. (Cred. ar.; public health nurses only; prereq. 170 or permission of instructor.) Ar. Miss Freeman and associates.

‡ A fee of \$1 is charged for this course.

‡‡ A fee of \$3 is charged for this course.

- 174f,w,s. Supervision Laboratory. Critical analysis of supervisory procedures. Construction of rating scales, experience and efficiency sheets, manuals, and other materials of supervision. (2 cred.; public health nurses only; to be taken concurrently with 170.) Ar. Miss Freeman and associates.
- 190f,w,s. Field Work in the Community Health Education Program. Three months of practical field experience in community health education under the supervision of qualified health educators. Details will be worked out in accordance with individual needs of the students. (One academic year of approved study toward a Master's or Doctor's degree either in education or public health. Cred. ar.; prereq. 125, 227.) Miss Grout and associates.
- 200f,w,s. Research. Opportunities will be offered by the school and by the various coordinated organizations for qualified students to pursue research work. (Cred. ar.) Dr. Anderson, Dr. Diehl, and others.
- 201f,w,s. Topics in Biometry. Studies in special topics for advanced students. (Cred. ar.; prereq. 120, 130, or consent of instructor.) Ar. Mr. Treloar, Mrs. Behn.
- 210f,w,s. Seminar in Public Health. 4:00 p.m. M. Staff.
- 211f,w,s. Seminar in Biometry. (1 cred.) Mr. Treloar.
- 227f,w,s. Problems in the Community Health Education Program. For advanced students who wish to pursue independent study and experimentation in health education. (Cred. ar.; prereq. consent of instructor.) Ar. Miss Grout and associates.

COLLEGE OF EDUCATION

- Ed.81. Introduction to Education for Public Health Nurses. Principles, methods, and materials in education as applied to public health nursing situations. Group work will be emphasized. Not open to candidates for a degree in the College of Education.
- Ed.C.I.70.‡ Methods and Materials in Safety Education.
- Ed.C.I.114.‡ The School Health Education Program. Study of various health organizations in city and state in relation to the school health program; organization of the health education programs with the school; construction of the curriculum in school health; evaluation of the school health education program; preparation and requirements for teaching school health education; health supervision and guidance.
- Ed.C.I.129.‡ Principles and Problems of Teaching Social Hygiene. Emphasis will be placed on methods of teaching social hygiene in the public schools and materials for instructional use in the elementary and secondary schools.
- Ed.C.I.215.‡ Problems in the School Health Education Program. For advanced students who wish to pursue independent study and experimentation in school health education.
- Ed.C.I.216.‡ Field Work in the School Health Education Program. Practical field experience in school health education under the supervision of qualified health educators. Details will be worked out in accordance with individual needs of the students.
- Ed.C.I.217.‡ Seminar in the School Health Education Program. Discussion and reports on current problems in school health education.
- Ed.T.83.‡ Methods and Materials of School Health Education. Study of principles, materials, and problems of health education in preparation for health teaching. Observation in techniques of school health instruction. Allocation and gradation of health subject matter, study of health needs of school children. Evaluation of school health instruction.

‡ A fee of \$1 per credit is charged for this course.

GENERAL INFORMATION FOR ALL STUDENTS

EXPENSES

1. Tuition fee per quarter*

Resident (full schedule)	\$25.00
Nonresident (full schedule)	56.00
Resident, per credit hour	2.25
Nonresident, per credit hour	4.75
2. Matriculation deposit*

For Graduate School	3.00
For others†	10.00
3. Incidental fee per quarter*
4. Special course fees are charged in addition to the regular tuition.

UNIVERSITY FEES

The university year, extending from October to June, is divided into three terms called quarters. On the specified dates (see Calendar, pages 2-3) 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. See Privilege Fees, Bulletin of General Information, for further instruction on late registration and late payment of fees.

Checks and 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.

RESIDENCE DORMITORIES

For women—Comstock Hall on the Mississippi River Road houses 375 girls and Sanford Hall at 1100 University Avenue Southeast accommodates 275. The charge for board and single room is \$120 to \$155 per quarter; for occupants of double rooms, \$110 to \$150 per quarter. All applications for residence must be made for the entire school year. Communications requesting residence or regarding prices or any other details should be addressed to the director of the residence halls for women.

Co-operative cottages, each in charge of a chaperon, offer comfortable homes for about 115 women. By assisting with the work of the houses, the students are able to keep expenses to \$26 a month. Applications may be made to the director of university residences, Comstock Hall.

ROOMING HOUSES

Room and board may be secured in approved rooming houses accommodating either men or women. Room rent varies from \$15 to \$18 per month for a single room, and from \$12 to \$15 per month for a double room. Board at present prices may be secured for \$8 to \$9 per week for two meals per day. For lists of approved rooming houses consult the Housing Bureau, 118 Administration Building.

FURTHER INFORMATION

For further details regarding admission, expenses, health service, scholarships, etc. consult the Bulletin of General Information which may be obtained upon request. Address Director of Admissions and Records, University of Minnesota, Minneapolis 14, Minn.

* If a student receives a stipend under the terms of the Social Security Act the university director of admissions and records should receive official authorization from the State Department of Health as to the payment of university fees before time of registration. The tuition amounts indicated are for registration in the College of Science, Literature, and the Arts, the College of Education, the Graduate School, and for the Course in Public Health Nursing and for candidates for the degree of master of public health in the Medical School. For tuition rates for other colleges, the Bulletin of General Information should be consulted.

† If student is registered for less than 5 credits the matriculation deposit is \$5.

The Bulletin of the
UNIVERSITY of MINNESOTA

Course in Medical Technology
and Course in X-Ray Technology
1945-1947

**(Paper is a critical material. Please save this
bulletin or give it to someone else who is interested.)**



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June 18, 1945

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ADMINISTRATIVE OFFICERS AND FACULTY

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Russell Cooper, Ph.D., Assistant Dean for the Junior College
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Edmund G. Williamson, Ph.D., Dean of Students
Gerald T. Evans, M.D.C.M., Ph.D., Director of the Course in Medical Technology
Leo G. Rigler, M.D., Director of the Course in X-Ray Technology

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Ambrose J. Hertzog, M.D., Ph.D., Assistant Professor of Pathology and Director of Laboratories, Minneapolis General Hospital (Affiliated)
Wallace Armstrong, M.D., Ph.D., Professor of Physiological Chemistry
Elexious T. Bell, M.D., Professor of Pathology and Head of the Department of Pathology
George O. Burr, Ph.D., Professor of Botany and Physiological Chemistry
Hal Downey, Ph.D., Professor of Anatomy
Winford P. Larson, M.D., Professor of Bacteriology and Head of the Department of Bacteriology and Immunology
Dwight E. Minnich, Ph.D., Professor of Zoology and Chairman of the Department of Zoology
Adolph R. Ringoen, Ph.D., Professor of Zoology
K. Wilhelm Stenstrom, Ph.D., Professor of Biophysics
Maurice B. Visscher, M.D., Ph.D., Professor of Physiology and Head of the Department of Physiology

Joseph T. King, M.D., Ph.D., Associate Professor of Physiology
James S. McCartney, Jr., M.D., Associate Professor of Pathology
Ashton C. Cuckler, Ph.D., Assistant Professor of Zoology
Edmund B. Flink, M.D., Ph.D., Assistant Professor of Medicine
Cyrus P. Barnum, Ph.D., Instructor in Physiological Chemistry
Solveig M. Bergh, M.D., Clinical Instructor in Radiology
Norman Ekeroth, B.A., Instructor in Radiology
Lorraine Hessburg, B.S., Instructor in Medical Technology
Mildred H. King, B.S., Instructor in Medical Technology
Everel A. Larson, M.D., Instructor in Medicine and Associate Scientist (on leave of absence)
James F. Marvin, M.S., Instructor in Biophysics
Betty B. Milner, B.S., Instructor and Adviser in Medical Technology
Gerald M. Needham, B.S., Instructor in Bacteriology and Immunology and Hospital Bacteriologist
Jane E. Rietz, B.S., Instructor and Adviser in Medical Technology
Mary M. Pottner, B.S., Teaching Assistant in Medical Technology
Carolyn Burwell, B.S., Technologist, Blood Bank Laboratory
Marjorie Copenharve, B.S., Technologist, Special Chemistry Laboratory
Evelyn Ertl, B.S., Technologist, Bacteriology Laboratory
Phyllis Johnson, B.S., Technologist, Dispensary Laboratory
Harriet Lamberg, B.S., Technologist, Chemistry Laboratory
Christeen Lewis, Technologist, Serology Laboratory
———, Technologist, Basal Metabolism and Electrocardiography Laboratory
Alice Moeglein, M.S., Technologist, Tissue Laboratory
Dorothy Peterson, B.S., Technologist, Chemistry Laboratory
Margaret Patchet, B.S., Technologist, Hematology Laboratory
Dorothy Smith, B.S., Technologist, Dispensary Laboratory
———, Technologist, Urinalysis Laboratory and Clerks' Laboratory
Betty Weisel, B.S., Technologist, Blood Bank Laboratory

GENERAL INFORMATION

HISTORICAL STATEMENT

The University of Minnesota was one of the first universities to confer a degree for a sequence of courses pertaining to medical technology. The first bulletin was published March 10, 1922, with the title *Courses in Medical Technology for Clinical and Laboratory Technicians*. The first graduate received her degree in March, 1923, and up to the present, 1945, there have been 607 graduates.

The course was organized under the direction of Dr. Richard Olding Beard. It has always consisted of four years of college work with credit given for practical work in the hospital laboratories during the fourth year. In the beginning the major part of the special training was obtained by taking courses in anatomy, physiology, pathology, and medicine. In 1929, the first program of rotation through the various laboratories was established. By 1932, the schedule provided for twelve months of full-time work in the laboratories which included four months in the X-ray laboratory. In September, 1938, the schedule was changed to an entire twelve months in the medical laboratories and an additional six months in the X-ray laboratory. In September, 1939, the training in X-ray technique was lengthened to nine months and made optional. The separate four-year course in X-Ray Technology leading to the degree, bachelor of science, was established under the direction of Dr. Rigler in April, 1943.

After the retirement of Dr. Beard in 1925, the course was under the supervision of a special committee of representatives of the Graduate School and the Medical School of which Dr. William A. O'Brien was chairman. In May, 1940, Dr. Evans was appointed director of the Course in Medical Technology.

The three courses offered are: the Course in Medical Technology, the Course in X-Ray Technology, and the Combined Course in Medical and X-Ray Technology.

MEDICAL TECHNOLOGY

The Course in Medical Technology is four years in length and leads to the degree, bachelor of science. The first two years are spent in the College of Science, Literature, and the Arts. At the beginning of the third year the student transfers her registration to the Medical School. The entire fourth year of twelve months is spent in practical rotating service in the laboratories of the University of Minnesota Hospitals and affiliated hospitals.

This course is a desirable preliminary to graduate work in hematology, bacteriology, or physiological chemistry, and has a general educational value in the biological sciences. For the woman planning to enter medicine it is an ideal preliminary training.

X-RAY TECHNOLOGY

The Course in X-Ray Technology is four years in length and leads to the degree, bachelor of science. The first two years are spent in the College of Science, Literature, and the Arts. At the beginning of the third year the student transfers her registration to the Medical School. The entire fourth year of twelve months is spent in practical service in the X-ray laboratory of the University of Minnesota Hospitals.

COMBINED COURSE IN MEDICAL AND X-RAY TECHNOLOGY

The Combined Course in Medical and X-Ray Technology is a 4½-year course leading to the degree, bachelor of science. In addition to the degree, the student will receive a certificate in X-ray technology. The first two years are spent in the College of Science, Literature, and the Arts. At the beginning of the third year the student transfers her registration to the Medical School. The fourth year of twelve months is spent in a practical rotating service in the laboratories of the University of Minnesota Hospitals, and affiliated hospitals. An additional six months is spent in the practical service of the X-ray laboratory at the University of Minnesota Hospitals.

TRAINING

MEDICAL TECHNOLOGY

A medical technologist is trained in the performance of various diagnostic procedures used by physicians. Her work includes hematology, urinalysis, bacteriology, serology, electrocardiography, basal metabolism, blood bank work, the preparation of tissues for microscopic study, and the chemical analysis of blood and urine. This work requires intelligence, accuracy, and reliability of a high order. As a general rule, a student who has excelled in scientific subjects in high school will succeed in Medical Technology.

X-RAY TECHNOLOGY

This work includes photographic processing, the taking of X-ray films, assisting in the fluoroscopic examinations, and assisting in the administration of X-ray for therapy. The work is hard physically and requires accuracy and reliability of a high order.

EMPLOYMENT

The broad training obtained in these fields enables the graduate to qualify for positions requiring general or specialized laboratory experience in hospital laboratories, clinics, and physicians' offices. In larger hospitals where there are several technologists, one may be occupied principally or entirely with hematology, bacteriology, chemistry, or X-ray technique. For those who choose the combined course the added training in X-ray technique increases the opportunities of employment. There are opportunities for graduates with sufficient ability to work in research laboratories associated with larger clinics, foundations, and universities.

ADMISSION TO FRESHMAN CLASS

The requirements for admission for the three courses are identical and are the same as those for admission to the College of Science, Literature, and the Arts. For complete information consult the Bulletin of General Information. Graduates of accredited high schools may enter at the beginning of any quarter, but the curricula outlined are based on entrance in the fall quarter. If a student enters at any other quarter, it may be necessary for her to attend summer sessions to make up the irregularities in her program.

Although no specific subjects are required, it is recommended that prospective students take mathematics, physics, chemistry, and at least two years of a language in high school.

ADMISSION WITH ADVANCED STANDING

Students from other colleges may transfer to the University of Minnesota to complete the course in Medical Technology or in X-Ray Technology, or the combined course. Courses which are the equivalent of those given at the University of Minnesota are ac-

cepted to satisfy the requirements for entrance to the Course in Medical Technology (see page 10). Transfer students with three or more years of college training elsewhere will be permitted to begin the senior year (12 months of practical training in the University Hospitals laboratories or affiliated laboratories) as soon as the remaining required courses are completed. Because certain of these courses are offered only at the University, it is usually necessary for transfer students to spend one or more quarters in attendance before beginning the senior practical work. It is necessary for all students to earn at least 45 credits in residence at the University of Minnesota before they are eligible to receive a degree.

ADMISSION TO THE JUNIOR CLASS

The number of students accepted into the junior class each year will depend upon the number of places available in the laboratories for practical experience during the senior year.

Application for admission to the last two years must be made by all students, including those registered the first two years at the University of Minnesota. All applications should be filed with the director of admissions and records by June 5. Applications received after July 1 will be considered only if the class is not complete. Selection of all students to be admitted is made only once a year—in July—and applicants are notified shortly thereafter.

The requirements for admission to the junior year are stated in the section on scholarship. However, those students who expect to complete these requirements before or during the following winter quarter must file their application by June 5. In some instances, students transferring from other colleges may be able to make up their deficiencies, such as bacteriology and histology, by attending Summer Session classes. This would make them eligible for admission to the special medical technology courses as much as one year earlier than would be possible otherwise. It is strongly advised that transfer students ascertain their status by writing to the Director, Course in Medical Technology, University of Minnesota Hospitals, Minneapolis 14, before May 1 so that, if necessary, they may take courses during the Summer Session.

SCHOLARSHIP

Before admission to the Course in Medical Technology or to the Course in X-Ray Technology the student must have completed the required courses of the first two years with one honor point per credit (C average) or must have completed 90 credits including the required courses with a total of 90 honor points. For each five honor points in excess of one honor point per credit, the number 90 is diminished by one.

The requirements for graduation are the completion of all the required courses or their equivalent, the completion of the practical work, and a total of 180 credits and 180 honor points—an average of one honor point per credit. (For each five honor points in excess of one honor point per credit, not including those received for practical work, the number 180 is diminished by one.)

DEGREES

Upon satisfactory completion of the prescribed course of study, the degree, bachelor of science, will be conferred by the Board of Regents. Students completing the course with an average of two honor points for each credit may graduate "with distinction" upon recommendation of the Committee on Honors.

FEES

For complete information about fees, expenses, residence, consult the Bulletin of General Information.

All University fees are subject to modification without notice.

During the first two years, the student is enrolled in the College of Science, Literature, and the Arts. The tuition for residents of the state of Minnesota is \$25 each quarter, that is, \$75 a year; for nonresidents, \$56 each quarter, or \$168 each year.

Upon completion of all courses as outlined for the freshman and sophomore years, the student is transferred to the Course in Medical Technology or the Course in X-Ray Technology. During the junior and senior years the tuition is \$42 each quarter for residents and \$64 each quarter for nonresidents. During the fourth year the student is given instruction and training for four quarters (twelve months) but pays tuition for only three quarters. No tuition is charged for the six months of practical training in X ray when it is taken in conjunction with the Course in Medical Technology.

In addition there is a matriculation deposit of \$10 payable with the first registration only, and an incidental fee of \$9.65 a quarter for which the student receives the privileges of the Health Service, Testing Bureau, Coffman Memorial Union, university post-office service, the *Minnesota Daily* including the Official Daily Bulletin, and the *University Address Book*. Laboratory deposits are required from students taking science courses.

Medical Technology students do not live in the hospital, nor are they supplied with books, meals, or uniforms; these must be furnished by the students themselves.

EXPENSES

The average cost of room, board, and laundry is stated in the Bulletin of General Information as \$515 a year. This does not include books, tuition, laboratory fees, clothes, or traveling expenses.

RESIDENCES

Two residences for women, Ada Comstock Hall and Sanford Hall provide accommodations for approximately 600 students. There are numerous off-campus residences approved by the University which offer satisfactory arrangements for rooms and meals. Ten co-operative cottages, each in charge of a chaperon, offer comfortable homes for about 120 women. By assisting with the work of the houses, the students are able to reduce their living expenses.

REGISTRATION

All prospective students are urged to consult special advisers in the Medical Technology office, M-410, University Hospitals. This should be done in person if possible. During Freshman Week, each freshman should register with the special advisers, so that she will receive special notices for medical technologists, be eligible to vote for a class representative to the Medical Technology Council, and be informed of the extracurricular activities. After the freshman year, **each student must submit her registration to the special medical technology adviser for approval.**

STUDENT AID

The University of Minnesota offers many opportunities to those students in need of financial assistance to meet the expenses of their education. The usual criteria by which

the merits of requests for financial assistance are considered are scholastic record, financial need, character, and vocational promise in the student's chosen field.

The various types of financial aids are classified as fellowships, scholarships, prizes and awards, and opportunities for employment.

In addition to the general university loan and scholarship funds, there are two funds especially for students in Medical Technology—the William A. O'Brien Loan Fund and the W. K. Kellogg Loan Fund. Information concerning these financial aids may be had by writing to the office of admissions and records for the bulletin, *University Aids for Student Expenses*. In general, all applications for loans and scholarships should be made to the financial adviser, office of the dean of students, 213 Administration Building. For the special medical technology loan fund, applications for assistance must be made to the financial adviser, office of the dean of students, but it is recommended that the student requesting such assistance should first have a personal interview with the medical technology adviser, M-410, University Hospitals.

The University maintains an Employment Bureau for the purpose of helping both men and women students who seek work, and of developing, in all proper ways, opportunities for self-help. It should be pointed out that each of the first three years of the Course in Medical Technology or of the Course in X-Ray Technology include several courses which require many hours of work in the laboratory, and it is advised that only students who are proficient in their studies should attempt to do part-time work. During the fourth year, the practical work requires as much time as a full-time position and no student should arrange for outside or part-time work that will interfere with such a program.

CURRICULUM

MEDICAL TECHNOLOGY

FRESHMAN AND SOPHOMORE YEARS

The following courses or their equivalents (some exception may be made during the war) must be completed before the student will be admitted to the junior year:

Comp. 4-5-6, Freshman Composition (9 cred.)

or

Eng. A-B-C, Freshman English (15 cred.) or exemption from requirement

Inorg. Chem. 1-2, or 4-5, General Inorganic Chemistry (8 cred.)

Inorg. Chem. 11, Semimicro Qualitative Analysis (4 cred.)

Anal. Chem. 7, Quantitative Analysis (4 cred.)

Org. Chem. 1-2, Elementary Organic Chemistry (8 cred.)

Zool. 1-2-3, General Zoology (10 cred.)

Zool. 21, Histology (5 cred.)

Anat. 3, Elementary Anatomy (3 cred.)

Bact. 53, General Bacteriology (5 cred.)

or

Bact. 101, Medical Bacteriology (5 cred.)

Phys. 1-2-3, Introduction to Physical Sciences (9 credits). In some instances special permission will be granted to students to substitute one unit of high school physics for this requirement.

Electives. To make a total of 90 credits for the two years' work. There is no essential limitation to the subjects which may be taken as electives. However, it is advised that during the freshman and sophomore years the student elect introductory courses in the subjects which she expects to continue in the junior year. A program that includes scattered electives will not be approved.

Some of the above courses are offered only one quarter a year. Therefore, it is essential that the student's program be arranged in such a way as to include these in the proper quarter.

Suggested program:

FRESHMAN YEAR

Fall

English A or 4

Zoology 1

Inorganic Chemistry 1 or 4

Electives

Winter

English B or 5

Zoology 2

Inorganic Chemistry 2 or 5

Electives

Spring

English C or 6

Zoology 3

Inorganic Chemistry 11

Electives

Students who find it impossible to follow this suggested program should consult the Medical Technology advisers in Room M-410, University Hospitals.

SOPHOMORE YEAR

Fall

Zoology 21

Physics 1

Analytical Chemistry 7

Electives

Winter

Organic Chemistry 1

Physics 2

Bacteriology 53

Electives

Spring

Organic Chemistry 2

Physics 3

Anatomy 3

Electives

Note: A certain number of students each year will be advised to carry a special accelerated program so that they may enter the senior year somewhat earlier than the above program would permit.

JUNIOR AND SENIOR YEARS

In order to meet the requirements for graduation, the following courses must be completed:

Physiol. 60, Human Physiology (6 cred.)

Physiol. 100, 101, Physiological Chemistry (13 cred.)

Bact. 102, Medical Bacteriology (4 cred.)

Bact. 116, Immunity (3 cred.)

Zool. 51, Introductory Animal Parasitology (5 cred.)
 Anat. 165, Hematology (4 cred.)
 Med. Tech. 51-52-53, Introduction to Medical Technology, Lectures (cred. arranged)
 Med. Tech. 61-62-63, Introduction to Medical Technology, Laboratory (cred. arranged)
 Med. Tech. 101, Methods and Clinical Orientation (6 cred.)
 Med. Tech. 102, Senior Practical Work (40 cred.)
 Electives to make a total of 180 credits for four years' work.

Students who do not take the X-ray practical work may take courses in X-ray physics and technique as electives.

JUNIOR YEAR

Because of the accelerated program in the Medical School, it is inadvisable to print a definite schedule for the junior year.

SENIOR YEAR

Students are eligible to begin the year of practical training (Med. Tech. 102) as soon as they have completed all of the theoretical courses with the exception of Med. Tech. 101. Approximately one fourth of the class is trained at the affiliated hospitals, Minneapolis General Hospital and Ancker Hospital, St. Paul, and the remainder of the class is trained at the University Hospitals. The scholastic standing in the first three years determines the order in which students may have preference as to the time and place of their practical training.

Suggested Electives :

Anat. 166, Hematology
 Bact. 114, Molds, Yeasts, and Actinomycetes
 Bact. 120, Diseases of Animals Transmissible to Man
 Bact. 121-122, Physiology of Bacteria
 Comp. 27,28,29, Advanced Writing
 Draw. and Des. Geom. 44, Lettering
 Econ. 1, Industrial History
 Econ. 6-7, Principles of Economics
 Econ. 82, Competition and Monopoly in Modern Industry
 Econ. 83, The Inequality of Incomes
 Econ. 84, Comparative Economic Systems
 Eng. 37-38-39, Twentieth-Century Literature, and other courses in literature
 Fine Arts 1,2,3, Introduction to Art
 Hist. 1-2-3, European Civilization
 Hist. 4-5-6, English History
 Hist. 11-12-13, Medieval History
 Hist. 14-15-16, Ancient Civilization
 Hist. 17, Social and Economic History of Modern Europe
 Hum. 1,2,3, Humanities in the Modern World
 Lib. Meth. 1, Use of Books and Library
 Lib. Meth. 79, Medical Reference
 Math. 1, Higher Algebra
 Math. 6, Trigonometry
 Math. 7, College Algebra
 Math. 15-16, Elementary Mathematical Analysis
 Mu. 31-32-33, Music Appreciation
 P.H. 3, Personal Health
 P.H. 50, Public and Personal Health
 Phil. 2-1-3, Logic, Problems of Philosophy, Ethics
 Phil. 20, Social Philosophy
 Pol. Sci. 1-2-3, American Government and Politics
 Pol. Sci. 7, Comparative European Governments
 Pol. Sci. 15, Elements of Political Science
 Pol. Sci. 25, World Politics
 Psy. 1-2, General Psychology

Psy. 3, Psychology Applied to Daily Life
 Psy. 114, Human Behavior
 Soc. 1, Introduction to Sociology
 Soc. 6, Individual and Group Adjustments
 Soc. 100, Social Psychology
 Soc. 101, Social Organization
 Soc. 120, Social Life and Cultural Change
 Speech 1-2-3, Fundamentals of Speech
 Zool. 75, Nature Study
 Zool. 82, Organic Evolution
 Zool. 83, Introduction to Genetics and Eugenics
 Zool. 181, Endocrines and Reproduction

X-RAY TECHNOLOGY

FRESHMAN AND SOPHOMORE YEARS

The following courses or their equivalents must be completed before the student will be admitted to the junior year:

Comp. 4-5-6, Freshman Composition (9 cred.)

or

Eng. A-B-C, Freshman English (15 cred.) or exemption from requirement

Chem. 1-2, or 4-5, General Inorganic Chemistry (8 cred.)

Chem. 11, Semimicro Qualitative Analysis (4 cred.)

Zool. 1-2-3, General Zoology (10 cred.)

Zool. 22, Comparative Anatomy (5 cred.)

Math. 1, Higher Algebra (5 cred.) (High school higher algebra may be substituted for this requirement.)

Math. 15-16, Elementary Mathematical Analysis (10 cred.)

Phys. 1a-2a-3a, Introduction to Physical Science (12 cred.)

Bact. 53, General Bacteriology (5 cred.)

JUNIOR AND SENIOR YEARS

In order to meet the requirements for graduation, the following courses must be completed:

Anat. 3, Elementary Anatomy (3 cred.)

Physiol. 50, Physiological Chemistry (4 cred.)

Physiol. 60, Human Physiology (6 cred.)

Nurs. 2a, Introduction to Patient Care for X-Ray Technologists (cred. arranged)

X Ray 60, Introduction to X-Ray Technology (3 cred.)

X Ray 61, X-Ray Physics (3 cred.)

X Ray 62-63, X-Ray Technique (6 cred.)

X Ray 64, Senior Practical Work (45 cred.; 12 mos.)

X Ray 65, Senior Practical Work (Combined course, 6 mos.)

Electives—see Medical Technology Curriculum

COMBINED COURSE—MEDICAL AND X-RAY TECHNOLOGY

Students taking the combined course must complete all the requirements for Medical Technology, and in addition X Ray 61, X Ray 62, and X Ray 65.

DESCRIPTION OF COURSES*

Other courses which are equivalent or more comprehensive may be substituted for the required courses. The Combined Class Schedule should be consulted for class hours. Because of conditions imposed by the war these courses are subject to change.

ANATOMY (HUMAN)

- 3s. Elementary Anatomy. (3 cred.; no prereq.)
165.†§ Hematology. Normal and pathologic morphology of the blood, with special emphasis on the study of the blood from the standpoint of diagnosis and prognosis. (4 cred.; prereq. Zoology 21) Dr. Downey.

BACTERIOLOGY

- 53f,w,s,su.§ General Bacteriology. (5 cred.; prereq. 10 cred. in chem. and 4 cred. in bot. or zool.)
101w.†§ Medical Bacteriology. (5 cred.; jr., sr., grad.; prereq. Zool. 1-2-3 and 10 cred. in chem.)
102.†§ Medical Bacteriology. (4 cred.; jr., sr., grad.; prereq. 53 or 101)
116w,su.§ Immunity. (3 cred.; jr., sr., grad.; prereq. 53 or 101) Dr. Larson.

CHEMISTRY

INORGANIC CHEMISTRY

- 1f-2w.‡ General Inorganic Chemistry. (4 cred. per qtr.; no prereq.)
4f-5w.‡ General Inorganic Chemistry. (4 cred. per qtr.; prereq. entrance cred. in chem.)
11s.‡‡ Semimicro Qualitative Analysis. (4 cred.; prereq. 2 or 5)

ANALYTICAL CHEMISTRY

- 7f.‡ Quantitative Analysis. (4 cred.; primarily for premedical students; prereq. any course in qualitative chemistry)

ORGANIC CHEMISTRY

- 1w-2s.‡ Elementary Organic Chemistry. (8 cred.; prereq. Inorg. Chem. 11)

ENGLISH

Important note.—No student may register for any course in Freshman English without taking a placement test. Assignment to a particular course in Freshman English will depend on the student's record in this placement test.

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

1f-2w-3s indicates a three-quarter course continued through the year.

1f,w,s, indicates a one-quarter course repeated each quarter.

† These courses follow the accelerated curriculum of the Medical School.

‡ A fee of \$2 per quarter is charged for this course. The student should purchase a \$5 chemistry deposit card from the bursar in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The \$2 course fee, laboratory material, and breakage will be charged against this deposit.

‡‡ A fee of \$2.40 per quarter is charged for this course. The student should purchase a \$5 chemistry deposit card from the bursar in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The \$2 course fee, laboratory material, and breakage will be charged against this deposit.

§ Microscope required. Students may obtain use of microscope by purchasing \$1.50 microscope card from bursar.

Freshman English is a 15-credit course consisting of 9 credits of literature and 6 credits of composition. Composition 4-5-6 is a 9-credit course in composition. Either course satisfies the requirement in English for graduation or for admission to the Senior College.

Af-Bw-Cs. Freshman English. (15 cred.; all; prereq. placement test)

4f-5w-6s. Freshman Composition. (9 cred.; all; prereq. placement test)

37f-38w-39s.† Twentieth-Century Literature. Readings in British and American literature since the 1890's, arranged by types of discourse—37f: The literature of opinion, biography, travel, etc., with some reading in the short story; 38w: Poetry and drama; 39s: The novel since Thomas Hardy. This course is intended as a general introduction to the intelligent reading of literature for students in all colleges and not particularly for those meaning to specialize in English. (9 cred.; soph., jr., sr.; prereq. English A-B-C or Composition 4-5-6 or exemption from requirement.)

MATHEMATICS

Placement tests.—In each of Courses 1, 6, 8, and 15, a placement test will be given at some time within the first two weeks of the quarter. Any student who fails in the test in Course 1 may be required to drop the course and to review elementary mathematics before taking college mathematics. Any student who offers less than one year of high school higher algebra as a substitute for Course 1 and who fails the placement test given in Courses 6, 8, or 15, will be required to take Course 1 before taking more advanced mathematics. A student who has had a complete year of elementary algebra, and a corresponding course in higher algebra for one-half year, should be able to pass the placement test in Courses 6, 8, or 15.

1f,w,s. Higher Algebra. (5 cred.; all; prereq. one year of elem. algebra; open for credit to any student offering not more than one-half year of high school higher algebra for entrance.)

15f-16w. Elementary Mathematical Analysis. A course for students who desire a survey of college mathematics including trigonometry, algebra, and calculus with emphasis on fundamental ideas rather than on technical preparation for more advanced courses in mathematics. (10 cred.; all; prereq. Course 1 or high school higher algebra)

or

15w-16s. See 15f-16w, above.

MEDICAL TECHNOLOGY

51,52,53. Introduction to Medical Technology. Lectures, discussions, and demonstrations on certain tests performed in the hospital laboratories, including a consideration of the principles on which the methods are based, and the significance of the results. (Open only to students already accepted in the Course in Medical Technology; hrs. and cred. per qtr. ar.)

61-62-63. Introduction to Medical Technology. Laboratory work based on the above. (Open only to students already accepted in the Course in Medical Technology; hrs. and cred. per qtr. ar.)

101f-w-s. Methods and Clinical Orientation. Lectures and discussions on laboratory procedures, comparison of methods, fine points of technique, preparation of materials, solutions, media, etc., the use of apparatus, and laboratory organization. Case histories and patients presented to illustrate the value and importance of laboratory work to clinical practice. (6 cred.; for students taking Med. Tech. 102)

† Students may enter at any quarter.

102f-w-s-su. Senior Practical Work. Extends throughout the entire twelve months of the year (four quarters). Practical laboratory experience in a rotating service through all the laboratories of either the University of Minnesota Hospitals, the Minneapolis General Hospital, or Ancker Hospital, St. Paul. It includes training and experience in blood counting, blood chemistry, urinalysis, bacteriology, serology, basal metabolism, electrocardiography, histological technique, sputum examination, gastric analysis, and parasitology. (40 cred.)

NURSING

2a. Introduction to Patient Care for X-ray Technologists. (Arranged)

PHYSICS

1f-2w-3s. Introduction to Physical Science. Lectures and experimental demonstrations of the principles underlying physical phenomena. (9 cred.; all; prereq. high school algebra and plane geometry)

1af+++2aw+++3as+++ Introduction to Physical Science—with laboratory included. (12 cred.; all; prereq. high school algebra and plane geometry)

PHYSIOLOGY

50f. Physiological Chemistry. (4 cred.; jr., sr.; prereq. inorg. chem.)

60s. Human Physiology. (6 cred.; prereq. anat. and Physiol. Chem. 101)

100f,su. Physiological Chemistry. (7 cred.; jr., sr.; prereq. zool., org. chem., and phys.)

101w,su. Physiological Chemistry. (6 cred.; jr., sr.; prereq. 100)

X-RAY TECHNOLOGY

60f. Introduction to X-Ray Technology. Lectures and demonstrations on X-ray terminology, X-ray anatomy, ethics of X-ray technology, principles of handling patients. For medical and X-ray technologists. (3 cred.)

61f. X-Ray Physics. Principles of physics as specifically applied to X-ray technique. For medical and X-ray technologists. (3 cred.)

62w-63s. X-Ray Technique. Principles of the applications of X-rays to diagnosis and treatment from the standpoint of technique. Lectures and demonstrations. (6 cred.)

64f-w-s-su. Senior Practical Work. Extends through a consecutive period of 12 months full time. Practical experience in X-ray technique, both diagnostic and therapeutic, including photographic processing, exposures, positioning, fluoroscopic assistance, reception of patients, etc. (45 cred.)

65f-w-s-su. Senior Practical Work (Combined course; 6 months)

ZOOLOGY

1f-2w-3s.† General Zoology. (10 cred.; all; no prereq.)

21f,su.‡ Histology (5 cred.; soph., jr., sr.; prereq. 1-2-3)

22w.‡‡ Comparative Anatomy. (5 cred.; soph., jr., sr.; prereq. 1-2-3)

51f.‡ Introductory Animal Parasitology. (5 cred.; jr., sr.; prereq. 1-2-3)

† A fee of \$1 per quarter is charged for this course.

‡‡ A fee of \$2 is charged for this course.

‡‡‡ A fee of \$2 per quarter is charged for this course.

The Bulletin of the
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School of Nursing Announcement
for the Years 1945-1946



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UNIVERSITY CALENDAR, 1945-46

1945		<i>Fall Quarter</i>	
September	17	Monday	Extension registration, first semester begins
September	20	Thursday	Fall quarter fees due for students in residence spring quarter in the Institute of Technology, Business Administration, Dentistry, Dental Hygiene, Law, Nursing, Pharmacy, and Agriculture, Forestry, and Home Economics
September	24	Monday	Entrance tests ¹
September	24-25		Registration for Freshman Week for new students entering the freshman class
September	24-28		Freshman Week; Registration, ² College of Science, Literature, and the Arts, and General College
September	27-28		Registration, ² all colleges except Institute of Technology. Fall quarter fees due for all students in Science, Literature, and the Arts, General College, Education, Medical School, Medical Technology, Public Health, Physical Therapy, University College, and for new students in other undergraduate colleges
September	28	Friday	Registration, ² Institute of Technology
October	1	Monday	Fall quarter classes begin 8:30 a.m. ³
			First semester extension classes begin ⁴
October	4	Thursday	Opening convocation, 11:30 a.m.
October	6	Saturday	Last day for extension registration
October	11	Thursday	Senate meeting, 3:30 p.m.
October	13	Saturday	Last day for registration and payment of fees for the Graduate School, teachers in service, and adult special students
November	12	Monday	(Sunday, November 11, Armistice Day); holiday (except extension)
November	22	Thursday	Thanksgiving Day; holiday
December	13	Thursday	Senate meeting, 3:30 p.m.
December	14-15 and 17-20		Final examination period
December	20	Thursday	Fall quarter ends, 6:00 p.m. ⁵ ; Commencement, 8:00 p.m.
		<i>Winter Quarter</i>	
December	27	Thursday	Winter quarter fees due for students in residence fall quarter in undergraduate colleges
1946			
January	4	Friday	Entrance tests ¹
January	4-5		Registration ² for new students in all colleges except Institute of Technology
January	5	Saturday	Registration for Institute of Technology. Registration and payment of fees for new students in all undergraduate colleges closes at noon
January	7	Monday	Winter quarter classes begin 8:30 a.m. ³
January	19	Saturday	Last day for registration and payment of fees for the Graduate School, teachers in service, and adult special students
January	28	Monday	Extension registration, second semester begins

CALENDAR

February	9	Saturday	First semester extension classes close
February	11	Monday	Second semester extension classes begin ⁴
February	12	Tuesday	Lincoln's Birthday; holiday (except extension)
February	14	Thursday	Senate meeting, 3:30 p.m.
February	16	Saturday	Last day for extension registration
February	21	Thursday	Charter Day Convocation, 11:30 a.m.
February	22	Friday	Washington's Birthday; holiday (except extension)
March 15-16 and 18-21			Final examination period
March	21	Thursday	Spring quarter fees due for students in residence winter quarter in undergraduate colleges. Winter quarter ends, 6:00 p.m.; Commencement, 8:00 p.m.

Spring Quarter

March	29	Friday	Entrance tests ¹
March	29-30		Registration ² for new students in all colleges except the Institute of Technology
March	30	Saturday	Registration for Institute of Technology. Registration and payment of fees for new students in all undergraduate colleges closes at noon
April	1	Monday	Spring quarter classes begin 8:30 a.m. ³
April	13	Saturday	Last day for registration and payment of fees for the Graduate School, teachers in service, and adult special students
April	19	Friday	Good Friday; holiday (except extension)
May	9	Thursday	Senate meeting, 3:30 p.m.
May	16	Thursday	Cap and Gown Day Convocation
May	30	Thursday	Memorial Day; holiday (except extension)
June	7	Friday	Second semester extension classes close
June 7-8 and 10-14			Final examination period
June	9	Sunday	Baccalaureate service
June	14	Friday	Spring quarter ends 6:00 p.m.; Seventy-fourth annual commencement, 8:00 p.m.

Summer Session

June	17-18		Registration, ² first term. First term fees due for students in all colleges
June	19	Wednesday	First term Summer Session classes begin 8:30 a.m. ³
July	4	Thursday	Independence Day; holiday
July	25	Thursday	Commencement, 8:00 p.m.
July	27	Saturday	First term closes
July	29	Monday	Registration, ² second term. Second term fees due for students in all colleges
July	30	Tuesday	Second term classes begin 8:30 a.m. ³
August	31	Saturday	Second term closes

¹ Applicants are urged to take entrance tests a month in advance of the quarter for which admission is desired. Tests may be taken at the Student Counseling Bureau. See Admission, p. 11, Bulletin of General Information.

² Registration subsequent to the date specified will necessitate the approval of the college concerned. See privilege fees for late registration or late payment of fees, page 61, Bulletin of General Information. No student may register in the University after one week from the beginning of the quarter except in unusual cases wherein circumstances shall justify the appropriate committee of the college concerned permitting registration at a later date.

³ First hour classes begin at 8:15 a.m. at University Farm.

⁴ This date does not refer to correspondence study courses, which may be started at any time during the year.

⁵ Extension classes continue through Friday, December 21, and will resume Monday, January 7, 1946.

ADMINISTRATIVE OFFICERS

J. L. Morrill, B.A., LL.D., President
Malcolm M. Willey, Ph.D., L.H.D., Vice President, Academic Administration
William T. Middlebrook, B.A., M.C.S., Vice President, Business Administration
Anne Dudley Blitz, M.A., LL.D., Dean of Women
Katharine J. Densford, M.A., R.N., D.Sc., Director of School of Nursing
Harold S. Diehl, M.A., M.D., D.Sc., Dean of the Medical Sciences
Mellie Palmer, R.N., M.S., C.P.H., Director of Community Health Service of Minneapolis
Ruth B. Freeman, R.N., M.A., Director of the Course in Public Health Nursing
Wesley E. Peik, Ph.D., Dean of the College of Education
True E. Pettengill, M.S., Acting Director of Admissions and Records and Recorder
Pearl Shalit, R.N., M.S.S., Director of St. Paul Family Nursing Service
Edmund G. Williamson, Ph.D., Dean of Students

FACULTY†

Katharine J. Densford, M.A., R.N., D.Sc., Professor of Nursing
Gertrude I. Thomas, Assistant Professor of Dietetics (a)
Thelma Dodds, R.N., B.S., Assistant Professor of Nursing (b)
Phoebe Gordon, M.S., Assistant Professor of Nursing
Ruth Harrington, R.N., M.A., Associate Professor of Nursing
Cecelia Hauge,* R.N., M.A., Assistant Professor of Nursing (a)
Frances M. Lucier, R.N., B.S., Assistant Professor of Nursing (a)
Marguerite Paetznick, R.N., B.S., M.N., Assistant Professor of Nursing (b)
Jean W. Taylor, R.N., B.A., Assistant Professor of Nursing (c)
Margaret Benson, R.N., B.S., Instructor in Nursing (c)
Rena Boyle, R.N., B.S., Instructor in Nursing
Florence Brennan, R.N., B.S., Instructor in Nursing (c)
Myrtle Brown, R.N., B.S., B.A., Instructor in Nursing (a)
Hannah Burggren, R.N., B.S., Instructor in Nursing (c)
Elizabeth J. Coe, B.S., Instructor in Dietetics (a)
Myrtle H. Coe, R.N., B.S., Instructor in Nursing
Nell Dahl, B.S., Instructor in Dietetics (a)
Joseph Debord, R.N., B.S., Instructor in Nursing (c)
Emma Einerson, R.N., B.S., Instructor in Tuberculosis Nursing (d)
Martha Louise Evensta, R.N., B.S., Instructor in Nursing (c)
Margaret Filson, R.N., M.A., Instructor in Nursing (c)
Eleanor Finken, R.N., B.S., Instructor in Nursing (a)
Eva Gregerson, Instructor in Dietetics (b)
Eileen Hanson, B.S., Instructor in Nutrition (c)
Helen E. Hart, R.N., B.S., Instructor in Nursing (c)
Christy Hawkins, R.N., B.S., Instructor in Nursing
Margaret F. Heyse, R.N., M.S., Instructor in Nursing (a)
Frances W. Hoffert, R.N., B.S., Instructor in Nursing
Marion L. Howe, R.N., B.S., Instructor in Nursing
Ruth Hunter, R.N., B.S., Instructor in Nursing (c)
Shirley Jesberg, R.N., B.S., Instructor in Nursing (a)
Florence Julian, R.N., B.S., Instructor in Nursing (a)

* On leave.

† The letters in parentheses indicate the particular agency in which the faculty member serves. (a) University of Minnesota Hospitals; (b) Charles T. Miller Hospital; (c) Minneapolis General Hospital; (d) Glen Lake Sanatorium; (e) Community Health Service; (f) Family Nursing Service.

FACULTY

Adelaide Jury, B.S., Instructor in Dietetics (c)
Roma Kittlesby, R.N., B.S., Instructor in Nursing (b)
Isabel M. Kulzer, R.N., B.S., Instructor in Nursing (c)
Joan Kunny, R.N., B.S., Instructor in Nursing (a)
Agnes Love, R.N., B.S., Instructor in Nursing (a)
Elizabeth McGlone, R.N., B.S., Instructor in Nursing (c)
Katherine McMillan, R.N., B.S., Instructor in Nursing (f)
Margaret Merrill, R.N., B.S., Instructor in Nursing (c)
Laverne Miller, R.N., B.S., Instructor in Nursing (c)
Evelyn Nelson, R.N., B.S., Instructor in Nursing (e)
Dorothy Neuman, R.N., B.A., B.S., Instructor in Nursing (a)
Julia Randall, R.N., B.S., Instructor in Nursing (a)
Margaret L. Randall, R.N., B.S., Instructor in Nursing
Lois Anne Shearer, R.N., B.S., Instructor in Nursing (b)
Jeneva Skoglund, R.N., B.S., Instructor in Nursing (c)
Ione Slough, R.N., B.S., Instructor in Nursing
Elizabeth Ojala Smith, R.N., B.S., Instructor in Nursing (a)
Kathryn Smith, R.N., B.S., Instructor in Nursing (c)
Mildred Smith, R.N., B.S., Instructor in Dietetics (c)
Elizabeth Swanson, R.N., B.S., Instructor in Nursing (b)
Elaine Thompson, R.N., B.S., Instructor in Nursing (c)
Hazel Venables, R.N., B.S., Instructor in Nursing (a)
Louise Waagen, R.N., B.S., Instructor in Nursing (b)
Gwendolyn Weaver, R.N., B.S., Instructor in Nursing
M. Irene Weed, R.N., B.S., Instructor in Nursing (a)
Vivian Halvorsen Werner, R.N., B.S., Instructor in Nursing (b)
Ruth Adams, R.N., Assistant in Nursing (c)
Alice Alcott, R.N., B.S., Assistant in Nursing (c)
Eva Burggren, R.N., Assistant in Nursing (b)
Madeline Eagen, R.N., Assistant in Nursing (c)
Emma Fischer, R.N., Assistant in Nursing (c)
Helen McHale, R.N., Assistant in Nursing (b)
Frances Niner, R.N., Assistant in Nursing (b)
Jean Austin Peterson, R.N., B.S., Assistant in Nursing (b)
Hilda Raveling, R.N., Assistant in Nursing (b)
Louise Tonn, R.N., Assistant in Nursing (a)
Bernice Mayer Wessman, R.N., B.S., Assistant in Nursing (c)

COMMITTEES

ADMINISTRATIVE COMMITTEE

James T. Morrill, B.A., LL.D., President
Harold S. Diehl, M.A., M.D., D.Sc., Dean of the Medical Sciences
Wesley E. Peik, Ph.D., Dean of the College of Education
Katharine J. Densford, M.A., R.N., D.Sc., Director of the School of Nursing
Irvine McQuarrie, M.D., Ph.D., Head of Department of Pediatrics
Ruth B. Freeman, R.N., M.A., Associate Professor of Public Health
Thelma Dodds, R.N., B.S., Superintendent of Nurses, Charles T. Miller Hospital
Frances M. Lucier, R.N., B.S., Acting Superintendent of Nurses, University of Minnesota
Hospitals
Jean W. Taylor, R.N., B.A., Superintendent of Nurses, Minneapolis General Hospital

STUDENTS' WORK COMMITTEE

Katharine J. Densford, M.A., R.N., D.Sc., Director of School of Nursing
 Ruth Harrington, R.N., M.A., Assistant Director of School of Nursing
 Thelma Dodds, R.N., B.S., Superintendent of Nurses, Charles T. Miller Hospital
 Frances M. Lucier, R.N., B.S., Acting Superintendent of Nurses, University of Minnesota Hospitals
 Jean W. Taylor, R.N., B.A., Superintendent of Nurses, Minneapolis General Hospital
 Phoebe Gordon, M.S., Assistant to the Director
 Representative instructors from School of Nursing
 Anne D. Blitz, M.A., LL.D., Dean of Women
 Edmund G. Williamson, Ph.D., Dean of Students
 Representative from Medical School
 Representative from College of Education

ADVISORY COMMITTEE

Ray M. Amberg, Ph.C., Superintendent of University of Minnesota Hospitals
 Donald W. Pollard, M.D., Superintendent of Minneapolis General Hospital
 Peter D. Ward, M.D., Superintendent of Charles T. Miller Hospital
 Administrative Committee
 Students' Work Committee

FACULTY COMMITTEES AND CHAIRMEN

Admissions—Rena Boyle	Nursing Arts—Margaret Heyse
Affiliation—Kathryn Smith	Obstetric and Gynecologic Nursing— Julia Randall
Assignment—Christy Hawkins	Operating Room Nursing—Louise Tonn
Communicable Disease and Tuberculosis—Margaret Benson	Organization—Agnes Love
Curriculum—Ruth Harrington	Pediatric Nursing—Myrtle Brown
Directed Teaching—Ruth Harrington	Postgraduate Study—Marguerite Paetz- nick
Evaluation of Nursing Practice—Margaret Filson	Postwar Planning—Ruth Freeman
Guidance—Phoebe Gordon	Public Information—Jean Taylor
Integration of Public Health—Frances Hoffert	Senior Cadet—Margaret Heyse
Library—Margaret Benson	Student Health—Isabel Kulzer
Medical and Surgical Nursing—Florence Brennan	Teaching of Sciences—Myrtle Hodgkins Coe
Neuropsychiatric Nursing—Helen Hart	Ward Administration—Margaret Randall

GENERAL INFORMATION

HISTORICAL STATEMENT

The University of Minnesota School of Nursing, authorized by the Board of Regents October 1, 1908, was 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. The first university school carried a basic curriculum leading to the degree of graduate in nursing until June 9, 1919, at which time it established a curriculum leading to the degree of bachelor of science and graduate in nursing. Since that time it has carried both a basic and a bachelor of science curriculum and, up to January, 1945, has graduated 2,122 with a diploma in nursing of whom 594 have also received a bachelor of science degree. A distinctive feature of the Bachelor of Science Curriculum 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 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 (a shortened period later) at the Glen Lake Sanatorium in the care and treatment of tuberculous patients.

On January 1, 1933, the Northern Pacific Beneficial Association Hospital arranged to staff its entire nursing service with graduate nurses and nonprofessional workers, thereby aiding in the problem of unemployment among graduate nurses.

Beginning March, 1934, all students received six weeks of field experience in public health nursing (most had received it since 1932) in what is now known as the Community Health Service in Minneapolis and the Family Nursing Service in St. Paul. Due to the overcrowding of the public health field, these agencies, beginning in the fall, 1939, were no longer able to give field experience to all basic students. In lieu thereof these students are now receiving four weeks of experience in the Nursery School plus two additional weeks in the out-patient department.

In June, 1934, the Charles T. Miller Hospital discontinued accepting freshman students for assignment in that hospital. It replaced freshman students with graduate nurses and nonprofessional workers, but continued to give experience in nursing the private patients to all students in the school. Due to the increase in student enrolment, freshman students were assigned there again beginning with the class entering the school in September, 1942.

Beginning March, 1938, trial was made of having basic students who enter directly from high school, together with all basic students who have less than seventy-five college credits with one honor point per credit, *enter in the fall quarter only*. Students in the Bachelor of Science Curriculum together with all basic students who had seventy-five or

more college credits (with one honor point per credit) were admitted to the School of Nursing in both fall and spring quarters.

During World War II, beginning January, 1942, classes were admitted each quarter. Under this wartime program students in the Basic Curriculum who enter from high school, together with all basic students who have less than seventy-five college credits (with one honor point per credit) enter in the fall, winter, and summer quarters. Students in the Bachelor of Science Curriculum, together with all basic students who have seventy-five or more college credits (with one honor point per credit) are admitted to the School of Nursing each quarter. College graduates (two-and-one-half-year program) are also admitted each quarter. This war program was made possible by federal aid which was granted through the United States Public Health Service under grant of Public Law 146—77th Congress, Chapter 269—1st Session, H.R. 4926. In June, 1943, the Congress of the United States appropriated forty-five million dollars for the establishment of the United States Cadet Nurse Corps under the Surgeon General of the United States Public Health Service. The United States Public Health Service designated the University of Minnesota School of Nursing to be one of the training centers of the United States Cadet Nurse Corps. The fall class, 1945, is the last class to be admitted under this plan.

In the spring quarter, 1941, a refresher course for inactive graduate nurses was first offered. Beginning fall quarter, 1941, and thereafter this course has been financed through federal funds. The fall 1941, winter 1942, fall 1942, and winter 1943 classes were taught in Minneapolis. Winter 1942 and winter 1943 classes were also taught in Rochester, Minnesota, and a spring 1942 class in St. Paul. This course will be offered whenever and wherever the demand warrants.

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 contributions 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 school 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.

ACCREDITATION

The University of Minnesota School of Nursing is accredited by the Minnesota State Board of Nurse Examiners, the Association of Collegiate Schools of Nursing, and the Board of Regents of New York State. The University of Minnesota Hospitals, the Minneapolis General Hospital, and the Charles T. Miller Hospital are approved by the American College of Surgeons, the American Medical Association, and the American Hospital Association. All other fields used for student experience are accredited by the appropriate agency.

PURPOSES OF THE SCHOOL

1. To prepare young women to recognize and to meet community needs for nursing, preventive and curative, civilian and military, through the basic professional program, through the experiences in advanced clinical nursing, nursing education, and public health nursing.
2. To encourage and promote personal and professional growth.
3. To discover and stimulate individual abilities.
4. To discover and develop qualities of leadership.

ORGANIZATION

The School of Nursing functions in the field of medical sciences and in the field of education. The director of the school is responsible to the dean of the medical sciences for the Basic Curricula and to the dean of the College of Education for the Bachelor of Science Curricula. The administration of the school is conducted largely through the faculty and committees, as follows:

1. **The faculty** (see pages 5-6). A faculty of a school of the University of Minnesota, according to the Constitution and By-Laws of the University Senate, controls the internal affairs of the school, including entrance requirements, curricula, instruction, examinations, grading, degrees, discipline, and the selection and conditions of use of the departmental library. The faculty works through committees whose responsibility it is to analyze, study and make recommendations to the faculty regarding matters within the scope of their interest. Committees are listed on pages 5-6.

2. **The Administrative Committee** (see page 5) decides matters of educational policy and general conduct of the School of Nursing.

3. **The Students' Work Committee** (see page 6) assists in determining policies regarding individual students, their acceptance into the school, continuance, discipline, etc., and makes recommendations concerning the general conduct of the school.

4. **The Advisory Committee** (see page 6) composed of the Administrative Committee, the Students' Work Committee, and the superintendent or executive officer of each associated hospital, is consulted regarding matters involving relationships of the hospitals to the School of Nursing.

CURRICULA OFFERED

1. Bachelor of Science Curriculum. See pages 23-34.
2. Basic Curriculum for students entering from high school. See pages 34-38.
3. Basic Curriculum for college graduates. See pages 39-40.
4. Bachelor of Science Curriculum for graduate nurses. See pages 40-41.
5. Postgraduate curricula leading to certificates in field of specialization.* See pages 41-46.
6. Advanced Course in Psychiatric Nursing Instruction. See page 46.
7. Course in Teaching of Sciences in Schools of Nursing. See page 47.
8. Affiliating curricula. See page 47.

UNIVERSITY PRIVILEGES

Nurse students enjoy the same university privileges as do other students insofar as their nursing practice will permit. They have representation in such student groups as the All-University Student Council and, in the case of bachelor of science students, are eligible for membership in honorary and social societies. There are two nursing societies open to students in the Bachelor of Science Curriculum and to students with degrees.

Nurse students have free access to the University Library which is located in the main quadrangle of the University. The nursing library proper is located on the second floor of the building as a part of the biological-medical library.

Coffman Memorial Union, the center of student activities on the campus, is open to nurse students. Among the many facilities provided by this modern new building are ballrooms adequate for student social affairs, committee and general meeting rooms for student organizations, the student post office, lounges, restaurant, and a cafeteria.

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

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

* Special short programs primarily for nurses returning from military service are being planned in the following clinical fields: medical, obstetric, operating room, pediatric, psychiatric, rural hospital, and surgical nursing.

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, the University Artists Course, the Student Forum, and the Thursday morning convocation lectures as well as special lectures in the various departments. Student dramatic organizations present several plays on the campus each year.

PART-TIME EMPLOYMENT

Undergraduate students cannot carry outside employment while in the School of Nursing proper, but may do so while carrying the prenursing curriculum in the College of Science, Literature, and the Arts. Members of the United States Cadet Nurse Corps may not accept outside employment during any part of their course. For detailed information regarding student employment refer to the General Information Bulletin or write to the Civil Service Personnel, University of Minnesota, Minneapolis 14, Minnesota.

Graduate nurses wishing part-time employment in a hospital while attending the University should apply directly to the superintendent of nurses at the following hospitals: University Hospitals, Minneapolis (on campus); General Hospital, Minneapolis (about 20 minutes from campus); Charles T. Miller Hospital, St. Paul (about 50 minutes from campus); Northern Pacific Beneficial Association Hospital, St. Paul (about 20 minutes from campus). Part-time work is occasionally available at other hospitals in Minneapolis or St. Paul and also through the Civil Service Personnel, University of Minnesota. Graduate nurses who are carrying a full program and who are receiving federal funds are strongly advised not to carry outside employment.

SCHOLARSHIPS, LOANS, PRIZES

A. Available to Students in Nursing and Prenursing Curricula

Since July 1, 1943 (in accordance with the provisions of the Bolton Act, Public Law No. 74, 78th Congress) the United States Public Health Service has provided payment through the United States Cadet Nurse Corps for the entire cost of the undergraduate student's education while she is in the School of Nursing. The cadet also receives stipends for personal expenses during this period. This will be continued for all students who were members of the United States Cadet Corps on August 20, 1945 or who had their admission certificate for the fall class on that date. See pages 11-12.

Small loans and scholarships are available to nursing and prenursing students from a fund granted to the University for that purpose by the Kellogg Foundation. Students in either the Bachelor of Science or Basic Curriculum are eligible, after two quarters of satisfactory work in the University, to apply for loans from the university loan funds.

Occasionally scholarships are made available to the University through the American Federation of Women's Clubs, Fifth District, and the Auxiliary of the American Legion. The Bureau of Student Loans and Scholarships of the University is sometimes able to arrange for loans or scholarships for nursing school students from other sources. Students must be accepted in the School of Nursing before a scholarship may be granted.

The following three 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' Student 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 or within two years after cessation of hostilities.

ALPHA TAU DELTA SCHOLARSHIP

Alpha Tau Delta, national nursing society, grants an annual scholarship of \$100 in honor of Esther M. Thompson, class of 1925, to a senior member of Alpha Tau Delta ranking high in theoretical and practical work. This scholarship is awarded for purposes of study within two years after graduation.

B. Available for Graduate Nurses

Under the provisions of the Bolton Act graduate nurses registered in nursing education, public health, or postgraduate course on October 15, 1945, may receive payment for maintenance and for university tuition and fees until June 30, 1946.

Graduate nurses working for degrees are eligible after two quarters of satisfactory work in the University to apply for loans from the university loan funds.

RICHARD OLDING BEARD LOAN FUND

The alumnae of the school have made available through the Endowment Fund a sum of \$150 to be used as a loan to graduates of the school for further academic study. The recipient must have had one year of successful nursing experience following graduation.

MINNESOTA LEAGUE OF NURSING EDUCATION LOAN FUND

The Minnesota League of Nursing Education has made available the sum of \$500 to be used as a loan to qualified graduate nurses for the purpose of further academic study.

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 university work. In Minnesota information concerning such a fund, the Sarah T. Colvin Loan Fund, may be had from the Minnesota Nurses' Association, 2642 University Avenue, St. Paul 4, Minnesota. Certain graduate nurses are also eligible for scholarships of the national nursing organizations. Among these are the Isabel Hampton Robb Memorial Scholarship Fund, under which scholarships are available annually, on a competitive basis, in the spring, and the McIsaac Loan Fund, available any time. Information concerning these may be had from Miss Julia Stimson, Horsechestnut Road, Briarcliff Manor, N. Y.

THE UNITED STATES CADET NURSE CORPS

The United States Cadet Nurse Corps membership was, until August 20, 1945, open to all students regularly enrolled in good standing in (a) the nursing portion of the Bachelor of Science Curriculum (thirty months), (b) the Basic Curriculum (thirty-six months), and (c) the Basic Curriculum for college graduates (thirty months). In the Basic Curriculum, the required organized instruction must be completed within thirty months, leaving the last six months (senior cadet period) free for assignment of students for nursing service.

The cost of the student's education while she is in the School of Nursing will be paid through the United States Public Health Service. (See page 38.) In addition the cadet receives \$35 per month for room and board for the first three months and stipends for personal expenses as follows:

- \$15.00 a month during first 9 months (pre-cadet period)
- 20.00 a month during next 21 months (junior cadet period)
- 30.00 a month during last 6 months (senior cadet period)

The payment of fees and stipends will be continued until completion of the programs of students who were enrolled in the Corps on August 20, 1945, or who had their admission certificates for the fall class, 1945, on that date.

NURSES' RESIDENCES

Nurse students are housed in the various hospital residences during their period of clinical experience (nursing practice). The Charles T. Miller Hospital has several attractive residences. The University of Minnesota Hospitals house students in the Louise M. Powell Hall built near the University of Minnesota Hospitals on ground overlooking the Mississippi River. Students at the Minneapolis General Hospital have a residence adjoining, but apart from, the hospital. While assigned to Glen Lake Sanatorium, students are housed in an attractive building a short distance from the main hospital. The students take their meals in the nurses' dining rooms, which are under the direction of qualified dietitians. Students' rooms are supplied with all necessary furnishings including linen. Each residence has a qualified director in charge.

The rules governing the residences are made in accordance with university policies and carried out with the joint approval of the faculty of the School of Nursing and the Council of the Nurses' Student Government Association.

For student's place of residence, see Assignment of Students, below. This applies to affiliating and postgraduate students as well as to those having clinical experience in the Bachelor of Science or Basic Curriculum.

Students in the Bachelor of Science Curriculum provide their own maintenance during the first six quarters. They may secure rooms in Comstock or Sanford Hall (the women's dormitories) or in approved rooming houses near the University by request to the Housing Bureau, 224 Northrop Memorial Auditorium, University of Minnesota. Students needing special help regarding housing should consult the Housing Bureau. During the time that students carry clinical experience in the school they have maintenance provided for them in the various hospital nursing-residences. In the last three quarters of combined academic and professional work they provide their own maintenance as in the first six quarters. College graduates and students in the Basic Curriculum provide their own maintenance during the first quarter on the same basis as do the students in the Bachelor of Science Curriculum. They have maintenance provided in the various hospital residences after the first quarter. Students in affiliating and postgraduate curricula are provided maintenance in the nurses' residence of the hospital to which they are assigned for selected clinical experience.

ASSIGNMENT OF STUDENTS

Assignment of students in all curricula for clinical experience in the various hospitals and agencies is made by the Students' Work Committee. Assignments depend in large measure upon the clinical experience needs of the students.

STUDENT ACTIVITIES

The leading student organization of the School of Nursing is the Nurses' Student Government Association. This organization co-operates with the faculty in student affairs. A copy of the constitution of the association is furnished each student when she enters the School of Nursing. She is admitted to membership in the association at the end of the first three months in the school by passing an examination on the constitution, conducted by the association. Students continue in membership so long as they remain in good standing in the school and pay the nominal dues of the organization. They elect a president and governing council of officers so chosen that there are representatives of the council in each of the hospitals. Students serve on standing committees of the faculty. The Nurses' Student Government Association usually sends a representative to the meetings of the American Nurses' Association, the National League of Nursing Education, and the Minnesota 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 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 which interests them and which can be wisely undertaken in addition to their nursing duties.

The school is nonsectarian the 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 students to attend either morning or evening service.

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 have a form of organization for their group.

Alpha Tau Delta and Sigma Theta Tau, two national nursing organizations, which have chapters at the University of Minnesota, sponsor various professional and social activities. Sigma Theta Tau is an honorary scholastic society. Alpha Tau Delta is chiefly social. Both are open only to college graduates or those in the Bachelor of Science Curriculum.

ORIENTATION AND COUNSELING PROGRAM

The School of Nursing recognizes the need of giving students assistance in both their professional and personal development. To this end students are encouraged to become familiar with, and make full use of, the personnel services of the University. Handbooks and bulletins containing helpful information concerning these services are issued to students at the time of entrance to the school. The week before the opening of fall quarter classes is set aside as Freshman Week, to give students an introduction to the academic and social world they are entering. *All fall quarter freshmen must register for Freshman Week and must be in attendance throughout Freshman Week Period.*

Throughout the student's enrolment in the University such facilities as the Student Counseling Bureau, the Speech Clinic, the Student Health Service, and many others are available as sources of aid in individual problems. For description of these facilities, the student is referred to the Bulletin of General Information.

In order to give students help in adjusting to the requirements of their professional experience, the School of Nursing provides a counselor who devotes full time to student activities and problems. She is available at all times for individual conferences with students who feel the need of advice or help and she works closely with other members of the faculty in helping the students to make the most of their opportunities.

SCHEDULE OF HOURS

During the first quarter in the School of Nursing, regular undergraduate students carry approximately 21 hours of class but have no clinical experience in the nursing care of patients.* During the second quarter they receive approximately 15 hours of clinical experience weekly. They carry approximately 13 hours of class and 9 hours of laboratory weekly. In the third quarter they carry approximately 36 hours of clinical experience weekly, 8 hours of class, and 2 hours of laboratory. From the beginning of the fourth quarter and throughout the remainder of the two-and-one-half years the hours of clinical experience are approximately 42 per week. The hours of class during this same period are approximately 6 per week with the exception of the Summer Session when the class program is either reduced or omitted. Except in the case of emergencies the time of the students on full-time duty does not exceed a seven-hour day or an eight-hour night. Assignment of night duty for regular students is for approximately two months (of not more than three weeks consecutively) during the entire period in the school. Hours of clinical experience during the senior cadet period of six months are approximately 48 per week.

Affiliating students carry approximately 42 hours per week of clinical experience and from 3 to 7 hours of correlating class work.

In the Advanced Course in Psychiatric Nursing Instruction students carry approximately 18 hours of class per week and no clinical experience in the first quarter. In the remaining two quarters they carry a total of approximately 48 hours weekly of classes and clinical experience.

Hours of duty permit the postgraduate students in the nine-month programs to carry a fairly heavy class schedule during six months but to be relatively free of classes during three months in which time they have experience in administration.

For hours of duty in the various courses for postgraduate students, see pages 41 to 46.

VACATION

Students in the Bachelor of Science Curriculum have vacations as do other university students during their first five quarters and during the last three quarters. During their hospital residence they receive approximately eight weeks of vacation at their own living expense.

Basic Curriculum students have ten weeks' vacation in their period of hospital residence.

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

Affiliating students enrolled for one year receive two weeks' vacation.

College graduates in the two and one-half years Basic Curriculum have approximately eight weeks' vacation.

The vacation allotment is usually divided as follows:

Basic Students	Freshman Year	Junior Year	Senior Year	Total
Fall.....	December 2 wks., summer 2 wks.	Summer 4 wks.	Summer 2 wks.	10 wks.
Winter.....	March 1 wk., summer 2 wks.	Summer 4 wks.	Summer 3 wks.	10 wks.
Summer.....	....., summer 4 wks.	Summer 4 wks.	Summer 2 wks.	10 wks.
Bachelor of Science and College Graduates				
Fall.....	December 2 wks., summer 2 wks.	Summer 4 wks.	..... †	8 wks.
Winter.....	March 1 wk., summer 2 wks.	Summer 4 wks.	Summer 1 wk. ‡	8 wks.
Spring.....	....., summer 2 wks.	Summer 4 wks.	Summer 2 wks.	8 wks.
Summer.....	....., summer 4 wks.	Summer 2 wks.	Summer 2 wks.	8 wks.

* Students in the Bachelor of Science Curriculum usually have fewer class hours because of having carried certain required courses during the pre-nursing period.

† Bachelor of science students are on campus. College graduates have finished.

‡ Bachelor of science students get no vacation before returning to campus but have an extra week after Summer Session.

SUGGESTED HIGH SCHOOL SUBJECTS

Students in high school who are considering the study of nursing are required to arrange their high school subjects so that they may meet the entrance requirements of the College of Science, Literature, and the Arts of the University of Minnesota whether they elect the Bachelor of Science or the Basic Curriculum. See page 16 for admission requirements. Note that this includes 2 units of mathematics.

In the matter of elective subjects students should choose those 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 are advised to take chemistry and physics in high school. History and social sciences are recommended, also 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. Positions for graduate nurses are now open in every field, and particularly in fields requiring advanced preparation. To the good student who is willing to prepare herself well, many satisfying opportunities are open. Some of these opportunities are for the positions of general staff nurse, head nurse, supervisor, instructor, nurse in private practice, industrial nurse, visiting nurse, infant welfare nurse, and school nurse. Graduates of the School of Nursing now hold important positions in all these fields both in this country and in foreign countries.

GENERAL REGULATIONS

NOTE—Due to social and economic conditions, the University of Minnesota reserves the right to alter any program or policy outlined in this bulletin.

ADMISSION

Applications for admission should be made in writing to the director of admissions and records, University of Minnesota, Minneapolis 14, Minnesota.

Every new student must file an application blank and an official copy of her record from the last school attended. Students who have attended more than one institution must submit a transcript of record from each. To be admitted, nonresident applicants must (in addition to meeting the other requirements) have a scholarship record equal to, or above, the average scholarship of the institution attended.

All applicants are required to have a college aptitude test.

Application blanks may be obtained at any Minnesota high school, or from the director of admissions and records, University of Minnesota.

Applications and transcripts of records should be filed at least two months before the opening of the quarter for which admission is desired.

Later applications will be accepted if the quota is not filled, but late applicants may find it difficult to meet requirements through lack of time to make up discrepancies between the credits they present and the University's requirements for admission.

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.

Completed application forms and educational credentials must be on file in the office of the director of admissions and records before the applicant can be given consideration. Final acceptance is made at a meeting of the Admissions Committee of the School of Nursing, at which time the general fitness of the applicant for the field of nursing is considered. If advisable, the committee may require an applicant to take additional tests before a decision is reached in regard to her admission. The committee reserves the right to reject any candidate who seems to the faculty unsuited for the nursing profession. Every precaution is taken to notify applicants in advance if their records seem to indicate that they are not suited to enter the field of nursing.

During the war period, college graduates, students with 75 or more college credits with a C average and students in the Bachelor of Science Curriculum have been admitted to the School of Nursing in any quarter in which they have completed the prenursing requirements. Beginning fall quarter, 1945, these students will be admitted in the fall or spring quarters only. The spring quarter is planned especially for them. High school graduates and students with less than 75 college credits are admitted in the fall quarter only. An average of C is required of all students in the total courses (not individual courses) completed. In addition an average of C must be maintained for the group (not individual courses) of the four basic sciences of anatomy, bacteriology, physiological chemistry, and physiology, if credits in these are presented for admission. A battery of tests is given during registration week, and scores are used for assistance in guidance throughout the course. A test covering mathematical processes involved in nursing is given during registration week. A sample of this test may be had upon request to the School of Nursing. Review of arithmetic is advised for all applicants.

ADMISSION—BACHELOR OF SCIENCE CURRICULUM

Applicants for admission to the Bachelor of Science Curriculum must meet the entrance requirements of the College of Science, Literature, and the Arts. They may secure admission to the College of Science, Literature, and the Arts in one of three ways: (1) Graduates of an accredited high school who present the subjects required for admission to the college of their choice and whose college aptitude rating is 40 or better may be admitted directly. The subjects must include at least 12 units completed in Grades X, XI, and XII (senior high school) and must include three units of English in Grades X, XI, and XII, and at least two units of mathematics in Grades IX, X, XI, or XII. Two, or preferably three units, must be presented from one other subject group, namely Social Science, Natural Science, or Foreign Language, and not more than three of the twelve units may be in vocational or miscellaneous subjects. A "unit" is one year of high school work in Grade X, XI, or XII. The college aptitude rating is the average of the student's rank in his high school graduating class and his rank on the college aptitude test. (2) Applicants who do not meet the requirements for admission listed under (1), above, may be considered for admission by examination. (3) Students who have completed one or more years of satisfactory work at another college or university of recognized standing may be admitted with advanced standing. Students who have completed less than one year of college work must meet the requirements for admission by certificate from high school or by examination.

For further details concerning admission requirements, see General Information Bulletin.

Admitted students will register in the College of Science, Literature, and the Arts during the first five quarters of the curriculum. They may enter the University before the age of eighteen but should be eighteen when starting clinical experience.

Acceptance into the School of Nursing is not made until the 75 credits of the pre-nursing subjects have been completed (see outline of the Bachelor of Science Curriculum, page 23). Students who have taken work in junior colleges or other accredited colleges or universities, may apply the credits toward the degree curriculum. Students carrying pre-nursing programs in other colleges should be sure that they are taking courses equivalent to the required courses listed on page 24. As a rule students find it most satisfactory to transfer to the University of Minnesota at the end of the first year. If they plan to take the entire pre-nursing program elsewhere they should complete all but 12 credits of the required courses. If questions arise as to selection of equivalent courses, students should consult the School of Nursing office, preferably at the end of the third quarter. Official transcripts of such credits should be submitted to the university director of admissions and records for evaluation as far in advance of date of desired entrance as possible. Students may begin the pre-nursing portion of the Bachelor of Science Curriculum at the beginning of any quarter, altho the fall quarter is the most satisfactory admission date. The spring quarter is the best time to begin the sixth quarter of the nursing curriculum and applicants having completed 75 or more college credits should arrange their transfer so that their sixth quarter is a spring quarter. Tho less desirable, any quarter may also be the sixth quarter during the war period.

ADMISSION—BASIC CURRICULUM FOR COLLEGE GRADUATES

Applicants with a Bachelor's degree are admitted directly to the School of Nursing to a two and one-half year curriculum.

ADMISSION—BASIC CURRICULUM

Applicants for admission to the Basic Curriculum must meet entrance requirements of the College of Science, Literature, and the Arts. See description of requirements under Bachelor of Science Curriculum above. In considering the applicants, the Admission Com-

mittee gives preference to those students who ranked in the upper fourth of their high school class. Students who are in the upper third of their high school class and above the fortieth percentile of the American Council of Education Psychological Test are accepted without further testing. Those in the upper third of their high school class but below the fortieth percentile on the aptitude test will be asked to take further tests before a decision is reached in regard to admission. Those in the middle third of their high school class are required to take supplementary entrance tests and show above average academic ability. Those whose high school records are not good are advised not to apply.

Applicants under eighteen years of age are especially urged to elect the Bachelor of Science Curriculum.

ADMISSION WITH ADVANCED STANDING

Students with less than 75 college credits are advised to bring their qualifications to those of the Bachelor of Science Curriculum. If this is not possible, they should enter the Basic Curriculum. For required courses in which they have already received credit they may, after admission to the school, make substitution of desired electives.

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.

ADMISSION—BACHELOR OF SCIENCE CURRICULUM FOR GRADUATE NURSES

Applicants for admission to this course must submit evidence of graduation from an accredited high school and an approved school of nursing. Advanced standing credit for the professional nursing courses will be determined by the Committee on Evaluation of Nursing Credentials which will indicate any additional clinical services to be completed before credit is granted. Forty-five credits represent approximately the average advanced standing granted for a satisfactory course of study in a hospital school of nursing; 53 in a hospital school having its prenursing sciences taught in the University of Minnesota, 55 in other university schools, and 60 in the University of Minnesota School of Nursing.

Applicants receiving a minimum of 40 advanced standing credits for their nursing courses are eligible for admission upon presentation of evidence of graduation from an accredited high school (15 units required). Applicants lacking such evidence may be admitted by examination. Admitted students are registered in the College of Education and must pass the health examination of that college.

For admission as an "Adult Special Student" see the Bulletin of General Information.

ADMISSION—POSTGRADUATE CURRICULA

Applicants for admission to postgraduate courses must (1) be registered nurses; (2) have had one year of successful experience;* (3) have completed college courses in Sociology 1 (General Sociology) and in Psychology 1 and 2 (General Psychology) with a grade of C, or one year of satisfactory college work;* and (4) meet the minimum entrance requirements for admission to the University of Minnesota, including such entrance tests as the English Placement Test, a battery of nursing tests, and a reading test.* They should write to the director of admission and records, University of Minnesota, for application blanks. These should be filled out and placed on file in the office of the director of admissions and records at least one month in advance of the quarter in which the applicant wishes to enter

* Not required for three-month supplementary course in operating room technique.

Postgraduate students are admitted each quarter in the operating room and fall quarter only in all other courses. Only a limited number of applicants can be accepted in any one quarter.

In an attempt to admit only those students who in their undergraduate nursing curriculum already have mastered satisfactorily a basic course in the chosen field, examinations will be given applicants in respective clinical subjects except in the case of the Operating Room course. If the examination is not satisfactorily passed, the applicant will be admitted to the postgraduate course only after offering evidence of successful repetition of the undergraduate basic course in this school or in another school approved by the faculty. For this reason prospective postgraduate students are urged to apply well in advance of the admission date in order that their admission not be postponed until the following year because of necessity for completing the undergraduate basic course. At the time the examination is taken tests of nursing aptitude, interest, and ability will also be administered. A fee of \$1 is charged for these tests.

Proper blanks on which the nursing school credits and academic credits (college or high school) should be submitted can be had by request to the director of admissions and records, University of Minnesota.

ADMISSION—COURSE IN TEACHING OF SCIENCES

In addition to the requirements for admission to postgraduate courses applicants must have had a minimum of two years' college work including zoology and 10 credits of chemistry.

ADMISSION—ADVANCED COURSE IN PSYCHIATRIC NURSING INSTRUCTION

Applicants must be registered nurses and must meet the requirement of high school graduation or its equivalent. Students are admitted to this course at the beginning of the fall or spring quarters. Students with college preparation are given preference.

ADMISSION—COURSES FOR AFFILIATING STUDENTS

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

HEALTH REGULATIONS*

The University School of Nursing requires students in the Bachelor of Science Curriculum *while on the campus and before transferring* to the School of Nursing to be vaccinated against smallpox and to be immunized against typhoid fever and diphtheria. *The University of Minnesota School of Nursing requires that the basic student comply with this requirement before entering the school.* (Detailed instructions as prescribed by the University Health Service regarding immunization may be secured from the School of Nursing by the applicant's physician.)

Upon entrance the applicant must pass satisfactorily the physical examination including dental examination given by the Students' 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 the maintenance of health and the prevention of disease necessitates that the nurse herself be physically fit.

* The regulations given here apply to postgraduate, as well as undergraduate, students except where otherwise indicated.

All students receive in the respective hospitals an annual physical examination. In addition a Mantoux test is made on all students on entrance. If the reaction is positive a chest X ray is taken. One week preceding the tuberculosis service, a Mantoux test is also taken on students whose Mantoux tests were negative on entrance. All students having a positive reaction are given a chest X ray. Students with positive reaction receive four weeks' experience at Glen Lake Sanatorium; those with negative reaction receive two weeks' observation and experience at Glen Lake Sanatorium, one week at the Public Health Center Clinic, and one week in related hospital clinics. Three months after returning from the tuberculosis service, those whose Mantoux tests were negative before entering the tuberculosis service are given another Mantoux test. Students with positive reactions receive a chest X ray at that time. A complete physical examination is given on completion of the course, including a chest X ray for students having a positive Mantoux reaction. A Mantoux test and chest X rays are made routinely for postgraduate students on entrance only. However, any student will receive a chest X ray as often as necessary for the protection of the student and the hospitals.

Through the University Health Service a special examination of students' feet is made and recommendation given for desirable types of shoes and, when indicated, for corrective foot exercises.

Students about whom it is decided that tonsillectomy or other surgery was indicated before admission to the school, or students under care of a private physician for some minor complaint which does not interfere with the practice of nursing but requires continued treatment, may be asked to pay for this care at the hands of the physician or surgeon of their choice.

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 thereafter be eligible for reinstatement under the same rules as apply to any other student. In any case, students must meet the cost of hospital care which is in excess of one month per year of residence in the school.

As a measure of promotion of health and of prevention of illness, students are allowed, during their course, a certain number of days of illness without being required to make up the time lost. Students in the undergraduate curricula are allowed 12 days each; postgraduate and (one-year) affiliating students, 5 days. All students are urged to report any illness promptly.

GRADES

Students in the Bachelor of Science Curriculum 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 or of the School of Public Health (depending upon selected major), in regard to grades, credits, and honor points. While in the School of Nursing, 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. Such work must be made up within 30 days unless the time is extended by permission of the Students' Work Committee. A grade of F in a required course must be removed by repeating the course as soon as it is offered. If the F is received in any subject taken in the first three quarters of the curriculum, students must return to the campus and carry a full program of class work while repeating the subject. See Continuation in School, below. Students must also maintain a C average in their class program in order to continue their clinical experience. See Continuation in School, below.

CONTINUATION IN SCHOOL

Because of the complicated schedules of clinical experience and the necessity for having thoro foundation of knowledge for each new subject, it is impossible to arrange irregular class schedules for students. For this reason, no student is allowed to register for the second, third, or fourth quarter in the School of Nursing who has not satisfactorily completed the work of the preceding quarter.

The first quarter is not considered satisfactorily completed unless the student has (1) received a passing grade in each required subject, (2) received an average of C for the group (not individual courses) of the four basic science courses—physiology, physiological chemistry, bacteriology, anatomy, (3) received an average of C for the total credits taken in the quarter. The second and third quarters are not considered satisfactorily completed unless the student has (1) a passing grade in each required subject, and (2) a C average in total credits taken. In special circumstances and with the permission of the faculty, a student may repeat the courses of these quarters in order to bring her work up to standard, but while she is doing so she may not have clinical experience or time credit and must provide her own maintenance outside the nurses' residence. Students who must repeat a quarter's course are dropped from membership in the United States Cadet Nurse Corps.

Students in the School of Nursing must maintain a C average throughout their program. Those who fail to do so may, by permission of the faculty, be permitted to withdraw from clinical experience to bring up their class work to the required level. Such a student may not receive time credit or maintenance, and is dropped from the United States Cadet Nurse Corps.

The faculty of the School of Nursing reserves the right to cancel the registration of any student who seems to be unsuited for the nursing profession or to require the withdrawal of any student from the school when, in its 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.

LEAVE OF ABSENCE

Permission cannot be granted students to remain away for the purpose of caring for sick relatives or for other personal reasons.

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.

BACHELOR OF SCIENCE DEGREE AND GRADUATE IN NURSING

The degree of bachelor of science and of graduate in nursing will be granted those students who have completed satisfactorily 185 credits and have met the requirements of the Bachelor of Science Curriculum as outlined on pages 23-32.

GRADUATE IN NURSING

The degree of graduate in nursing will be granted those students who have completed satisfactorily the requirements of the Basic Curriculum as outlined on pages 34-36. Students are required to have a C average on their total record. See also Class Curriculum and

Clinical Experience on pages 26-28 and 36-38. They must have credit for the satisfactory completion of three full years in the nursing curriculum.

Students who take the Bachelor of Science Curriculum but do not complete its requirements may change their status to basic students and receive the degree of graduate in nursing upon satisfactory completion of the requirements of the Basic Curriculum.

Students holding a B.S. or B.A. degree before entering may meet the requirements of the University for graduation in two and one-half years and receive the degree of graduate in nursing.

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 23-32.

STATE REGISTRATION

Nurse students completing either the Bachelor of Science or Basic Curriculum or the Basic Curriculum for college graduates are eligible at the age of twenty 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 in her alumnae association (see below) and, through her district and state association, in the national nursing organization and the Red Cross Nursing Service. Graduates from the University of Minnesota School of Nursing are also eligible for registration in any part of the United States. (Those desiring registration in New York state must have completed two years of science in high school.)

ALUMNAE ASSOCIATION

The purposes of the Alumnae Association are to promote the educational qualifications and proficiency of nurses, and to inculcate and disseminate high standards of ethical and professional conduct among persons engaged in the nursing profession.

The Alumnae Association has established an endowment fund which it continues to increase. A loan fund (see page 11) named to honor Richard Olding Beard (founder of the school and early leader in its development) and a fund which provides an annual lectureship, also honoring him, are derived from a portion of the income of the endowment fund.

The association also publishes the *Alumnae Quarterly* and an annual directory of members. Its location is 500 Essex Street Southeast, Minneapolis 14, Minnesota.

CURRICULA

BACHELOR OF SCIENCE CURRICULUM

Wherever possible, students should elect the Bachelor of Science Curriculum in preference to the Basic Curriculum, because the preparation given is broader and more detailed, and because graduates of the Bachelor of Science Curriculum are in much greater demand than are those of the Basic Curriculum. The curriculum is planned to prepare the student not only for bedside nursing but also for administrative, supervising, and teaching positions in schools of nursing and hospitals; for such public health nursing positions as visiting nursing, school nursing, health teaching, infant welfare, rural and industrial nursing; and for combined positions in secondary schools involving both nursing and teaching. This curriculum is open to high school graduates who meet the entrance requirements of the College of Science, Literature, and the Arts. See page 32 for fees required.

CURRICULUM

Students in this curriculum are required to complete 185 credits for graduation. The curriculum is divided into three parts as follows:

Part I. Five quarters in the College of Science, Literature, and the Arts either in the University of Minnesota or some other accredited university or college. See page 24.

Part II. Ten quarters in the School of Nursing (first quarter on the campus, and nine quarters in clinical divisions). See pages 24-25.

Part III. Three quarters in the College of Education or in the School of Public Health. See page 28.

PART I: COLLEGE OF SCIENCE, LITERATURE, AND THE ARTS

(Five quarters)

During the first five quarters the student must complete 75 credits and enough of the required courses listed below so that *all* required courses will be completed by the end of the sixth quarter (first quarter in the School of Nursing). Preferably not more than 12 credits of *required courses* including Nursing 12, 3 credits; and Nursing 1, 1 credit, should be left for the sixth quarter. She must earn an average of one honor point per credit (C average) for total credits earned in the pre-nursing period.

	Credits
A. Required courses to be completed by the end of the 6th quarter.	
English A-B-C or 4-5-6 or exemption	9 or 15
Sociology 1	5
Sociology 49	3
Psychology 1 and 2	6
Child Welfare 40 or Home Economics Education 90	3
Public Health 3	2
Anatomy 3	3
Physiology 50* or 1	4
Physiology 60* or 2	4 or 6
Bacteriology 53* or 101 and 102 or 1	5 or 9 or 4
Home Economics 31* or 30 or Nursing 10	3 or 2 or 1
Physical Education	5
Nursing 1, first quarter in the School of Nursing	1
Nursing 12, first quarter in the School of Nursing	3
Social Science other than sociology	9

(Required only of students taking Public Health major)

* Preferred courses.

B. Elective courses. (Thought should be given to possible fields of specialization in choosing electives. See pages 28-33.)

Chemistry 1 and 2, or 4 and 5, or 6 and 7	Philosophy 3
Zoology 1-2-3	Anthropology 41
Zoology 22, 83	Political Science 1-2-3
History 1-2-3	Humanities or other electives as desired

Advisers from the School of Nursing faculty are assigned to pre-nursing students in the College of Science, Literature, and the Arts. Before registering each quarter, students should have their programs reviewed by their adviser in the School of Nursing.

Students from other universities or colleges should, as a rule, transfer to the University of Minnesota at the end of their first academic year, if they wish to complete the Bachelor of Science Curriculum in the minimum time. Students may, however, transfer at any point in the pre-nursing program. Those who wish to complete all pre-nursing requirements before transferring to the University of Minnesota may do so provided they complete sufficient required courses as listed above. These students should confer with the office of admissions and records early to ascertain their exact standing. They are urged to consult with the School of Nursing at the end of their freshman year.

A suggested two-year program, including the preferred electives of chemistry and zoology follows: The choice of electives and sequence of courses may be varied in accordance with the individual needs and interest of the students.

First Year

<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 4f or Af	English 5w or Bw	English 6s or Cs
Chemistry 1f or 4f or 6f	Chemistry 2w or 5w or 7w	Sociology 1s
Zoology 1f	Zoology 2w	Zoology 3s
Public Health 3f	Physical Education	Anatomy 3s
Physical Education	Electives†	Physical Education
Electives†		

Second Year

<i>Fall</i>	<i>Winter</i>	<i>Spring (Part II)</i>
Psychology 1f	Psychology 2w	(School of Nursing—1st quarter)
Physiology 50f	Child Welfare 40w or	History of Nursing 1s
Physical Education	Home Economics Ed. 90w	Nursing 12s
Bacteriology 53f	Home Economics 31w	Physiology 60s or Physiology 2s
Electives†	Sociology 49w	Electives†
	Physical Education	

PART II: SCHOOL OF NURSING

Students in the Bachelor of Science Curriculum transfer from the College of Science, Literature, and the Arts to the School of Nursing at the end of the fifth quarter. During the sixth quarter (first quarter in the School of Nursing) they complete, from the list of required courses already given on page 23, all courses they have not completed while in the College of Science, Literature, and the Arts, and in addition enough electives to make a total of 90 credits completed by the end of the six quarters. Nursing 12 and 1 are taken in this quarter.

† Electives should be chosen to make on the average a program of 15 credits per quarter in addition to physical education. Social science should be chosen in the freshman year if possible. Electives in social science, natural science, and child welfare are urged, with special attention to the possible fields of specialization.

These students are, during the war, admitted to the School of Nursing each quarter. They remain in the School of Nursing ten quarters.

During this period the following required courses must be completed:

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Neuropsych. 171	Descriptive Neuropsychiatry	33	.....	33
Nurs. 11A-B	Foods and Nutrition	11	33	44
Nurs. 14	Introduction to Medical Sciences	22	.....	22
Nurs. 15A-B	Nursing Arts	33	44	77
Nurs. 16	Advanced Nursing Arts	11	22	33
Nurs. 18	Principles of Medical and Surgical Nursing	44	.....	44
Nurs. 19	Principles of Medical and Surgical Nursing	44	.....	44
Nurs. 20	Principles of Nursing in Conditions of the Skin	11	.....	11
Nurs. 21	Ear, Nose, and Throat Nursing	22	.....	22
Nurs. 25	Principles of Orthopedics and Orthopedic Nursing	22	.....	22
Nurs. 35	Principles of Communicable Disease Nursing	22	.....	22
Nurs. 36	Principles of Tuberculosis and Tuberculosis Nursing	22	.....	22
Nurs. 41	Principles of Pediatrics and Pediatric Nursing	33	.....	33
Nurs. 42	Principles of Nursing in Obstetrics and Gynecology	33	.....	33
Nurs. 45	First Aid	22	.....	22
Nurs. 49	Principles of Care in Eye Conditions	11	.....	11
Nurs. 53	Field Practice in Public Health Nursing	11	.....	11
Nurs. 54	Introduction to Public Health	22	.....	22
Pharm. 8	Elementary Pharmacology	22	22	44
	Total	451	121	572

Courses dealing with clinical experience are scheduled to precede or parallel the individual student's clinical assignment. A typical class schedule for the second through tenth quarters follows:

TYPICAL CLASS PROGRAM AFTER FIRST QUARTER

First Year—Second Quarter

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Nurs. 11A-B	Foods and Nutrition	11	33	44
Nurs. 54	Introduction to Public Health	22	.....	22
Nurs. 15A-B	Nursing Arts	33	44	77
Nurs. 18	Principles of Medical and Surgical Nursing	44	.....	44
Pharm. 8	Elementary Pharmacology	22	22	44
	Total	132	99	231

First Year—Third and Fourth Quarters

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Neuropsych. 171	Descriptive Neuropsychiatry	33	.....	33
Nurs. 16	Advanced Nursing Arts	11	22	33
Nurs. 19	Principles of Medical and Surgical Nursing	44	.....	44
Nurs. 41	Principles of Pediatrics and Pediatric Nursing	33	.....	33
Nurs. 45	First Aid	22	.....	22
	Total	143	22	165

SCHOOL OF NURSING

Second Year—Fifth to Eighth Quarters

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Nurs. 14	Introduction to the Medical Sciences	22	.....	22
Nurs. 20	Principles of Nursing in Conditions of the Skin	11	.....	11
Nurs. 21	Ear, Nose, and Throat Nursing	22	.....	22
Nurs. 25	Principles of Orthopedics and Orthopedic Nursing	22	.....	22
Nurs. 35	Principles of Communicable Disease Nursing	22	.....	22
Nurs. 42	Principles of Nursing in Obstetrics and Gynecology	33	.....	33
	Total	132	.....	132

Third Year—Ninth and Tenth Quarters

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Nurs. 36	Principles of Tuberculosis and Tuberculosis Nursing	22	.....	22
Nurs. 49	Principles of Care in Eye Conditions	11	.....	11
Nurs. 53	Field Practice in Public Health Nursing	11	.....	11
	Total	44	.....	44

CLINICAL EXPERIENCE

The clinical experience of the students begins in the second quarter in the school of nursing. The hospitals in which the students receive their clinical experience are as follows:

The University of Minnesota Hospitals, situated on the University campus, include the Elliot Memorial Hospital, the Cancer Institute, the Todd Memorial, and 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 January 1 to December 31, 1944, was 375.

The Minneapolis General Hospital is public in nature and cares principally for the sick of the city of Minneapolis. The Communicable Disease Department in this organization serves the city of Minneapolis—private, as well as public. This hospital has a large number of accident and emergency cases and a wide variety of acute diseases. The daily average of patients from January 1 to December 31, 1944, was 413.

The Charles T. Miller Hospital, in St. Paul, has 50 beds for free patients and 250 beds for private and semi-private patients. The daily average of patients from January 1 to December 31, 1944, was 276.

The Hennepin County Tuberculosis Sanatorium at Glen Lake, an institution of over 700 beds, caring for all types of tuberculosis, is associated with the School of Nursing to give the students experience in the care of tuberculous patients. All students are assigned for this experience in the latter half of their course. Beginning 1941, students with a negative Mantoux have been assigned for one week of this experience to the Public Health Center Clinic and a second week in the tuberculosis clinic of the out-patient department in one of the hospitals.

In addition, students (all college graduates and all students in the Bachelor of Science Curriculum) are assigned to the Community Health Service of Minneapolis or the Family Nursing Service of St. Paul for field experience in public health nursing. Other public health agencies are added as needed.

During the war and postwar periods additional hospitals are co-operating in offering experience for students. Among these are the Northern Pacific Hospital, St. Paul, the St. Mary's Hospital and the Maternity Hospital, Minneapolis.

The clinical experience for students in the Bachelor of Science Curriculum and college graduate students is divided as follows: (any changes therefrom must have the approval of the faculty of the School of Nursing).

Department	No. of Weeks	Department	No. of Weeks
Medicine	19	Communicable Disease	6
Surgery	25	Operating Room	6
Gynecology	4	Psychiatry	6
Diet Kitchen	4	Public Health Nursing	6
Out-Patient Department	4	Vacation	8
Tuberculosis	4	Illness Allowance	2
Obstetrics	12		
*Pediatrics	12		118

During the second quarter in the School of Nursing the students receive experience in medical and surgical nursing. At the beginning of the third quarter the students in each class are divided into groups. Typical assignment to clinical experience for the various groups follows:

TYPICAL ASSIGNMENT TO CLINICAL EXPERIENCE AFTER FIRST SIX MONTHS
(College Graduates and Students in the Bachelor of Science Curriculum)

Freshman Year

GROUP 1		GROUP 2		GROUP 3		GROUP 4	
Title	Wks.	Title	Wks.	Title	Wks.	Title	Wks.
Med. Nurs.	4	Med. Nurs.	4	Surg. Nurs.	4	Surg. Nurs.	8
Surg. Nurs.	6	Surg. Nurs.	6	Med. Nurs.	6	Med. Nurs.	6
Oper. Room	6	Oper. Room	6	Psych. Nurs.	6	Diet K.	4
Vac.	2	Vac.	2	Oper. Room	6	Vac.	2
Ped. Nurs.	8	Ped. Nurs.	8	Vac.	2	Oper. Room	6
				Ped. Nurs.	2		

Junior Year

Ped. Nurs.	4	Ped. Nurs.	4	Ped. Nurs.	10	Ped. Nurs.	12
Obst. Nurs. ....	12	Obst. Nurs. ....	12	Obst. Nurs. ....	12	Obst. Nurs. ....	12
Psych. Nurs.	6	Psych. Nurs.	6	Com. Dis.	6	Psych. Nurs.	6
Com. Dis.	6	Diet K.	4	Tbc. Nurs.	4	Surg. Nurs.	4
P. H. Nurs.	6	Com. Dis.	6	Out-Patient	4	Com. Dis.	6
Vac.	4	Out-Patient	4	Gyn. Nurs.	4	Vac.	4
Tbc. Nurs.	4	Gyn. Nurs.	4	P. H. Nurs.	6	Out-Patient	4
Pri. Pat.	6	Tbc. Nurs.	4	Vac.	4	P. H. Nurs.	4
Diet K.	4	Vac.	4	Med. Nurs.	2		
		Surg. Nurs.	4				

Senior Year

Out-Patient	4	Surg. Nurs.	6	Surg. Nurs.	9	P. H. Nurs.	2
Gyn. Nurs.	4	P. H. Nurs.	6	Diet K.	4	Tbc. Nurs.	4
Med. Nurs.	7	Pri. Pat.	6	Pri. Pat.	6	Gyn. Nurs.	4
Surg. Nurs.	10	Med. Nurs.	7	Med. Nurs.	3	Med. Nurs.	5
Vac.	1	Vac.	1	Surg. Nurs.	3	Surg. Nurs.	4
				Vac.	1	Pri. Pat.	6
						Vac.	1

* Students have the care of the normal child in the preclinical period.

SCHOOL OF NURSING

Freshman Year

GROUP 5	GROUP 6	GROUP 7	GROUP 8
Med. Nurs. 6	Surg. Nurs. ....10	Med. Nurs. 6	Surg. Nurs. ....10
Surg. Nurs. 4	Med. Nurs. 8	Surg. Nurs. ....10	Med. Nurs. 4
Diet K. 4	Vac. 2	Vac. 2	Diet K. 4
Vac. 2	Psych. Nurs. 6	Psych. Nurs. 6	Vac. 2
Psych. Nurs. 6		Pri. Pat. 2	Pri. Pat. 6
Oper. Room 4			

Junior Year

Oper. Room 2	Oper. Room 6	Pri. Pat. 4	Surg. Nurs. 4
Ped. Nurs. ....12	Ped. Nurs. ....12	Diet K. 4	Med. Nurs. 4
Obst. Nurs. ....12	Obst. Nurs. ....12	Oper. Room 6	Psych. Nurs. 6
Com. Dis. 6	Pri. Pat. 6	Ped. Nurs. ....12	Oper. Room 6
Surg. Nurs. 8	Vac. 4	Obst. Nurs. ....12	Ped. Nurs. ....12
Vac. 4	Com. Dis. 6	Vac. 4	Obst. Nurs. ....12
Tbc. Nurs. 4	Gyn. Nurs. 4	Surg. Nurs. 4	Vac. 4
Out-Patient 4	Diet K. 2	Com. Dis. 6	Com. Dis. 4

Senior Year

Gyn. Nurs. 4	Diet K. 2	Surg. Nurs. 2	Com. Dis. 2
Surg. Nurs. 4	Med. Nurs. 3	Out-Patient 4	Tbc. Nurs. 4
P. H. Nurs. 6	Surg. Nurs. 6	Gyn. Nurs. 4	P. H. Nurs. 6
Pri. Pat. 6	Out-Patient 4	Tbc. Nurs. 4	Gyn. Nurs. 4
Med. Nurs. 5	P. H. Nurs. 6	P. H. Nurs. 6	Out-Patient 4
Vac. 1	Tbc. Nurs. 4	Med. Nurs. 5	Med. Nurs. 3
	Vac. 1	Vac. 1	Surg. Nurs. 2
			Vac. 1

PART III: COLLEGE OF EDUCATION OR SCHOOL OF PUBLIC HEALTH

(Students must spend three full quarters in this portion of the curriculum.)

The student selects one of two majors as follows:

- A. Nursing Education for which she registers in the College of Education.
- B. Public Health Nursing for which she registers in the College of Education or in the School of Public Health.

NOTE—Students wishing a combined Public Health and Nursing Education major should register in the College of Education for the primary pattern and must complete in addition the courses listed in Part III B, page 32. This combined program takes at least four quarters. Unless some of the subjects of Part III A or B have been completed in advance most students would need an additional quarter to complete the program.

A. NURSING EDUCATION

Students in Nursing Education must meet the requirements for graduation of the College of Education. See College of Education bulletin. They are, however, exempt from Public Health 4 and Public Health 59 of the Health Education requirement.

Nursing Education has, in addition to the primary pattern, five variants; namely, Ward Administration, Teaching of Sciences, Child Care, Nutrition, and Physical Therapy. Students who wish to plan a program with special emphasis upon one of the special fields should register for the appropriate variant. For any one of these the student registers in the College of Education.

Major Adviser: Katharine J. Densford, 125 Medical Sciences Building.

Primary pattern—Prepares students for nursing in institutions, for administration, or for teaching in hospitals and schools of nursing.

No.	Title	Credits
Ed. 51A, B	Introduction to Secondary School Teaching	6
Ed.T. 51A	Special Methods of Teaching in Schools of Nursing	3
Ed.T. 51B†	Special Methods of Teaching and Directed Teaching in Schools of Nursing	5
Nurs.Ed. 60	Ward Administration	4
Nurs.Ed. 69	Survey of Conditions and Trends in Nursing, including War Nursing	3
Nurs.Ed. 71	The Curriculum of the School of Nursing	3
	Electives‡	18-19
	Education electives approved by adviser	2-3
	Total	45

Variant for those interested in Ward Administration—Designed to provide the student with theoretical background and ward experience in the activities and responsibilities of the hospital head nurse and supervisor.*

No.	Title	Credits
Nursing Courses		
Nurs.Ed. 60	Ward Administration	4
Nurs.Ed. 65	Analysis of Nursing Care	4
Nurs.Ed. 67	Field Practice in Ward Administration	6
Nurs.Ed. 69	Survey of Conditions and Trends in Nursing, including War Nursing	3
Nurs.Ed. 71	The Curriculum of the School of Nursing	3
Nurs.Ed. 73	Principles of Economics in Nursing Service Administration	1
Education Courses		
Ed. 51A, B	Introduction to Secondary School Teaching	6
Ed.T. 51A	Special Methods of Teaching in Schools of Nursing	3
Ed.T. 51B†	Special Methods of Teaching and Directed Teaching in Schools of Nursing	5
	Education Electives approved by adviser	2-3
General Courses	Electives	7-8
	Total	45

Variant for those interested in the Teaching of Sciences in Schools of Nursing—Prepares the student to teach basic sciences and clinical courses in schools of nursing. The purpose is to build a broad knowledge and deep understanding of such medical sciences as are included in the nursing curricula and to study the problems involved in teaching these sciences in schools of nursing. Any student who shows special aptitude and interest in the science courses and who is interested in choosing this variant is urged to consult the director of the School of Nursing during her first year for assistance in the planning of her preclinical course since many of the required science courses must be completed previous to assignment to clinical experience.

* Enrolment is limited. Permission of major adviser required.

† Requirements for registration in Ed.T. 51B are as follows:

1. A passing grade in Ed. 51A, B.
2. Passing of the qualifying examination in English.
3. Attainment of a scholastic average of 1.5 in the field in which the practice teaching is to be done.
4. Passing of the required speech test.

‡ By careful selection of these electives and with an additional quarter the public health nursing certificate may be earned. See the Bulletin of the School of Public Health.

- No.	Title	Credits
Nursing Courses		
Nurs.Ed. 60	Ward Administration	4
Nurs.Ed. 69	Survey of Conditions and Trends in Nursing, including War Nursing	3
Nurs.Ed. 71	The Curriculum of the School of Nursing	3
Nurs.Ed. 74	Sciences in a School of Nursing Curriculum	5
Education Courses		
Ed. 51A, B	Introduction to Secondary School Teaching	6
Ed.T. 51A	Special Methods of Teaching in Schools of Nursing	3
Ed.T. 51B†	Special Methods of Teaching and Directed Teaching in Schools of Nursing	5
	Education Electives approved by adviser	2-3
Science Courses		
	(Physiol. 50 and Physiol. 60 and Bact. 53 or Bact 101 are required in addition to the following courses and should be taken in the second year of the prenursing program. If they have not been taken previously, it is apt to take more than three quarters to complete this variant.)	
Bact. 102	Medical Bacteriology	4
Zool. 149, 150 or Zool. 21 or Anat. 61	Histology and Organology	5 or 6
Zool. 22 or Anat. 59	Comparative Anatomy	5 or 6
	Systematic Anatomy	5 or 6
	Total	46 or 48

Variant for those interested in Child Care—Prepares the student for work in pediatric wards or clinics, work with both well and sick children, or serves as an excellent background for nurses who may later seek additional preparation for public health work with children.

Course No.	Title	Credits
Nursing Courses		
Nurs. Ed. 60	Ward Administration	4
Nurs.Ed. 69	Survey of Conditions and Trends in Nursing, including War Nursing	3
Nurs.Ed. 71	The Curriculum of the School of Nursing	3
Education Courses		
Ed.T. 51A	Special Methods of Teaching in Schools of Nursing	3
Ed. 61A, B or Ed. 51A, B	Introduction to Elementary School Teaching	} 6
	Introduction to Secondary School Teaching	
Child Welfare and Nursery School Courses		
C.W. 80	Child Psychology	3
C.W. 170	Parent Education	3
Ed.T. 55 or Ed.C.I. 130	Principles of Early Childhood Education	} 3 or 2
	Problems of Childhood Education	
Ed.T. 57	Plastic Materials	3
Ed.T. 59 or Ed.T. 56	Story Telling for Young Children	} 2
	Permanent Play Materials	
Ed.T. 75	Directed Teaching in the Nursery School	4
Ed.T. 76A, C	Methods and Observation	4
Mu.Ed. 50A	Primary Methods	2
	Electives approved by major adviser	2-3
	Total	45

Variant for those interested in Nutrition—Prepares the student for any position in which more than ordinary mastery of this field is desirable, as, for example, in Medical Nursing.

Students taking this variant must have completed Home Economics 30 (2 cred.) or Home Economics 31 (3 cred.) before entering the School of Nursing.

† Requirements for registration in Ed.T. 51B are as follows:

1. A passing grade in Ed. 51A, 51B.
2. Passing of the qualifying examination in English.
3. Attainment of a scholastic average of 1.5 in the field in which the practice teaching is to be done.
4. Passing of the required speech test.

Course No.	Title	Credits
Nursing Courses		
Nurs.Ed. 60	Ward Administration	4
Nurs.Ed. 69	Survey of Conditions and Trends in Nursing, including War Nursing	3
Nurs.Ed. 71	The Curriculum of the School of Nursing	3
Education Courses		
Ed. 51A, B	Introduction to Secondary School Teaching	6
Ed.T. 51A	Special Methods of Teaching in Schools of Nursing	3
Ed.T. 51B†	Special Methods of Teaching and Directed Teaching in Schools of Nursing	5
	Electives in Education approved by adviser	6
Home Economics Courses		
Agr.Biochem. 4‡	Introduction to Organic and Biochemistry	5
H.E. 34 or	Nutrition Problems	} 3 or 4
H.E. 170	Nutrition of the Family	
H.E. 173	Nutrition in Disease	3
	Electives	4 or 3
Total		45

Variant for those interested in Physical Therapy—Prepares student for the position of physical therapist as well as for supervisory or teaching positions in clinical specialties in which physical therapy is an important form of treatment.

An individual program may be worked out in conference with the director of physical therapy. This variant requires additional time, and it may not be possible to arrange during the present period of acceleration.

Course No.	Title	Credits
Nursing Courses		
Nurs.Ed. 60	Ward Administration	4
Nurs.Ed. 69	Survey of Conditions and Trends in Nursing, including War Nursing	3
Nurs.Ed. 71	The Curriculum of the School of Nursing	3
Education Courses		
Ed. 51A, B	Introduction to Secondary School Teaching	6
Ed.T. 51A	Special Methods of Teaching in Schools of Nursing	3
Ed.T. 51B†	Special Methods of Teaching and Directed Teaching in Schools of Nursing	5
Physical Therapy Courses Required for Certification for Physical Therapy Technicians		
Anat. 59	Systematic Anatomy for Dental Students	6
Pathology (e)	.....	2
Physiol. 60	Human Physiology	6
Phys.Ed. 51	Mechanics of Movement	3
Neuropsy. 171	Descriptive Neuropsychiatry	3
Rad. 50	Physics for Physical Therapy Technicians	2
Phys.Ther. 1, 2	Physical Therapeutic Theory and Technique:	8
	Electrotherapy	
	Hydrotherapy	
	Thermotherapy	
	Principles of Physical Therapy applied to:	
	Medicine	
	Orthopedics	
	Surgery	
Phys.Ther. 5, 6	Applied Anatomy	2
Phys.Ther. 5A	Muscle Analysis and Re-education	7
Phys.Ther. 10	Massage	5
Phys.Ther. 11	Corrective Exercise	5
Phys.Ther. 20	Seminar: Asepsis, Bandaging, Contagious Technique, Ethics, Joint Measurement, Records, Social Service	2
Phys.Ther. 21	Physical Therapy Conference	1
Phys.Ther. 40	Clinical Practice in Hospitals	18
Total		94

† Requirements for registration in Ed.T. 51B are as follows:

1. A passing grade in Ed. 51 A, B.
2. Passing of the qualifying examination in English.
3. Attainment of a scholastic average of 1.5 in the field in which the practice teaching is to be done.
4. Passing of the required speech test.

‡ If student has not had organic chemistry.

SCHOOL OF NURSING

B. PUBLIC HEALTH NURSING

Students in Public Health Nursing register for the last three quarters in the College of Education or in the School of Public Health and must meet the requirements for graduation of the respective colleges. See bulletins of School of Public Health and College of Education.

Major Adviser: Ruth Freeman, 121 Millard Hall.

The following courses are required in addition to the requirements listed under Part I.

Social Science Courses

Course No.	Title	Credits
Soc. 91 or	Survey of Social Work	} 5 or 3
Soc. 129	Principles of Social Case Work	
	Note: Social Science other than Sociology—9 credits. Should be taken during the prenursing period.	

Public Health Courses

P.H. 53	Elements of Preventive Medicine	5
P.H. 62-63	Principles of Public Health Nursing	6
P.H. 65, 66, 67	Field Practice in Public Health Nursing	16
Ed. 81	Introduction to Health Education	3
P.H. 133 or 61	Mental Hygiene Aspects of Public Health Nursing	3
	Electives in P.H. minimum	5
	General electives, any department, to bring total program to minimum of	45

The C+ average is required in all the public health courses.

ESTIMATE OF FEES FOR BACHELOR OF SCIENCE CURRICULUM

PART I. (Five Quarters in the College of Science, Literature, and the Arts)

	One quarter	Total
Tuition (resident)	\$ 25.00	\$125.00
Incidental fee	9.65	48.25
Matriculation deposit	10.00	10.00
Course fees	2.00	10.00
Laboratory deposit		5.00
Laundry§	18.00	90.00
Room rent§	45.00	225.00
Board§	110.00	550.00
Books and instruments	15.00	75.00
	\$234.65	\$1,138.25

PART II. (Ten Quarters in the School of Nursing) ‡

Tuition (first quarter \$50, nine quarters \$20 each)	\$230.00
Incidental fee (first quarter)	9.65
Laundry§ (first quarter)	18.00
Room rent§ (first quarter)	45.00
Board§ (first quarter)	110.00
Books and instruments	65.00
Uniforms	50.00
Transportation	8.00
	\$535.65

§ These estimates vary according to the student's living arrangements.

‡ These expenses, with the exception of laundry, are paid by the United States Cadet Nurse Corps for members of the Corps but only \$35 a month is allowed for maintenance (room and board) in the first quarter.

PART III. (Three Quarters in College of Education or School of Public Health)¶¶

	One quarter	Total
Tuition (resident)	\$ 25.00	\$ 75.00
Incidental fee	9.65	28.95
Course fee	3.00	14.00
Laundry‡	18.00	54.00
Room rent‡	45.00	135.00
Board‡	110.00	330.00
Books and instruments	15.00	45.00
Graduation fees		15.00
	\$225.65	\$696.95

The above estimate of expense for the Bachelor of Science Curriculum includes university fees, uniforms, books, and maintenance. For the first five quarters, while the student is on campus, the estimate is \$1,138.25. This amount is greatly reduced, of course, if the student is living at home. For the next two and one-half years, while the student is in the School of Nursing the total estimate is \$535.65.‡ For the last three quarters, while the student is in the College of Education or School of Public Health the total estimate is \$696.95.¶¶ Estimates do not include personal incidentals, clothing, traveling, and vacation expenses.

Tuition—Detailed information as to tuition charge per quarter is indicated above. Nonresidents add \$31 per quarter for additional tuition in the first five quarters and in the last three quarters.

Incidental fee—An incidental fee of nine dollars and sixty-five cents (\$9.65) a quarter for the first six and the last three quarters is charged each student, for which the student receives the privileges of the Coffman Memorial Union, the Health Service, the *Minnesota Daily*, including the Official Daily Bulletin, the university post-office service, and the *University Address Book*. The total incidental fee is eighty-six dollars and eighty-five cents (\$86.85).

Matriculation deposit—At the student's first registration at the University a matriculation deposit of ten dollars (\$10) is required to cover the following charges: locker rental, locker key deposit, laboratory breakages, library fines, or damages to university property.

Laboratory deposit—A laboratory deposit of five dollars (\$5) is also required of students registered for courses in chemistry to cover cost of materials.¶

Course fees—For individual courses. The amounts are specified in the course announcements.

Cost of books—The expense varies with the course taken. Two- and three-quarter courses often require the purchase of only one book at the beginning of the course. Secondhand books can often be purchased at one of the various bookstores. Approximate annual cost of \$45 for the first two and fifth years and approximately \$25 for each of the third and fourth years should represent maximum book expenses.

Cost of uniforms¶¶—The student pays for her first complete set of uniforms. The hospital replaces worn-out uniforms. This charge of approximately fifty dollars (\$50) is payable at the end of the first month of the sixth quarter at the University when the order is sent to the manufacturer.

‡ These expenses are paid by the United States Cadet Nurse Corps for members of the Corps but only \$35 a month is allowed for maintenance in the first quarter.

¶¶ Bolton fund scholarships provide for university fees, tuition, and maintenance.

¶¶¶ Those students who elect public health nursing as their field of major interest in the last three quarters pay approximately \$20 in addition for public health uniforms. Prices subject to change without notice.

‡ These estimates vary according to the student's living arrangements.

¶ For detailed information see the Bulletin of General Information.

Students may purchase uniforms second hand but may not have replacement by hospital until such time as sets of new uniforms purchased by classmates require replacement.

At the time uniforms are purchased, students should provide themselves with name tapes for all pieces which are to be laundered. One hundred tapes should be sufficient. These may be purchased through the office of the School of Nursing.

Fee for part-time work—Students who take part-time work are required to pay the same fees as students who take a full program of work. There is no credit hour or clock hour fee. However, those students who must repeat work of the first quarter are charged only \$20 tuition and not first quarter fees.

Transportation—This item of \$8 includes transportation while in the School of Nursing to and from classes at the University and to and from the field when assigned to field trips or to public health nursing.

Graduation fees—The student registered in the Bachelor of Science Curriculum receives the degrees of bachelor of science and graduate in nursing. The fee for each is \$7.50 or a total of \$15.

Board and room—Those students who live within commuting distance do not have this expense since they can live at home during the periods when they are not in hospital residence. There is no charge for board and room while in residence at the hospital. The cost of room and board varies widely.

Comstock Hall,† new residence hall for women, \$135 to \$155 per quarter.

Sanford Hall,† residence hall for women, \$110 to \$140 depending upon the room selected, per quarter.

Co-operative cottages,† in which the students assist with work, approximately \$28 per month.

Rooming houses† for room per month, \$12 to \$20 for double rooms, \$16 to \$30 for single room; for board, per week, \$7 to \$10 for two meals per day.

Some students earn their room and board in return for services given in private families. This may be done while taking academic classes but not while in the School of Nursing proper.

Those who plan to earn part of their expenses may receive information from the Office of Civil Service Personnel, Room 9 Administration Building, University of Minnesota.

BASIC CURRICULUM

This curriculum is open to high school graduates who meet admission requirements of the College of Science, Literature, and the Arts and of the School of Nursing. See pages 16-18. For fees required see page 38.

ACCELERATION

The organized instruction and clinical experience of this—the usual “three-year”—curriculum are completed in two and one-half years. However, the student may not take the State Board licensing examination until she has had six months of additional supervised experience and instruction. For the student in the United States Cadet Nurse Corps this is provided by the senior cadet period.

CURRICULUM

Candidates for the degree of graduate in nursing must complete the curriculum of class work designated for basic students as outlined below. For honor point and grade requirements see paragraph on “Continuation in the School,” page 21. Graduates of this

† For detailed information see the Bulletin of General Information.

curriculum receive 60 blanket credits toward Bachelor of Science Curriculum in nursing education or in public health nursing. A list of courses follows:

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Anat. 3	Elementary Anatomy	22	22	44
Bact. 1	Elements of Bacteriology	33	33	66
Neuropsych. 171	Principles of Neuropsychiatry	33	.....	33
Nurs. 1	History of Nursing	11	.....	11
Nurs. 10	Introduction to Nutrition	11	.....	11
Nurs. 11A-B	Foods and Nutrition	11	33	44
Nurs. 12	Introduction to Nursing	22	22	44
Nurs. 14	Introduction to Medical Sciences	22	.....	22
Nurs. 15A-B	Nursing Arts	33	44	77
Nurs. 16	Advanced Nursing Arts	11	22	33
Nurs. 18	Principles of Medical and Surgical Nursing	44	.....	44
Nurs. 19	Principles of Medical and Surgical Nursing	44	.....	44
Nurs. 20	Principles of Nursing in Conditions of the Skin	11	.....	11
Nurs. 21	Ear, Nose, and Throat Nursing	22	.....	22
Nurs. 25	Principles of Orthopedics and Orthopedic Nursing	22	.....	22
Nurs. 35	Principles of Communicable Disease Nursing	22	.....	22
Nurs. 36	Principles of Tuberculosis and Tuberculosis Nursing	22	.....	22
Nurs. 41	Principles of Pediatrics and Pediatric Nursing	33	.....	33
Nurs. 42	Principles of Nursing in Obstetrics and Gynecology.....	33	.....	33
Nurs. 44	Observation of the Normal Child	11	.....	11
Nurs. 45	First Aid	22	.....	22
Nurs. 49	Principles of Care in Eye Conditions	11	.....	11
Nurs. 50	Professional Adjustments	22	.....	22
Nurs. 54	Introduction to Public Health	22	.....	22
Pharm. 8	Elementary Pharmacology	22	22	44
Physiol. 1	Elements of Physiological Chemistry	33	22	55
Physiol. 2	Elements of Physiology	33	22	55
Psych. A	Practical Applications of Psychology	55	.....	55
P.H. 3	Personal Health	22	.....	22
Total		726	253	979

First Year—First Quarter

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Anat. 3	Elementary Anatomy	22	22	44
Bact. 1	Elementary Bacteriology	33	33	66
P.H. 3	Personal Health	22	.....	22
Physiol. 1	Elements of Physiological Chemistry	33	22	55
Physiol. 2	Elements of Physiology	33	22	55
Nurs. 10	Introduction to Nutrition	11	.....	11
Nurs. 12	Introduction to Nursing	22	22	44
Total		176	121	297

Courses dealing with clinical experience are scheduled to precede or parallel the individual student's clinical assignment. A typical class schedule for the second through tenth quarters follows:

First Year—Second Quarter

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Nurs. 11A-B	Foods and Nutrition	11	44	55
Nurs. 54	Introduction to Public Health	22	.....	22
Nurs. 15A-B	Nursing Arts	33	44	77
Nurs. 18	Principles of Medical and Surgical Nursing	44	.....	44
Pharm. 8	Elementary Pharmacology	22	22	44
Total		132	110	242

SCHOOL OF NURSING

First Year—Third and Fourth Quarters

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Nurs. 16	Advanced Nursing Arts	11	22	33
Nurs. 19	Principles of Medical and Surgical Nursing	44	.....	44
Nurs. 25	Principles of Orthopedics and Orthopedic Nursing	22	.....	22
Nurs. 41	Principles of Pediatrics and Pediatric Nursing	33	.....	33
Neuropsych. 171	Descriptive Neuropsychiatry	33	.....	33
	Total	143	22	165

Second Year

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Nurs. 1	History of Nursing	11	.....	11
Nurs. 14	Introduction to Medical Sciences	22	.....	22
Nurs. 20	Principles of Nursing in Conditions of the Skin	11	.....	11
Nurs. 21	Ear, Nose, and Throat Nursing	22	.....	22
Nurs. 35	Principles of Communicable Disease Nursing	22	.....	22
Nurs. 42	Principles of Nursing in Obstetrics and Gynecology	33	.....	33
Nurs. 44	Observation of the Normal Child	11	.....	11
Nurs. 45	First Aid	22	.....	22
Psych. A	Practical Applications of Psychology	55	.....	55
	Total	209	.....	209

Third Year

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Nurs. 36	Principles of Tuberculosis and Tuberculosis Nursing	22	.....	22
Nurs. 49	Principles of Care in Eye Conditions	11	.....	11
Nurs. 50	Professional Adjustments	22	.....	22
	Total	55	.....	55

CLINICAL EXPERIENCE†

The clinical experience for the basic students is divided as follows: (Any changes therefrom must have the approval of the faculty of the School of Nursing.)

Department	No. of Weeks	Department	No. of Weeks
Medicine	21-23	Out-Patient	4
Obstetrics	12	Nursery School	2-4
Surgery	25	Tuberculosis	4
Pediatrics	12	Vacation	8
Communicable Disease	6	*Senior assignment (including two weeks' vacation)	26
Gynecology	4	Illness allowed	2
Operating Room	6		
Psychiatry	6		
Diet Kitchen	4		144

For students in the United States Cadet Nurse Corps the last six months of the Basic Curriculum have been designated the senior cadet period. During this period the student may elect experience in a federal nursing service (Army, Navy, Veterans, Indian Bureau, or U. S. Public Health Service) or she may be assigned for additional experience in a civilian nursing service (surgical, medical, obstetrics, pediatrics, psychiatry, rural or urban, public health or institutional) where she has an approved program of instruction under supervision. She is not eligible to take the State Board licensing examinations until after this senior cadet period.

* Senior Cadet period for those in the United States Cadet Nurse Corps. For students not in the United States Cadet Nurse Corps, senior assignment will be in civilian nursing service.

† See page 7 for a description of hospitals in which students have clinical experience.

During the second quarter in the School of Nursing students receive experience in medical and surgical nursing. At the beginning of the third quarter each student is assigned to a group. The groups are assigned to clinical experience as follows:

TYPICAL ASSIGNMENT TO CLINICAL EXPERIENCE AFTER FIRST SIX MONTHS
(Students in Basic Curriculum)

First Year

GROUP 1		GROUP 2		GROUP 3		GROUP 4	
Title	Wks.	Title	Wks.	Title	Wks.	Title	Wks.
Med. Nurs.	4	Med. Nurs.	6	Surg. Nurs.	6	Surg. Nurs.	6
Surg. Nurs.	6	Surg. Nurs.	7	Med. Nurs.	6	Med. Nurs.	6
Oper. Room	6	Oper. Room	6	Surg. Nurs.	4	Surg. Nurs.	7
Vac.	2	Vac.	2	Oper. Room	6	Oper. Room	6
Ped. Nurs.	8	Ped. Nurs.	5	Vac.	2	Vac.	1
				Ped. Nurs.	2		

Second Year

Ped. Nurs.	4	Ped. Nurs.	7	Ped. Nurs.	10	Vac.	1
Obst. Nurs.	12	Obst. Nurs.	12	Obst. Nurs.	12	Ped. Nurs.	12
Psych. Nurs.	6	Psych. Nurs.	6	Psych. Nurs.	6	Obst. Nurs.	12
Com. Dis.	6	Com. Dis.	6	Com. Dis.	6	Psych. Nurs.	6
Vac.	4	Vac.	4	Vac.	4	Com. Dis.	6
Priv. Pat.	6	Priv. Pat.	6	Priv. Pat.	6	Vac.	4
Tbc. Nurs.	4	Tbc. Nurs.	4	Surg. Nurs.	2	Priv. Pat.	6
Out-Patient	4	Out-Patient	4	Tbc. Nurs.	4	Med. Nurs.	3
Diet K.	4	Diet K.	3	Out-Patient	2	Tbc. Nurs.	2
Gyn. Nurs.	2						

Third Year

Gyn. Nurs.	2	Diet K.	1	Out-Patient	2	Tbc. Nurs.	2
Nsy. Sch.	4	Gyn. Nurs.	4	Diet K.	4	Out-Patient	4
Med. Surg.	8	Nsy. Sch.	4	Gyn. Nurs.	4	Diet K.	4
Surg. Nurs.	10	Med. Nurs.	6	Nsy. Sch.	4	Gyn. Nurs.	4
Vac.	2	Surg. Nurs.	9	Vac.	2	Nsy. Sch.	4
Senior Assign.	26	Vac.	2	Med. Nurs.	6	Vac.	2
		Senior Assign.	26	Surg. Nurs.	4	Surg. Nurs.	3
				Senior Assign.	26	Med. Nurs.	3
						Senior Assign.	26

First Year

GROUP 5		GROUP 6		GROUP 7		GROUP 8	
Title	Wks.	Title	Wks.	Title	Wks.	Title	Wks.
Psych. Nurs.	6	Com. Dis.	6	Med. Nurs.	6	Surg. Nurs.	6
Com. Dis.	6	Psych. Nurs.	6	Surg. Nurs.	6	Med. Nurs.	6
Vac.	2	Surg. Nurs.	4	Psych. Nurs.	6	Com. Dis.	6
Med. Nurs.	4	Vac.	2	Com. Dis.	6	Psych. Nurs.	6
Surg. Nurs.	4	Med. Nurs.	7	Med. Nurs.	2	Vac.	2
Oper. Room	4	Oper. Room	1				

Second Year

Oper. Room	2	Oper. Room	5	Vac.	2	Surg. Nurs.	5
Ped. Nurs.	12	Ped. Nurs.	12	Oper. Room	6	Oper. Room	6
Obst. Nurs.	12	Obst. Nurs.	12	Ped. Nurs.	12	Ped. Nurs.	12
Med. Nurs.	8	Vac.	4	Obst. Nurs.	12	Obst. Nurs.	12
Surg. Nurs.	7	Med. Nurs.	5	Vac.	4	Vac.	4
Vac.	4	Surg. Nurs.	12	Surg. Nurs.	6	Surg. Nurs.	3
Priv. Pat.	6	Priv. Pat.	2	Med. Nurs.	4	Gyn. Nurs.	4
Surg. Nurs.	1			Surg. Nurs.	4	Nsy. Sch.	4
				Nsy. Sch.	2	Med. Nurs.	2

SCHOOL OF NURSING

Third Year

Title	Wks.	Title	Wks.	Title	Wks.	Title	Wks.
Surg. Nurs.	2	Priv. Pat.	4	Nsy. Sch.	2	Med. Nurs.	2
Tbc. Nurs.	4	Vac.	2	Priv. Pat.	6	Priv. Pat.	6
Out-Patient	4	Tbc. Nurs.	4	Vac.	2	Surg. Nurs.	2
Diet K.	4	Out-Patient	4	Tbc. Nurs.	4	Med. Nurs.	2
Gyn. Nurs.	4	Diet K.	4	Out-Patient	4	Vac.	2
Nsy. Sch.	4	Gyn. Nurs.	4	Diet K.	4	Tbc. Nurs.	4
Vac.	2	Nys. Sch.	4	Gyn. Nurs.	4	Out-Patient	4
Surg. Nurs.	2	Senior Assign.	26	Senior Assign.	26	Diet K.	4
Senior Assign.	26					Senior Assign.	26

First Year

GROUP 9	GROUP 10	GROUP 11	GROUP 12
Oper. Room	Priv. Pat.	Obst. Nurs.	Ped. Nurs.
Priv. Pat.	Oper. Room	Oper. Room	Priv. Pat.
Vac.	Vac.	Priv. Pat.	Oper. Room
Obst. Nurs.	Ped. Nurs.	Vac.	Vac.

Second Year

Psych. Nurs.	Com. Dis.	Ped. Nurs.	Obst. Nurs.
Com. Dis.	Psych. Nurs.	Med. Nurs.	Med. Nurs.
Ped. Nurs.	Obst. Nurs.	Surg. Nurs.	Out-Patient
Surg. Nurs.	Med. Nurs.	Out-Patient	Tbc. Nurs.
Med. Nurs.	Out-Patient	Tbc. Nurs.	Diet K.
Diet K.	Diet K.	Diet K.	Gyn. Nurs.
Gyn. Nurs.	Gyn. Nurs.	Gyn. Nurs.	Nsy. Sch.
Nsy. Sch.	Nsy. Sch.	Nsy. Sch.	Com. Dis.
Vac.	Vac.	Com. Dis.	Psych.
Surg. Nurs.	Med. Nurs.	Psych.	Vac.
		Vac.	Med. Nurs.

Third Year

Surg. Nurs.	Surg. Nurs.	Vac.	Med. Nurs.
Med. Nurs.	Med. Nurs.	Surg. Nurs.	Surg. Nurs.
Surg. Nurs.	Surg. Nurs.	Med. Nurs.	Med. Nurs.
Vac.	Vac.	Surg. Nurs.	Surg. Nurs.
Tbc. Nurs.	Tbc. Nurs.	Vac.	Vac.
Out-Patient	Senior Assign.	Surg. Nurs.	Senior Assign.
Senior Assign.		Senior Assign.	

ESTIMATE OF FEES—BASIC CURRICULUM

PART I. School of Nursing (Campus—One Quarter)

Tuition	\$ 50.00
Incidental fee	9.65
Matriculation deposit	10.00
Laundry††	18.00
Room rent††	45.00
Board††	110.00
Books	29.75
Uniforms	50.00
Transportation	8.00

\$330.40

PART II. School of Nursing (Clinical—Nine Quarters)

Tuition (\$20 per quarter)	\$180.00
Books	35.10
Graduation fee	7.50

\$222.60

† Expenses, with the exception of laundry, are paid by United States Cadet Corps for members of the Corps but only \$35 a month is allowed for maintenance.

†† These estimates vary according to the student's living arrangements.

CARLETON COLLEGE PROGRAM

An arrangement has been made with Carleton College, Northfield, Minnesota, whereby students of that college may spend three summers in the University of Minnesota School of Nursing, returning to Carleton College each fall. This program begins in the summer following the student's first year at Carleton College. Upon completion of the liberal arts course at Carleton College, the student returns to the University of Minnesota School of Nursing for an additional period of one and three-fourths years, at the end of which time the degree of graduate in nursing is given by the University of Minnesota.

BASIC CURRICULUM FOR COLLEGE GRADUATES

Applicants with a Bachelor's degree are admitted to an especially planned two and one-half year program. They spend one quarter on the campus taking the courses listed in the First Year—First Quarter below.

First Year—First Quarter

Anatomy 3	Home Economics 31* or 30 or Nursing 10
Physiology 50* or 1	Public Health 3
Physiology 60* or 2	Nursing 12
Bacteriology 53* or 1	

The students may be exempt from any of the above required courses for which the Office of Admissions allows advanced standing on the basis of previous college credits in the courses.

At the end of the quarter on the campus, the students in this program are assigned to either the University Hospitals or the Minneapolis General Hospital for their Major clinical experience.

Courses dealing with clinical experience are scheduled to precede or parallel the individual student's clinical assignment. A typical class schedule second through tenth quarter follows.

First Year—Second Quarter

Course No.	Title	Class Hrs.	Lab. Hrs.	Total Hrs.
Nurs. 11A-B	Foods and Nutrition	11	33	44
Nurs. 54	Introduction to Public Health	22	.....	22
Nurs. 15A-B	Nursing Arts	33	44	77
Nurs. 18	Principles of Medical and Surgical Nursing	44	.....	44
Pharm. 8	Elementary Pharmacology	22	22	44

First Year—Third and Fourth Quarters

Nurs. 16	Advanced Nursing Arts	11	22	33
Nurs. 19	Principles of Medical and Surgical Nursing	44	.....	44
Nurs. 41	Principles of Pediatrics and Pediatric Nursing	33	.....	33
Nurs. 45	First Aid	22	.....	22
Neuropsych. 171	Descriptive Neuropsychiatry	33	.....	33

Second Year—Fifth to Eighth Quarters

Nurs. 14	Introduction to the Medical Sciences	22	.....	22
Nurs. 20	Principles of Nursing in Conditions of the Skin	11	.....	11
Nurs. 21	Ear, Nose, and Throat Nursing	22	.....	22
Nurs. 25	Principles of Orthopedics and Orthopedic Nursing	22	.....	22
Nurs. 35	Principles of Communicable Disease Nursing	22	.....	22
Nurs. 42	Principles of Nursing in Obstetrics and Gynecology	33	.....	33

* Preferred courses.

Third Year—Ninth and Tenth Quarters

Nurs. 36	Principles of Tuberculosis and Tuberculosis Nursing	22	---	22
Nurs. 49	Principles of Care in Eye Conditions	11	---	11
Nurs. 53	Field Practice in Public Health Nursing	11	---	11
Psych. A	General Psychology (may be exempt if credit is given on basis of previous college work)	55	---	55
Nurs. 50	Professional Adjustments	22	---	22

These students are eligible for the degree of graduate in nursing and for registration in the state of Minnesota at the end of 2½ years.*

Students who wish, in addition to the Basic Curriculum, to complete a major in Nursing Education or in Public Health Nursing should follow the program listed for the graduate nurses in either of these fields. For Nursing Education see pages 28-32. For Public Health Nursing see the bulletin of the School of Public Health. These majors in most cases would take an additional three quarters on the campus (exemption is granted in these programs for courses previously credited on the record of advanced standing).

CURRICULUM FOR GRADUATE NURSES LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

Open to those who meet entrance requirements for specialized curricula of the College of Education. Applicants are required to submit their high school and nursing school records for evaluation to the office of admissions and records. Advanced credit for the professional nursing courses will be determined by the Committee on Evaluation of Nursing Credentials which will indicate the number of credits allowed and any additional clinical services to be completed before credit is granted. Forty-five credits represent approximately the average advanced standing granted for satisfactory course of study in a hospital school of nursing; fifty-five in a hospital school have its pre-nursing sciences taught in the University of Minnesota; fifty-three in other university schools; and sixty in the University of Minnesota School of Nursing.

Students register in the College of Education and must conform to the College of Education regulation relative to total credits and honor points. Candidates must also meet the graduation requirements of the College of Education. (See pages 14-16, College of Education, Bulletin 1944-46.) They are, however, exempt from Public Health 4 and 59 of the Health Education requirement.

To secure a degree in the College of Education students must earn 185 credits and 185 honor points, and in addition 1½ honor points for each credit in a major field. (See College of Education Bulletin.)

The amount and type of courses recommended for each candidate are decided upon after consideration of a candidate's general education and experience. As a rule the following curriculum meets the needs of most students. Substitutions may be made by petition upon the recommendation of the major adviser.

Graduate nurses preparing for personnel and guidance positions should plan to take graduate work in that field, but should select certain electives in the Bachelor of Science program which serve as preparation for graduate study. Attention is called to offerings in other colleges of the University in the field of personnel work.

A. Nursing Education

Major Adviser: Professor Katharine J. Densford

A suggested sequence of courses for the graduate nurse who has approximately 45 blanket credits (one academic year) follows. (Chemistry and Zoology are highly recommended as electives and prerequisites to Physiology 60.) All other courses listed below are required.

* Estimate of fees is comparable to that on page 38 for Basic Curriculum.

First Year

Course No.	Title	Credits
Comp. 4-5-6	Freshman Composition (or Eng. A-B-C or exemption).....	9
Chem. 1-2 or 4-5 or 6-7	General Inorganic Chemistry	8-10
Zool. 1-2-3	General Zoology	10
Soc. 1	Introduction to Sociology	5
	Physical Education	5
	Electives to total approximately 50 credits	

Second Year

Psy. 1-2	General Psychology	6
	Physiological Chemistry or Physiology or Human Anatomy or Bacteriology.....	4-6
C.W. 80	Child Psychology (or C.W. 40)	3
Soc. 49	Social Pathology	3
Ed. 51A	Introduction to Secondary School Teaching	3
Nurs.Ed. 60	Ward Administration	4
	Electives to total 45 credits	

Third Year

Ed. 51B	Introduction to Secondary School Teaching	3
Ed.T. 51A-B†	Special Methods of Teaching and Directed Teaching in Schools of Nursing.....	8
Nurs.Ed. 69	Survey of Conditions and Trends in Nursing Including War Nursing.....	3
Nurs. Ed. 71	The Curriculum of the School of Nursing	3
	Electives in Education	2-3
	General electives to total 45 credits	

B. Public Health Nursing

Major Adviser : Ruth Freeman

See bulletin of the School of Public Health.

GRADUATE STUDY

Graduate study in fields related to nursing may be carried and a Master's degree earned by students who meet the requirements of the Graduate School. Programs should be made out in consultation with a major adviser in the School of Nursing and in the chosen department. Among the fields recommended for graduate study are bacteriology, education, pathology, educational personnel work, physiology, psychology, and social science. Graduate programs are being developed in the field of Nursing Education and it is hoped that these will be available in the near future.

POSTGRADUATE CURRICULA*

Among the opportunities offered through postgraduate courses are the following:

1. To prepare for head nurse positions, combining proficiency in nursing, teaching, and administration.
2. To become acquainted with the scientific, social, and preventive aspects of advanced nursing and clinical fields.
3. To carry related university courses giving credit toward a degree.

A program of academic study in the University is arranged for each field of post-graduate work, but may be modified by petition to meet the needs of the individual student

† Requirements for registration in Ed.T. 51B are as follows:

1. A passing grade in Ed. 51A,B.
2. Passing of the qualifying examination in English.
3. Attainment of a scholastic average of 1.5 in the field in which the practice teaching is to be done.
4. Passing of the required speech test.

* Special short programs primarily for nurses returning from military service are being planned in the following clinical fields: medical, obstetric, operating room, pediatric, psychiatric, rural hospital, and surgical nursing.

and to take into consideration her interests and lines of development. All clinical subjects in the School of Nursing are also available for election. (For admission requirements see page 18.)

The clinical experience of the postgraduate students is planned to include all available subdivisions of the various fields. The University and Minneapolis General Hospitals are available as chief fields of clinical experience. Only a limited number of applicants can be accepted in any one quarter. Students must, before the end of their second quarter in the school, be recommended by the faculty for administrative experience. Those not so recommended will be expected to withdraw from the course.

Slight variations in schedule may be made necessary by limitation of clinical field, illness of students, or other emergencies, but the schedules as outlined on pages 42-46 are followed as nearly as possible.

Postgraduate students receive full maintenance except when they are not giving nursing care in the hospital (as for instance nursery school observation) during which time the hospital does not provide maintenance. Such periods are clearly indicated in the outlines of the separate courses. During these periods the students may pay the hospital \$10 weekly for maintenance or live elsewhere if they prefer.

Students wear their own graduate nurse uniforms while in the hospital. Laundry is included in maintenance. As registrants in the School of Nursing, postgraduate students pay no tuition fee but do pay a matriculation deposit of \$10 on entrance, most of which is refunded at completion of the course if there are no charges against it. Postgraduate students who are desirous of transferring such college credits as may be counted for the bachelor of science degree pay the College of Education tuition fee (i.e., \$2.25 or \$4.50 per credit) at the time they transfer their credits from the School of Nursing to the College of Education, which grants the degree. The following curricula (see pages 42-46) do not provide for courses during the second summer term. In cases of students whose clinical curriculum allows, a course may be taken during the second term of the Summer Session by paying the required fee. Occasionally, also, additional courses may be carried in the General Extension Division by paying the required fee. Students in residence at the Minneapolis General Hospital pay carfare to and from the university classes.

For students who continue work toward a degree, six additional credits will be given by the Committee on Evaluation of Nursing Credits for the clinical portion of the program after the satisfactory completion of any postgraduate curriculum other than the short course in Operating Room Technique.

Supplementary Course in Operating Room Technique

Students are admitted each quarter. Length of course—3 months.

The School of Nursing admits graduate nurses for a three-month supplementary course in Operating Room Technique. Applicants must be registered nurses; there will be no tuition fee. Maintenance is provided. There will be 55 hours of classes, demonstrations, and conferences scheduled and students will be permitted to register for an additional three-credit course on the University campus. The clinical experience in the operating room will be on the basis of 36 hours per week.

Students register in the School of Nursing and pay a \$10 matriculation deposit. For further information write to Director, School of Nursing, University of Minnesota, Minneapolis 14, Minnesota.

POSTGRADUATE COURSE IN OPERATING ROOM TECHNIQUE,
TEACHING, AND ADMINISTRATION

Students are admitted each quarter. Length of course—9 months.

CLASS CURRICULUM		CLINICAL CURRICULUM	
Subject	Credits		Weeks
1. Required			
Nurs. 55, Operative Aseptic Technique (11 hrs.)	1	Basic Technique, Procedures, etc. in General Surgery and Urology (cystoscopy)	12
Nurs.Ed. 72, Principles of Learning and Methods of Teaching	3*	Gynecology and Orthopedics and Fractures	6
Anat. 3, Elementary Anatomy	3	Eye, Ear, Nose, and Throat	4
Bact. 53, General Bacteriology	5*	Teaching and Administration	12
Nurs. 56, Operating Room Administration, (22 hrs.)	2	Surgical Supply Room	1
		Dressing Room	1
		Electives	2
2. Elective			
Nurs.Ed. 63f, Motion Study	2*		
Lib. Methods 1, Use of Books and Libraries	2*		
Physiol. 2, Elements of Physiology	4*		
Nurs.Ed. 65w,s, Analysis of Nursing Care	4*		

POSTGRADUATE COURSE IN MEDICAL NURSING

Students are admitted fall quarter only. Length of course—12 months.

<i>Fall</i>			
CLASS CURRICULUM§		CLINICAL CURRICULUM	
Subject	Credits		
Bact. 53, General Bacteriology	5*	Medical Ward	
or			
Physiol. 2, Elements of Physiology	4*		
Nurs. 18, Principles of Medical and Surgical Nursing (44 hrs.)	4		
Electives	3.5*		21 hours per week
<i>Winter</i>			
Nurs.Ed. 72, Principles of Learning and Methods of Teaching	3*	Out-Patient Department	
Nurs. 19, Principles of Medical and Surgical Nursing (44 hrs.)	4	Communicable Disease Ward	
Nurs. 35, Principles of Communicable Disease Nursing (22 hrs.)	2	Gynecological Ward	
Electives	2*	Receiving Ward	
			36 hours per week
<i>Spring</i>			
Nurs.Ed. 60, Ward Administration	4*	Diet Laboratory	
Electives	2.3*	Medical Ward	
		Tuberculosis Sanatorium	
			36 hours per week
<i>Summer</i>			
No classes		Administration	
			48 hours per week

* Credits may be transferred to the College of Education and credited toward a degree.

§ Plus 44 hours ward conferences in winter quarter, and 22 hours in spring and summer.

POSTGRADUATE COURSE IN PEDIATRIC AND COMMUNICABLE DISEASE NURSING†
Students are admitted fall quarter only. Length of course—12 months.

Fall Quarter—13 Weeks

CLASS CURRICULUM		CLINICAL CURRICULUM	
Subject	Credits		Weeks
C.W. 40 or 80, Child Training	3*	Orientation (Freshman Week)	1
Nurs. 61A, Problems in Pediatric Nursing	3	Clinical Child Psychology	3
Nurs. 37A, Communicable Disease Nursing (advanced)	1	Medical Pediatric Nursing	2
Approved Electives	2-3*	Communicable Disease Nursing	4
Total	9-10	Surgical Nursing, including one week of treatment room	3
		Total	13

On duty 21 hours per week during quarter
On duty 42 hours per week between fall
and winter quarters

Winter Quarter—12-13 Weeks

Nurs.Ed. 72, Principles of Learning and Methods of Teaching‡	3*	Infant Nursing§	6
Nurs.Ed. 60, Ward Administration	4*	Orthopedic Ward	2
Nurs. 61B, Problems in Pediatric Nursing	1	Communicable Disease Nursing	3
Nurs. 37B, Communicable Disease Nursing (advanced)	1	Play Nursing	1
Total	9	Pediatric Diets	1
		Total	13

On duty 21 hours per week

Spring Quarter—11 Weeks

Bact. 53, General Bacteriology§	5*	No clinical experience; perhaps a research problem or analysis in relation to pedi- atric or communicable disease nursing could be arranged under direction of Department of Nursing Education
P.H. 53, Elements of Preventive Medicine	5*	
Approved electives	3*	
Elective from School of Public Health	3*	
Total	16	

Students will receive maintenance except during spring quarter.

Summer Quarter—11 Weeks

Nurs. 36, Tuberculosis Nursing	2	Glen Lake Sanatorium	2
Elective from School of Public Health	3*	Glen Lake Children's Building	1
Nurs. 37C, Communicable Disease Nursing (advanced)	2	On duty 42 hours per week while at Glen Lake Sanatorium	
Total	7	Administration in Communicable Disease Department	8
		On duty 36 hours per week	
		Total	11

* Credit may be transferred to College of Education or School of Public Health for credit toward a degree.

† The clinical curriculum may be adjusted to specific needs of the student.

‡ Exemption by head of Department of Bacteriology. If exempt, five credits in electives from School of Public Health or Department of Bacteriology may be substituted.

§ Experience may be determined and varied depending on previous experience, with approval of major adviser.

|| Students with two years of college work may substitute an education course in place of Nurs.Ed. 72 if plans include continuing for a degree in Nursing Education or Public Health.

POSTGRADUATE COURSE IN PEDIATRIC NURSING
Students are admitted fall quarter. Length of course—9 months.

<i>Fall</i>		
CLASS CURRICULUM	Credit	CLINICAL CURRICULUM
Subject		Orientation
C.W. 40 or 80, Child Training	3*	Clinical Child Psychology
Nurs. 61A, Problems in Pediatric Nursing	3	Medical Pediatric Nursing
Electives	3-4*	Surgical Pediatric Nursing
		Orthopedic Pediatric Nursing
Total	9-10	21 hours per week during quarter 48 hours between fall and winter quarters
<i>Winter</i>		
Nurs.Ed. 72, Principles of Learning and Methods of Teaching	3*	Infant Nursing
Nurs.Ed. 60, Ward Administration	4*	Communicable Disease Nursing
Nurs. 61B, Problems in Pediatric Nursing	1	
Electives	1-2*	
Total	9-10	21 hours per week
<i>Spring</i>		
Nurs. 61C, Problems in Pediatric Nursing	1	Pediatric Clinic Nursing Practice in Administration
		42 hours per week

POSTGRADUATE COURSE IN SURGICAL NURSING
Students admitted fall quarter only. Length of course—12 months.

<i>Fall</i>		
CLASS CURRICULUM†	Credits	CLINICAL CURRICULUM
Subject		
Physiol. 2, Elements of Physiology	4*	Surgical Ward
or		Surgical Tuberculosis Ward
Physiol. 4, Human Physiology	4*	Ward for Gastric Surgery
or		Observation in Sterile Supply Room
Bact. 53, General Bacteriology	5*	
Elective	5-8*	21 hours per week
<i>Winter</i>		
Nurs.Ed. 72, Principles of Learning and Methods of Teaching	3*	Treatment Room
Nurs. 52, Advanced Surgical Nursing (11 hrs.)	1	Observation in Main Operating Room
Elective	3-5*	Eye, Ear, Nose, and Throat Ward
		Eye, Ear, Nose, and Throat Treatment Room
		Ward for Neurological and Tumor Surgery
		36 hours per week
<i>Spring</i>		
Nurs.Ed. 60, Ward Administration	4*	Out-Patient Department
Elective	2-3*	Physiotherapy Department
		Orthopedic Ward
		Gynecological Ward
		Urological Ward
		36 hours per week
<i>Summer</i>		
No classes		Administration
		48 hours per week

* Credits may be transferred to the College of Education or the School of Public Health for credit toward a degree.

† Plus 15 hours of ward conferences in the first quarter, 20 hours in the second and third quarters, and 33 hours in the fourth quarter.

POSTGRADUATE COURSE IN OBSTETRIC NURSING
Students admitted fall quarter. Length of course—9 months.

		<i>Fall</i>	
		CLASS CURRICULUM†	CLINICAL CURRICULUM
Subject	Credits		Weeks
Bact. 53, General Bacteriology	5*	Obstetric Ward	4-5
P.H. 58, Maternal and Child Hygiene.....	2*	Nursery for Newborn Infants	3-4
Elective	4 or 5*	Premature Nursery	2
		Gynecologic Ward	2
			21 hours per week
		<i>Winter</i>	
Nurs. 51, Advanced Obstetrical Nursing.....	2	Communicable Disease Ward	2
Nurs.Ed. 72, Principles of Learning and Methods of Teaching	3*	Birth Rooms	4 or 5
P.H. Electives	3*	Ante- and Post-Partum Clinic, including home visits	4 or 5
Lectures in Anesthesia (7 hrs.)		Giving Anesthesia under Supervision	
			36 hours per week
		<i>Spring</i>	
Nurs.Ed. 60, Ward Administration	4*	Electives	2-4
		Administration	8-10
		Giving Anesthesia under Supervision	
			42 hours per week

ADVANCED COURSE IN PSYCHIATRIC NURSING INSTRUCTION

Students are admitted fall and spring quarters. Length of course—3 quarters.

The first quarter is spent on the University of Minnesota campus and is followed immediately by two quarters at the co-operating hospital. During the first quarter at the University, the nurse takes such courses as Psychology, Principles of Learning and Methods of Teaching, Mental Hygiene, and Neuropsychiatry. Courses are chosen to suit the individual student's needs. A weekly conference hour with the director is used for such purposes as co-ordination of courses, planning of field trips and giving of reports, and discussion of policies of the program.

The second quarter's program is carried at Rochester State Hospital, with some teaching assistance from Mayo Clinic. This period is devoted to supervised experience in the care of various types of mental patients. This includes practice in such forms of therapy as occupation, surgery, recreation, hydrotherapy, and shock. Classes in Neuropsychiatric Nursing include 36 hours of lectures, demonstrations, conferences, and clinics. Classes in Ward Administration, with adaptation to psychiatric wards, 44 hours. (Practice 48 hours per week, including classes.)

The third quarter continues at the Rochester State Hospital with supervised practice in Ward Administration, Supervision, and Teaching. (48 hours per week including classes.)

A certificate will be given on satisfactory completion of the course. Academic credit as earned in the first quarter is usually 15 credits. Five blanket credits are given for the second and third quarters for clinical experience.

ESTIMATE OF EXPENSE

Tuition for the course is \$100 per quarter, incidental fees are \$9.65 for the first quarter. A deposit of \$10 is required in the first quarter. The total for the entire course is \$328.95, exclusive of maintenance and personal expenses. Bolton Fund scholarships provide university fees, tuition, incidental fees; and maintenance of \$50 a month for the fall class, 1945. Some scholarship aid may be available for later classes.

* Credits may be transferred to the College of Education or the School of Public Health for credit toward a degree.

† Plus 15 hours of ward conferences in the first quarter, 20 hours in the second and third quarters, and 33 hours in the fourth quarter.

COURSE IN TEACHING OF SCIENCES IN SCHOOLS OF NURSING

Students are admitted fall quarter. Length of course—2 quarters. It is designed for graduate nurses who wish to prepare for teaching of sciences in schools of nursing. Students should register in the College of Education. A limited number of students can be accepted. Courses in sciences and in teaching will be combined with supervised experience in the teaching of sciences basic to nursing.

NURSING EDUCATION COURSES

No.	Title	Credits
Nurs.Ed. 72	Principles of Learning and Methods of Teaching	3
Nurs.Ed. 74	Sciences in a School of Nursing Curriculum	4

SCIENCE COURSES

Courses in medical sciences, totaling at least 23 credits, will be selected from among those offered on the basis of the student's background in the science field. Subjects include bacteriology, anatomy, physiological chemistry, physiology, histology, and pathology.

Regular College of Education fees will obtain. Scholarships for tuition and maintenance will be available for qualified students.

NOTE—A four-quarter program carrying about 60 credits would make possible a complete science background including senior college or graduate school courses in anatomy, physiology, histology, bacteriology, physiological chemistry, physics, pathology, and pharmacology.

SUMMER COURSES

Summer courses for graduate nurses are offered during the first term (six weeks) of the Summer Session in the School of Nursing and the School of Public Health. Whenever possible, 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, personnel programs, administration in schools of nursing, and public health nursing in its various phases. During the first term short workshop programs (two weeks) are sometimes conducted. Some courses are also offered in the second term of the Summer Session.

A special summer announcement describing these courses and workshop offerings can be had upon request to the director of admissions and records.

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 arrange affiliations (depending upon patient census) are medical, surgical, pediatric, communicable disease, and out-patient departments. 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, Minneapolis 14, Minnesota. The length of affiliation varies from three months for schools in the city of Minneapolis to six months or 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.

DESCRIPTION OF COURSES

For class hours, days, and rooms for fall, winter, and spring see Combined Class Schedule. For summer schedule see Summer Session Bulletin. Medical and Nursing classroom assignments posted on bulletin board, 125 Medical Sciences building at beginning of each quarter.

- Anat. 3f,w,s,su. Elementary Anatomy. General survey of regional, systematic, and applied anatomy. Relation of structure to function emphasized. Lectures, laboratory, demonstrations. (3 cred.; 44 hrs.)
- Bact. 1f,w,s,su.† 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.)
- Bact. 53f,w,s,su. General Bacteriology. (5 cred.; soph. with a C average in the prereq. courses, jr., sr.; prereq. 10 cred. in chem., 4 cred. in bot. or zool.)
- Bact. 101. Medical Bacteriology. (5 cred.; jr., sr., grad.; prereq. Zool. 1-2-3 and 10 cred. in chem.)
- Bact. 102. Medical Bacteriology. (4 cred.; jr., sr., grad.; prereq. 101.)
- C.W. 40f,w,s. Child Training. (3 cred.; soph., jr., sr.; prereq. Psy. 1-2.)
- C.W. 80f,w,s. Child Psychology. (3 cred.; jr., sr.; prereq. Psy. 1-2.)
- Ed.T. 51Af,w,su.‡‡ Special Methods of Teaching in Schools of Nursing. Principles underlying clinical and classroom teaching in schools of nursing. Planning and evaluating instruction. (3 cred.)
- Ed.T. 51Bf,w,s.‡‡ Special Methods of Teaching and Directed Teaching in Schools of Nursing. Observation and study of principles of teaching applied in the nursing school situation. Supervised practice in teaching of nursing subjects. (5 cred.)
- Neuropsych. 171w,s,su. Principles of Neuropsychiatry. This course deals with the diagnosis, treatment, nursing care, and prevention of (a) neurological disorders; and (b) organic and functional psychoses, with emphasis upon the relation of personality disorders to physical disorders, to family and community problems, etc. Lectures, clinics, ward nursing classes, case study conferences, demonstration, and excursions. (3 cred.; 33 hrs.)
- Nurs. 1f,w,s. History of Nursing. A brief historical survey of nursing serving as a basis for study of problems of the present day. (1 cred.; 11 hrs.)
- Nurs. 10f,w,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 with directions for modification under special circumstances. (1 cred.; 11 hrs.)
- Nurs. 11A-Bf,w,s,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. (11A, 1 cred., 11B, 2 cred.; 44 hrs.)
- Nurs. 12f,w,s,su. Introduction to Nursing. An elementary course designed to prepare students for the clinical period. (3 cred.; 44 hrs.)
- Nurs. 14f,w,s,su. Introduction to the Medical Sciences. This course attempts to integrate the information which the student has learned in the physical and social sciences and focus it upon the patient in his relation to nurse, doctor, and community. It considers the general nature and causes of disease, structural and physiological manifestations of general disease processes, and various methods used in the diagnosis of disease. (2 cred.; 22 hrs.)

† Microscope required. Students (except medical) may obtain use of microscope by purchasing \$1.50 microscope card from bursar.

‡‡ A fee of \$1 per credit is charged for this course.

- Nurs. 15A,15Bf,w,s,su; 16f,w,s,su. Nursing Arts. A course presenting the principles of nursing, demonstrating the application of principles from the foundation sciences in the care of the patient and in observation of symptoms and conditions. Nurs. 15A (3 cred.; 33 hrs.) Nurs. 15B consists of 44 hours of practice of basic nursing procedures. (2 cred.) Nurs. 16 includes the more advanced nursing procedures and 22 hours of practice. (2 cred.) (Total 7 cred.; 99 hrs.)
- Nurs. 18f,w,s,su; 19f,w,s,su. Principles of Medical and Surgical Nursing. A course designed to give a knowledge of the causes, symptoms, treatment, and prevention of abnormal medical and surgical conditions including the medical and nutrition aspects and nursing care of patients with these conditions. Nursing 18 includes general consideration of causes and treatment of disease, conditions of the respiratory tract, conditions of the gastrointestinal tract, including oral hygiene, surgical conditions of the integumentary system, and conditions of the liver and gall bladder. Nurs. 19 is devoted to study of the endocrine glands, of the circulatory system, surgical conditions of the nervous system, and of the urinary system. (8 cred.; 88 hrs.)
- Nurs. 20f,s. Principles of Nursing in Conditions of the Skin. Lectures, class, demonstrations, and clinics present the etiology, symptomatology, treatment, and nursing care of disorders of skin and closely related tissues. Emphasis is placed upon prevention of skin disorders and upon the mental hygiene, social, and economic aspects of treatment. (1 cred.; 11 hrs.)
- Nurs. 21w,s. Ear, Nose, and Throat Nursing. Consists of lectures, classes, and demonstrations of conditions of the ear, nose, and throat, and of allergy, including the social and preventive aspects. (2 cred.; 22 hrs.)
- Nurs. 25f,s. Principles of Orthopedics and of Orthopedic Nursing. Lectures, classes, and clinics dealing with orthopedic conditions including fractures and amputations. Emphasis is laid upon the preventive, economic, and social aspects of these conditions. Treatment (including physical therapy) and nursing care are stressed. (2 cred.; 22 hrs.)
- Nurs. 35f,w,s,su. Principles of Communicable Disease Nursing. Lectures, classes, and demonstrations on the etiology, symptoms, treatment, and nursing care of communicable diseases, including tropical diseases, with emphasis on their significance to public health and on preventive measures. (2 cred.; 22 hrs.; hrs. and days ar. during experience.)
- Nurs. 36f,w,s,su. Principles of Tuberculosis and Tuberculosis Nursing. Lectures, classes, clinics, and demonstrations presenting the etiology, pathogenesis, treatment, and nursing care of the disease with emphasis on the epidemiology and the socio-economic aspects—especially case finding, prevention and rehabilitation. (2 cred.; 22 hrs.; hrs. and days ar. during experience.)
- Nurs. 37Af,Bw,Cs. Advanced Communicable Disease Nursing. A course for study of communicable disease including communicable tropical diseases with emphasis on medical asepsis, treatment and principles of nursing care, prevention and control, public health and community aspects, war and postwar problems in relation to total care and control where the carrier problem is involved. (37A, 1 cred., 37B, 1 cred., 37C, 2 cred.)
- Nurs. 41f,w,s,su. Principles of Pediatrics and Pediatric Nursing. Lectures, classes, clinics, and demonstrations 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. (3 cred.; 33 hrs.)
- Nurs. 42f,w,s,su. Principles of Nursing in Obstetrics and Gynecology. This course consists of lectures, classes, demonstrations, and clinics on etiology, symptoms, treatment, and prevention of abnormal conditions of the female reproductive system. Also in-

struction in the physiology, pathology, and hygiene of pregnancy, labor, puerperium, and care of newborn infants. The psychological and public health aspects of these conditions are stressed. (3 cred.; 33 hrs.)

Nurs. 44f,w,s,su. Observation of the Normal Child. A course intended to orient students to procedures in the nursery school with special emphasis on normal growth, development, and behavior. It includes classes, observations, and staff conferences. (1 cred.; 11 hrs.)

Nurs. 45f,w,s,su. First Aid. American Red Cross standard course. (1 cred.; 22 hrs.)

Nurs. 49f,w,s,su. Principles of Care in Eye Conditions. A course for the study of eye conditions with emphasis on sight-conservation, and nursing care of common eye diseases, their prevention and treatment. (1 cred.; 11 hrs.)

Nurs. 50f,w. Professional Adjustments. A course dealing with present-day problems of nursing—legal, economic, civic, legislative. A survey of fields of nursing and of related health movements. (2 cred.; 22 hrs.)

Nurs. 51f. Advanced Obstetric Nursing. Lectures, classes, clinics, conferences, and demonstrations on the hygiene, physiology, and pathology of pregnancy, labor, and puerperium and the newborn infant, recent research findings and literature in the field of maternal and child care. For postgraduates. (2 cred.; 22 hrs.)

Nurs. 52f. Advanced Surgical Nursing. Lectures, classes, conferences, and demonstrations dealing with the more important surgical conditions, recent research and literature, and treatment used in modern practice of general surgery. For postgraduates. (1 cred.; 11 hrs.)

Nurs. 53f,w,s,su. Field Practice in Public Health Nursing. Six weeks. Required of five-year students. (1 cred.; 11 hrs.)

Nurs. 54f,w,s,su. Introduction to Public Health. The nurse's place in the general health program; community organization for health; the relationship of public health and other welfare agencies; problems of maintaining health in family and community. (2 cred.; 22 hrs.)

Nurs. 55f,w,s,su. Operative Aseptic Technique. A course dealing with the type of organization and the personnel of the operating room; the care and use of equipment; antiseptics and methods of sterilization; special and routine procedures; and problems of co-ordination with other hospital departments. Taught by lectures, demonstrations, discussion, and field trips. For postgraduates. (1 cred.; 11 hrs.; hrs. and days ar. during experience.)

Nurs. 56f,w,s,su. Operating Room Administration. A course dealing with the administration and management of an operating room. Taught by lectures, discussion, and field trips. For postgraduates. (2 cred.; 22 hrs.; hrs. and days ar. during experience.)

Nurs. 58f,s,su. Ward Management and Clinical Instruction, for Senior Cadets only. A summary of administrative and teaching activities of the assistant head nurse with emphasis on maintaining standards of patient care and satisfactory personnel relations. (2 cred.; 22 hrs.)

Nurs. 59f,w. Principles of Psychiatric Nursing. Lectures, discussions, conferences, clinics, on all types of psychoses with etiology, management, care and treatment. Introduction to psychiatric literature. Reviews of mental hygiene. For postgraduates. (5 cred.; 55 hrs. including 2 hrs. clinic each week, 1 clinic at Rochester State Hospital, one at St. Mary's Hospital, Rochester.)

Nurs.Ed. 60w,s,su. Ward Administration. The organization of the hospital; principles of administration and their application to ward management; analysis and maintenance of nursing service; selection, orientation, assignments and motivation of personnel; planning and conducting clinical teaching programs. (4 cred.; 44 hrs.)

- Nurs. 61A, 61B, 61C.** Problems in Pediatric Nursing. A course providing for guided study of principles, techniques, and problems of pediatric nursing. It is especially designed for the postgraduate student in pediatric nursing. Nurs. 61A deals with the psychological, medical, surgical, and orthopedic aspects of the child's total nursing care. (3 cred.; 33 hrs.) Nurs. 61B deals with the study of the special needs of the sick infant and the infectious child. (1 cred.; 11 hrs.) Nurs. 61C includes the special problems of teaching and administration in pediatric institutions. (1 cred.; 11 hrs.) (Total, 5 cred.; hrs. and days ar. during experience.)
- Nurs.Ed. 62w,su.** Personnel Work in Schools of Nursing. Survey of principles and techniques of personnel work applied to problems in schools of nursing. The relationship of such topics as individual differences, human behavior, personality, emotions, and intelligence to the problem of personnel guidance. Study of such techniques as psychological tests, personnel records, orientation periods, remedial programs, and counseling interviews in schools of nursing. (3 cred.; 33 hrs.)
- Nurs.Ed. 63f.** Motion Study. A course designed to apply the science of motion study to the technique of nursing. The student is taught to analyze critically the present methods used in nursing, and to devise better ways of doing the job. Motion picture method of analysis, lectures, and laboratory work. (2 cred.; 33 hrs.)
- Nurs.Ed. 65w.** Analysis of Nursing Care. Studies of nursing practice. Each student works on an individual problem with the view to designing an improved nursing procedure. (4 cred.; 44 hrs.)
- Nurs.Ed. 67f,s.** Field Practice in Ward Administration. Practice in the administration of a ward, in the supervision of nursing service, and in the planning of the student's clinical experience in that division. Participation in the ward teaching program. (6 cred.; hrs. and days ar. during experience.)
- Nurs.Ed. 69f,s.** Survey of Conditions and Trends in Nursing Including War Nursing. A study of conditions existing in nursing as revealed in literature and reports. (3 cred.; 33 hrs.)
- Nurs.Ed. 71f,s.** The Curriculum of the School of Nursing. General principles of curriculum-making; study of the functions of the graduate nurse in the community as determinants of the clinical and classroom curricula of the professional school. Integration of materials into curricula preparing nurses as community health agents. (3 cred.; 33 hrs.)
- Nurs.Ed. 72w,su.** Principles of Learning and Methods of Teaching. Study of learning situations in the basic professional program in nursing. Sources, selection, and organization of instructional materials; evaluation of nursing care; content and methods of clinical teaching; measurement of outcomes. (3 cred.; 33 hrs.)
- Nurs.Ed. 73w.** Principles of Economics in Nursing Service Administration. A study of the principles of business administration in their application to hospital organization and management. (1 cred.; 11 hrs.)
- Nurs.Ed. 74w.** Sciences in a School of Nursing Curriculum. Discussion of objectives, course content, methods of instruction, choice of textbooks, integration of subject matter, and schedule planning as applied to the teaching of sciences in schools of nursing. Observation of classroom and laboratory instruction. Supervised practice as laboratory assistants. This course should preferably be carried during the last quarter of the fifth year, but may not be carried in the same quarter as Ed.T. 51B. (5 cred.; 55 hrs.)
- Nurs.Ed. 75.*** Fundamentals of Administration in Schools of Nursing. Concept of school of nursing and of nursing service; functions of administration in schools of nursing. (2 cred.; 22 hrs.)

* This course will be taught when the registration is sufficiently large to warrant its being given.

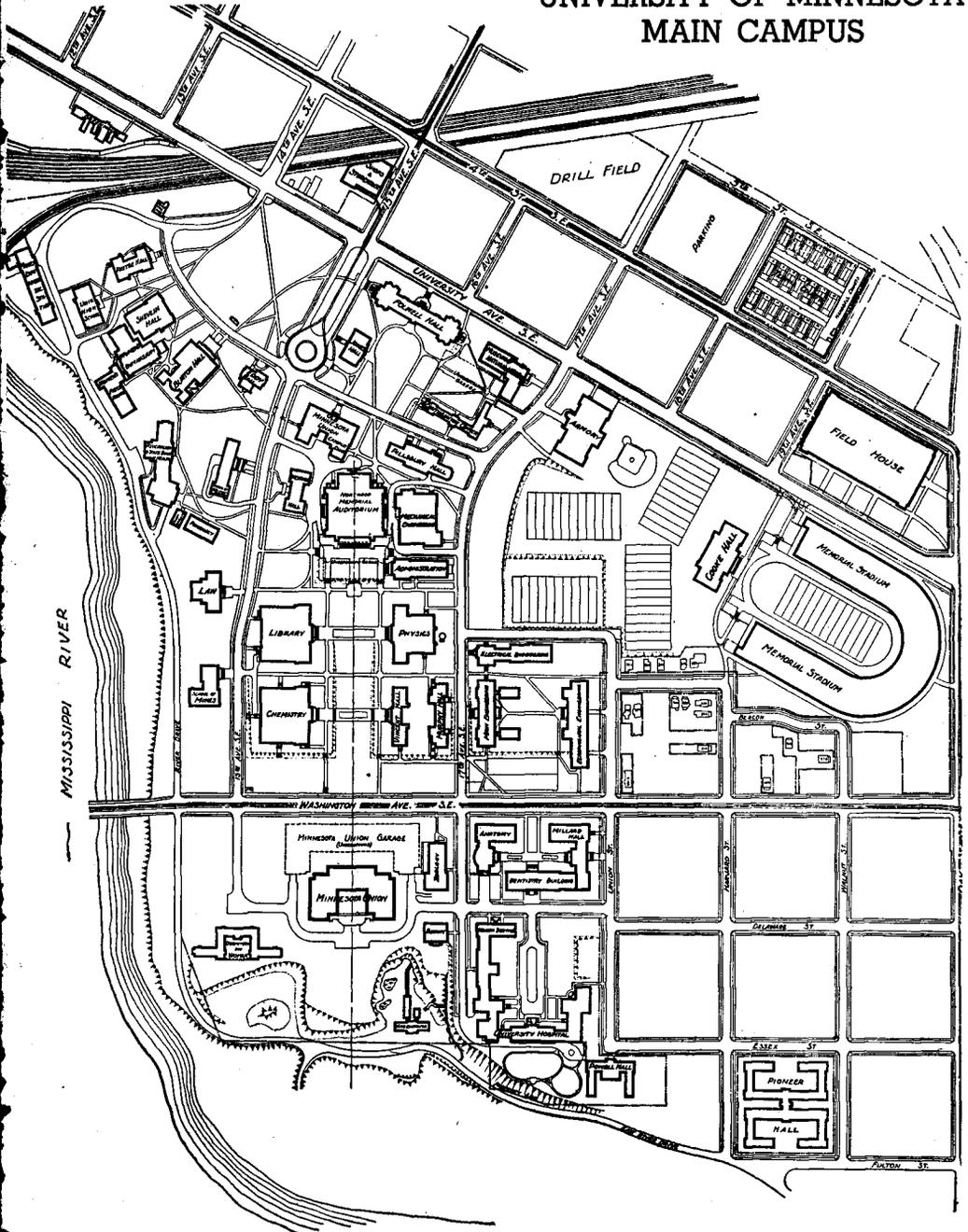
- Pharm. 8f,w,s,su. Elementary Pharmacology. A study of the history, uses, classification, and preparation of drugs; definition of descriptive terms; methods of administration; principles of dosage, etc. together with appropriate laboratory exercises. (3 cred.; 44 hrs.)
- Physiol. 1f,w,s,su. Elements of Physiological 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 physiological 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. (4 cred.; 55 hrs.)
- Physiol. 2f,w,s,su. Elements of Physiology. Study of fundamental physical and chemical principles basic to life processes. Systematic consideration of human physiology with emphasis upon areas essential to the study of nursing and with application to clinical problems. (4 cred.; 55 hrs.)
- Physiol. 4f,s. Human Physiology. (4 cred.; all; prereq. 1 qtr. zool., 1 qtr. chem.)
- Physiol. 50f. Physiological Chemistry. (4 cred.; primarily for physical education students† jr., sr.; prereq. inorganic chemistry.)
- Physiol. 60s. Human Physiology. (6 cred.; prereq. Zool. 1-2-3. Inorg. Chem. 1-2, or 4-5 or equiv., Physiol. 50.)
- P.H. 3f,w,s,su. Personal Health. Elementary principles of normal body functions, predisposing and actual causes of disease; ways in which disease may be avoided. (2 cred.; 22 hrs.)
- Psych. Af,w,s. Practical Applications of Psychology. 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. (5 cred.; 55 hrs.)

† Others may be admitted by special permission.

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UNIVERSITY OF MINNESOTA MAIN CAMPUS



The Bulletin of the
UNIVERSITY of MINNESOTA

The Medical School Announcement
for the Years 1945-1947



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THE MEDICAL SCHOOL
ADMINISTRATIVE OFFICERS

James Lewis Morrill, B.A., LL.D., President

Malcolm M. Willey, Ph.D., L.H.D., Vice President, Academic Administration

William T. Middlebrook, B.A., M.C.S., Vice President, Business Administration

Harold S. Diehl, M.A., M.D., D.Sc., Dean of the Medical Sciences

Myron M. Weaver, Ph.D., M.D., Acting Assistant Dean of the Medical School

GENERAL INFORMATION

The year is divided into quarters of approximately three months each, and school is in continuous session except for brief vacations between quarters.

REQUIREMENTS FOR ADMISSION

The minimum requirements for admission to the Medical School are three full years of work in colleges approved by the Association of American Universities, and including the specific courses listed below.

To receive consideration a candidate's record must show a total number of honor points at least equal to the total number of credits* both in the required subjects and in all subjects taken collectively. This is equivalent to a "C" average in the usual marking systems.

Mere fulfillment of the minimum scholastic requirements does not in itself insure admission to the Medical School. See "Limitation of Registration," page 5, and "Residence," page 5.

DETAILS OF REQUIREMENTS

1. **Chemistry**—Thirty credits including general inorganic chemistry, qualitative and quantitative analysis, organic and physical chemistry, with laboratory work. At Minnesota, Inorganic Chemistry 1-2-11 or 4-5-11; Analytical Chemistry 7; Organic Chemistry 1-2; and Physical Chemistry 107 are necessary. Students are advised to take chemistry in high school.

2. **Zoology**—Thirteen credits, including proper laboratory work. At the University of Minnesota, General Zoology, Course 1-2-3, and Introduction to Genetics and Eugenics, Course 83, are required.

3. **Physics**—Twelve credits, covering mechanics, acoustics, heat, optics, and electricity. At the University of Minnesota, Course 4-5-6 is accepted.

4. **Rhetoric**—Nine credits. At the University of Minnesota this requirement is met by Composition 4-5-6 (9 credits) or by English A-B-C (15 credits) or by Communications 4, 5, 6 (9 credits). No student found deficient in the use of written or spoken English will be permitted to enter upon or to continue the medical course.

5. **Psychology**—Six credits of general psychology.

6. **Foreign Language**—A reading knowledge of a modern foreign language. This requirement may be met by passing a reading test with the department concerned, or by taking courses totaling 24 quarter credits, including, if possible, the reading of scientific literature.†

7. **Preliminary tests**—All applicants should take the Sophomore Culture Tests as well as the National and Minnesota Medical Aptitude Tests before their applications are considered.

8. **A personal interview** with the Admissions Committee may be required of applicants.

9. **Health**—In order to complete registration in the Medical School, prospective students must submit to physical examination by the Students' Health Service. Students not already immune are required during the medical course to be immunized against certain diseases.

10. **Academic degree**—The degree of bachelor of arts or bachelor of science must be acquired by all medical students before registering for the junior year.

* "Credit" means quarter credit. Three quarter credits equal two semester credits. For description of courses of study mentioned see the Bulletin of the College of Science, Literature, and the Arts of this University.

† The present language requirement of 15 credit hours will be in effect for the April, 1946 class.

MODIFIED ADMISSION REQUIREMENTS

The regulations governing the quality and amount of premedical training apply without exception to those who present the minimum amount of work. For mature and superior students reasonable substitutions may be permitted. Cases will be considered individually upon petition to the Admissions Committee of the Medical School.

The total number of credits required of superior students who do their premedical work at Minnesota may, at the discretion of the Admissions Committee, be diminished under the quality credit rule of the College of Science, Literature, and the Arts. Required courses may be omitted at the discretion of the Admissions Committee of the Medical School. Applicants should bear in mind that certain state boards of medical examiners may refuse to grant licenses to physicians who have not met the minimum requirements of the Council on Medical Education and Hospitals of the American Medical Association as to subject matter and number of credits in *premedical courses*.

RECOMMENDED PREMEDICAL WORK

While it is possible to secure admission to the Medical School after the minimum amount of prescribed college work has been completed, the applicant is urged to prepare himself more fully by the study of some of the following subjects.

Agricultural biochemistry, anthropology, astronomy, botany, composition, drawing, economics, English, geography, geology, history, mathematics, personal health, philosophy, physics, political science, psychology, speech, sociology, and zoology (Introduction to Animal Parasitology and Comparative Anatomy).

A list of recommended courses is available in the dean's office. Four years of premedical study are desirable; the work should be planned so as to lead to an academic degree if four years are taken. This does not mean that a mediocre student with a degree will be given preference over a superior student with three years' work.

The curriculum in liberal arts intended for those who wish to get a broader view of the fields of knowledge ("second curriculum" in the Bulletin of the College of Science, Literature, and the Arts) is recommended to premedical students who wish to secure an academic degree without majoring in a special field.

PRELIMINARY TESTS

The National Medical Aptitude Test is given each year at the various universities and colleges of the country. It is best taken toward the end of the first year in college.

The Minnesota Medical Aptitude and the Sophomore Culture Tests must be taken during the second premedical year. Students at the University of Minnesota may take these tests on the campus at a time to be announced in the official bulletin. Students in other colleges and universities should communicate with the University Testing Bureau to make arrangements for taking these tests. Fees are payable by the applicant.

REGISTRATION

Blanks for application are available at the office of the Medical School. Applications for admission should be filed at least six months before the expected date of admission. Students who have taken their premedical work at schools other than the University of Minnesota must submit to the recorder of the University at the time at which application is made, a transcript of the work taken up to that time.

The selection of medical students will be based upon their scholastic standing in the premedical studies, upon their character and personal fitness for the practice of medicine as disclosed by personal interviews and letters of recommendation, and upon their scores in the various tests mentioned above.

Selections will be made as early as possible and the applicants notified promptly thereafter.

Accepted applicants will receive a statement for a preliminary fee of \$10, to be applied on the tuition for the first quarter. This must be paid within ten days and will not be returned if the student fails to matriculate.

RESIDENCE

First choice is given to native residents of Minnesota; second choice is given to residents of adjoining states which do not have medical schools; residents of states other than these will be admitted to the Medical School only under exceptional circumstances. Applicants who become residents of the state after graduation from high school will be considered with the third group.

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 a medical 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. Prolongation of the medical course by part-time attendance can be done only with special permission.

ADMISSION WITH ADVANCED STANDING

Honorably dismissed students of Class A medical schools may be received into advanced classes *provided vacancies exist*. Such students must present credentials covering premedical work and such parts of the medical course as they have successfully completed.

FEEES

The quarterly fee for the medical course is \$77 for residents of Minnesota and \$150 for nonresidents, payable at the beginning of each quarter. No fee is charged in the Medical School for the final hospital or advanced laboratory (fifth) year. The director of admissions of the University determines the status of applicants as to residence.

Applicants who are not legal residents of Minnesota must pay an application fee of \$5 at the time of application.

In addition to tuition, each student is charged an incidental fee of \$9.65 each quarter. Laboratory fees may be instituted or modified at any time by action of the Board of Regents.

A matriculation deposit of \$10 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 upon the student's withdrawal, failure to return for any succeeding quarter, or graduation.

Students who take less than the regular course of study may arrange their fees at the rate of \$6.50 (nonresidents \$12.50) for each credit hour per quarter.

Repetition of a course requires the payment of additional fees.

A graduation fee of \$7.50 is charged for each degree conferred.

Privilege fees—The fee for the privilege of late registration or late payment of fees is \$2 through the third day of classes. On the fourth day the fee is \$2.50 and then increases 50 cents per day to a maximum of \$5.

For more detailed information concerning the cost of attending the Medical School, see the Bulletin of General Information of the University of Minnesota.

LOAN FUNDS, ASSISTANTSHIPS

The University offers no scholarships in the Medical School, but loan funds are available to medical students who have demonstrated their ability. A few student assistantships are available in the advanced years of the course.

MICROSCOPES AND OTHER PROFESSIONAL EQUIPMENT

Each medical student must be provided throughout the entire four-year course with an approved microscope not more than ten years old.

For the junior and senior years each student is required to provide himself with a hemocytometer, a head mirror, and a stethoscope of a type approved by the Department of Medicine.

CLINICAL OPPORTUNITIES

The University Hospital includes under one roof the Elliot and Todd Memorial Hospitals, the Memorial Cancer Institute, the Eustis Children's Hospital, the Psychopathic Unit, and the Students' Health Service, providing a total capacity of 480 beds and 30 bassinets. In addition, a Psychiatric Clinic for children and a general Outpatient Department caring for between 300 and 400 patients a day are included in the University Hospital group.

AFFILIATED HOSPITALS

The Minneapolis General Hospital is affiliated with the Medical School, the principal services being under direction of full-time members of the faculty. This hospital has 671 beds, including 55 bassinets.

The Ancker Hospital of St. Paul is used for important bedside teaching and operates about 850 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 691 beds, are used for clinical instruction.

Certain clinics are held in other institutions, such as the Shriners' Hospital for Crippled Children, Minneapolis.

SPECIAL LECTURES

During each year many special lectures on medical and related scientific subjects are given at the Medical School. As opportunity offers, speakers are secured from the medical centers of this and other countries. Regularly several lectures by members of the Mayo Foundation and by prominent physicians of the state are scheduled at the Medical School.

The Minnesota chapter of the Phi Beta Pi Medical Fraternity has instituted the Clarence Martin Jackson lectureship in honor of the head of the Department of Anatomy, under which an annual lecture is given at the Medical School by someone distinguished in medical research or practice. The Alpha Omega Alpha, honor medical society, the Minnesota Pathological Society, and the publishers of the *Journal-Lancet*, each support an annual lecture by a distinguished medical scientist.

The late Dr. E. Starr Judd, a graduate of the Medical School, class of 1902, and professor of surgery in the Mayo Foundation of the University of Minnesota, generously endowed an annual lectureship in the field of surgery.

In honor of the late Dean Elias Potter Lyon, the alumni and faculty of the Medical School with his many other friends have endowed a lectureship in the field of his major scientific interest, physiology and physiological chemistry.

The annual Johnston Lecture in neurology is named for the late professor of neurology and dean of the College of Science, Literature, and the Arts, Dr. John B. Johnston.

The Minnesota Public Health Association, in memory of Dr. Harold S. Boquist, class of 1921, a promising worker in the field of tuberculosis who died in 1934, supports an annual lecture devoted to tuberculosis.

An annual Richard Olding Beard lectureship is supported by the School of Nursing Endowment Fund.

These and various other special lectures constitute important opportunities for students to hear distinguished speakers from other medical centers.

THE GRADUATE SCHOOL OF MEDICINE

The Graduate School offers opportunities for study and research in the Medical School in Minneapolis (including the Minneapolis General Hospital and the Miller and Ancker Hospitals in St. Paul) and in the Mayo Foundation for Medical Education and Research at Rochester.

Further information may be found in the special announcement of the Graduate School.

In the Medical School teaching assistantships in the preclinical sciences pay \$664 to \$885 per academic year for half-time service. A Bachelor's degree is prerequisite to these. In the clinical departments the fellowship stipends are \$1,098 per year, with a deduction of \$40 per month if maintenance is provided by the hospital. At the Mayo Foundation the fellowships pay stipends differing slightly from the above figures. The degree of doctor of medicine and a year of internship are prerequisite to clinical fellowships. About 200 fellowships are available each year at Rochester and Minneapolis.

REGULATIONS CONCERNING THE RELATION OF THE MEDICAL SCHOOL AND THE GRADUATE SCHOOL

No student who has been dropped for scholastic failure in the Medical School may subsequently register for medical courses in the Graduate School unless he first secures readmission to the Medical School.

Students who fail to secure entrance to the Medical School and who then register for medical courses in the Graduate School may not use credits thus obtained toward the medical degree unless permission is secured from the dean of the Medical School *prior to the taking of such courses.*

Graduate students seeking admission to the Medical School will apply on the same basis as other students.

Medical School courses taken by graduate students as part of a *regular graduate program* need not be repeated if the student transfers to the Medical School, provided such work is approved by the head of the department in which the work was taken.

Students who transfer credits to the Medical School from the Graduate School must pay the bursar the difference between the fees of the two schools.

POSTGRADUATE MEDICAL INSTRUCTION

The Division of Postgraduate Medical Instruction, in co-operation with the University's Center for Continuation Study, offers unique opportunities to physicians and other medical and hospital personnel to keep abreast of progress in the various fields of medicine and health work. Announcements of these courses, most of which are a week in length, can be obtained by addressing the Center for Continuation Study.

Short courses for physicians at various points in the state are conducted co-operatively

by the Medical School, the State Board of Health, the State Medical Association, and the General Extension Division of the University.

A special program of courses has been arranged for medical officers returning to civilian life from military service. A limited number of such physicians may live at the Center for Continuation Study. Classes will be held in the Center and at the Medical School; University of Minnesota Hospitals; Minneapolis General Hospital; Ancker Hospital, St. Paul; and affiliated institutions.

OTHER COURSES

The School of Nursing is administered as a division of the Medical School. Professional training in public health for physicians, engineers, and nurses is offered jointly by the Medical and Graduate Schools. Courses in medical and X-ray technology and in physical therapy are offered 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 medical social service are conducted by the Department of Sociology, the practical work being done in the University Hospital.

LIBRARY

The medical library is one of the best in this country. It is housed in the Library Building and provides a beautiful reading room.

GIFTS AND MEMORIALS

The Medical School has been the recipient of the following major gifts for buildings, fellowships, research, and care of patients.

The Elliot Memorial Hospital, from the estate of Dr. and Mrs. Adolphus F. Elliot. The site for this hospital, from friends of Dr. Elliot and other citizens of Minneapolis.

The Memorial Cancer Institute, from the Citizens' Aid Society of Minneapolis as a memorial to the late Mr. George Chase Christian. In addition the Citizens' Aid Society provides an annual grant for the support of cancer research and special activities of the institute.

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

The Eustis Children's Hospital and an endowment of approximately \$2,000,000, from the late William Henry Eustis of Minneapolis. Mr. Eustis also gave to the University a splendid tract of land on the West River Drive for the erection of a convalescent home for children.

The James E. Moore Fund, the income from which is used to support research and other special needs of the Department of Surgery, was provided by the will of Dr. James E. Moore who served as chief of the Department of Surgery from 1904 to 1918.

The Howard Baker Fund for the benefit of the Department of Surgery of the Medical School, from the estate of Mr. Howard Baker of Coronado, California.

The Psychiatric Clinic for Children, supported jointly by the Home for Aged Women and Children of Minneapolis and the Commonwealth Fund of New York.

The Human Serum Laboratory, established by Mrs. John C. Dwan in memory of her husband the late John C. Dwan.

A fund for the study and development of postgraduate medical instruction, from the Kellogg Foundation of Michigan.

The Shevlin Fellowship in the basic medical sciences, endowed by Mr. Thomas Shevlin of Minneapolis in 1909.

The Haydn S. and Mary M. Cole Fellowships in Orthopedic Surgery, endowed by the late Haydn S. Cole of St. Paul.

The Miller Hospital Fellowship in Ophthalmology, supported by Dr. Frank E. Burch of St. Paul.

The Washburn Home Fellowship in Pediatrics, supported by Washburn Memorial Orphan Asylum of Minneapolis.

The George G. Eitel Scholarship Fund for medical students, provided by the will of the late Dr. George G. Eitel.

The Floyd B. Olson Cancer Memorial Foundation Research Fund, from the income from funds appropriated by the 1937 State Legislature in memory of the late Governor Floyd B. Olson.

The Charles Fremont Dight Eugenics Research Fund for instruction of students on heredity and eugenics, provided by the will of the late Dr. Charles Fremont Dight.

The Minnesota Medical Foundation. The object and purpose of this corporation is and shall be: to promote the welfare of the community by the co-operation of alumni and friends of the Medical School of the University of Minnesota in improving the undergraduate, graduate, and research functions of that institution; to establish scholarships, lectureships, and professorships; and to support research and student loan funds in that institution; to publish and promote the publication of a representative medical bulletin; and in general, by all legitimate and usual means, to advance the interests of the University of Minnesota Medical School and its alumni, without consideration for benefits bestowed.

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 based upon original work in a surgical subject.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION PRIZE

The above named society offers an annual prize of \$100 and a medal to the most representative student or students in the senior class of the Medical School. The award is made on the basis of the scholarship, extra-curricular activity, and character of the student as well as upon the general excellence of the thesis.

BORDEN COMPANY AWARD

The Borden Company has provided funds which make possible an annual award of \$500 for the best original investigation by an undergraduate in the Medical School.

CURRICULUM

CURRICULUM FOR THE DEGREE OF BACHELOR OF MEDICINE

Classes will be admitted in April 1946, January 1947, and September 1947, and will attend school on an accelerated program. Beginning July 1, 1948, it is anticipated that the academic year for all classes will be lengthened by required attendance at one summer session, i.e., one-half quarter, each year.

OPTIONAL COURSES OF STUDY

Candidates 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 with the written consent of the dean of the Medical School may register 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 under Irregular Programs, page 11.

REGULAR CURRICULUM

DEPARTMENTAL HOURS

	Clock Hours		Clock Hours
Anatomy, gross and microscopic.....	693	Physiology, including Physiological Chem-	
Bacteriology	176	istry and Biophysics	440
Medicine	761	Preventive Medicine and Public Health.....	100
Neuropsychiatry	307	Roentgenology	110
Obstetrics	326	Surgery	747
Ophthalmology and Otolaryngology	190	Orientation to Practice	33
Pathology	363		
Pediatrics	384	Total	4,805
Pharmacology	165		

EXAMINATIONS AND SCHOLARSHIP

Progress in the Medical School is based upon quarterly grades and the maintenance of a "C" average in the course of each quarter. While grades of "A," "B," "C," and "D" are passing, only the first three are awarded honor points—3, 2, and 1 points per credit hour respectively. A student whose average in a given quarter is "C" or better is usually passed to the next quarter without a special review of his work, providing he has no grade below a "D." Students receiving "I" (Incomplete) or "F" (Failure) in any course, and students whose average grade of all courses for the quarter has been below "C" are called before the Examination Committee of that class.

The retention of a student in school or his dismissal because of low scholarship is at the discretion of the Examination Committee. The past record of the student and other circumstances in the case of an "F" or an "I" are reviewed; the privilege of taking make-up examinations, or of removing deficiencies by other means, rests with the Examination Committee.

A student who fails to receive a satisfactory grade after taking a make-up examination

will, in most cases, be dismissed from the Medical School by the Examination Committee. A student who is repeating a year's work will be dropped automatically at the end of any quarter in which his scholastic average falls below 1.5 honor points per credit hour.

PLAN OF CLINICAL CURRICULUM

In order to utilize the clinical facilities of the school throughout the year the junior and senior classes are divided into 4 divisions of not more than 28 students each, known as A, B, C, and D.

Students are assigned by lot at the end of the sophomore year to the various divisions of the clerkship. Anyone desiring to change his section may do so if he can find another student who is willing to exchange sections with him. Such exchanges must be approved in writing in the office of the Medical School.

The clinical years consist of clerkships and of work in the outpatient clinic together with certain clinical lectures. Students interested in investigative problems in medical science or in public health may, by petition approved by the head of the department concerned and by the Students' Work Committee, substitute other work for the regular program.

The clerkship consists of services in obstetrics and gynecology, pediatrics, medicine, neuropsychiatry, and surgery, each of about nine weeks' duration, and twenty-seven weeks devoted to admissions and outpatient clinics in the medical and surgical specialties, including ophthalmology and otolaryngology.

IRREGULAR PROGRAMS

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 curriculum is not desirable and that some students will, in normal times, 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. The assistant dean will assist such students in making workable programs.

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 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 the heads of departments will advise such students and will assist them to lay out programs suitable to their needs. Petitions for reasonable substitutions in the required curriculum will be approved.

HONORS COURSE

By the Honors Course is meant a mechanism under which superior students may pursue their studies with greater freedom than that granted by the regular curriculum.

The Honors Course applies only to the junior and senior years in the Medical School, all students being required to take the regular curriculum of the first and second years.

Students having an average of "B" or better in the freshman and sophomore years,

and who are candidates for a graduate degree may petition the Honors Course Committee to become "honors" students.

Those whose petitions are approved may pursue medical studies in such order and manner as may be determined by the committee. Each year the honors student must submit his program to the committee for approval before putting it into effect.

When an honors student is prepared in the work of any department in accordance with such a program he may, with written permission of the committee, take an examination, the nature of which is determined by the department.

Satisfactory completion of the examination entitles an honors student to credit on the recorder's books for the number of hours assigned to the department in the regular curriculum.

Should an honors student fail to qualify for a graduate degree, all previously taken department examinations will be cancelled and the student will be required to take the junior and the senior 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 departmental examinations, the Honors Course Committee will consider his general work, his various examinations, and his research achievements; on recommendation of the committee, the M.B. degree will be granted.

At any time during his course of study, on recommendation of the committee, an honors student may be required to return to the regular curriculum, the results of previously taken departmental examinations being cancelled.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF SCIENCE

a. Completion of the premedical college work in accordance with the requirements for admission to the Medical School and regulations of the Arts College of the University of Minnesota.

b. Successful completion of the required courses of the first two academic years of the medical course.

REQUIREMENTS FOR THE DEGREE OF BACHELOR OF MEDICINE

Good moral character; compliance with the admission requirements; fulfillment of the requirements for the degree of bachelor of arts or science, to which one year in medicine for the arts degree, and two years in medicine for the science degree, may contribute; completion of the full 12 quarters of work in the Medical School, and compliance with the rules of scholarship.

CURRICULUM FOR THE DEGREE OF DOCTOR OF MEDICINE

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

a. Completion of a year of internship in a hospital approved by the Internship Committee, or

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

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

COURSES FOR PHYSICIANS

Physicians who desire to attend medical lectures and clinics for a limited period of time may obtain a visitor's permit from the dean. They may enter for regular lecture and clinical courses in the Medical School upon payment of the usual Medical School

fees. On this basis 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.

Special courses, usually one week in length, in the various fields of medicine, are offered throughout the year by the Division of Postgraduate Medical Instruction in cooperation with the Center for Continuation Study.

Continuation courses in medicine and medical specialties, 12 weeks, and surgery and surgical specialties, 12 weeks, have been arranged for returning medical officers and for other practitioners. This program has been made possible by a special grant to the University of Minnesota from the Kellogg Foundation, Battle Creek, Michigan. Eligibility is based upon graduation from an approved medical school and completion of an approved internship.

For physicians seeking certification by one of the American Specialty Boards special studies have been arranged in the basic preclinical sciences of anatomy, pathology, bacteriology, physiology, biochemistry, and pharmacology. At least two quarters of work in this program are recommended to candidates for specialty board examinations.

DESCRIPTION OF COURSES

ANATOMY

Departmental Office, 201 Institute of Anatomy

Professors Edward A. Boyden, Ph.D., Chairman, Hal Downey, Ph.D., Andrew T. Rasmussen, Ph.D., Richard E. Scammon, Ph.D., LL.D.; Professor Emeritus Clarence M. Jackson, M.S., M.D., LL.D.; Associate Professors Berry Campbell, Ph.D., Arthur Kirschbaum, Ph.D., M.D., Lemen J. Wells, Ph.D.; Assistant Professors Shirley P. Miller, Ph.D., W. Lane Williams, Ph.D.; Instructors J. Francis Hartmann, Ph.D., Clayton H. Morningstar, Ph.D., Robert H. Reiff, Ph.D., Wesley G. Schaefer, M.D., R. Dorothy Sundberg, Ph.D.

REQUIRED COURSES

1. Anatomy for Embalmers. 132 hours. Dr. Miller and assistants.
3. Elementary Anatomy. For student nurses. 44 hours; 3 credits. Dr. Kirschbaum and assistants.
4. Elementary Anatomy. For dental hygienists. 44 hours; 3 credits. Dr. Morningstar.
59. Systematic Anatomy. For freshman dental students. 132 hours; 6 credits. Enrolment limited. Dr. Miller and assistants.
60. Anatomy of the Head and Neck. For freshman dental students. Prerequisite, Course 59; 132 hours; 6 credits. Enrolment limited. Dr. Miller and assistants.
61. Histology and Embryology. For freshman dental students. Prerequisite, Course 59; 132 hours; 6 credits. Enrolment limited. Microscope fee \$6.00. Dr. Rasmussen and assistants.
- 100-101. Gross Human Anatomy. Dissection, including osteology. For freshman medical students, 330 hours; 18 credits. Enrolment limited. Dr. Boyden and assistants.
103. Human Histology. Microscopic study of the various tissues and organs. For freshman medical students. Prerequisite, Course 100-101; 165 hours; 9 credits. Enrolment limited. Dr. Downey and assistants.
107. Human Embryology. Development of the human body. For freshman medical students. Prerequisite, Course 100-101; 99 hours; 6 credits. Enrolment limited. Dr. Wells and assistants.
111. Human Neurology. A study of the central nervous system and sense organs. For sophomore medical students. Prerequisites, Courses 103, 107; 99 hours; 6 credits. Enrolment limited. Dr. 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 of the instructor is required.

115. History of Anatomy and Medical Bibliography. Limited to 12 students. Lectures. 22 hours; 2 credits. Dr. Miller.
116. Correlated Anatomy. Review of gross anatomy from demonstrations. Prerequisite, Courses 100-101; written permission of instructor required; hours and credits arranged. Limited to 12 students. Dr. Morningstar.
- 129-130. Topographic Anatomy. Based upon a study of serial cross sections of the human body. Prerequisite, Course 100-101; hours and credits arranged. Dr. Boyden. (Temporarily discontinued.)

132. Anatomical and Functional Aspects of Reproduction. Lectures and demonstrations of experimental animals. 22 hours; 2 credits; hours arranged. Dr. Wells.
134. Anatomy of the Newborn. A detailed laboratory study of the anatomy of the newborn. Limited to 12 students. Prerequisite, Courses 100, 101, 107, or equivalent; 66 hours; 3 credits each quarter. Dr. Wells.
148. Roentgen Anatomy of Bones and Joints. See Radiology 187a. Prerequisite, Course 100-101; 11 hours; 1 credit. Dr. Rigler.
149. Experimental Neurology. A study of the morphology of the central nervous system as determined by experimental methods. Prerequisite, Course 111; hours and credits arranged. Dr. Campbell.
150. Special Topics in Neurology. Study of the literature on selected phases of human neurology. Prerequisite, Course 111; hours and credits arranged. Dr. Rasmussen.
152. Prosection. Preparation of special dissections to be used for demonstrations in human gross anatomy. Prerequisite, Course 100-101; hours and credits arranged. Dr. Boyden.
- 153-154-155-156.* Advanced Anatomy. Advanced work, largely individual in character, in gross anatomy, histology, embryology, hematology, neurology, or experimental morphology. Hours and credits arranged. Drs. Boyden, Downey, Rasmussen, Campbell, Kirschbaum, Wells, Miller, and Williams.
157. Developmental Anatomy of the Head. Prerequisite, Course 107; 22 hours; 2 credits. Dr. Boyden. (Temporarily discontinued.)
158. Special Histology and Neurology of the Head Region. Prerequisites, Courses 103, 111; 66 hours; 4 credits. Dr. Rasmussen.
159. Experimental Methods for the Study of Neoplastic Growths. Hours and credits arranged. Dr. Kirschbaum.
160. Seminar in Problems of Reproduction. 11 hours; 1 credit. Dr. Wells.
- 161-162-163. Quantitative Methods. Same as Courses 110, 111, 120, 121, 130, 131, Biostatistics. 5 credits. Drs. Treloar and Behn.
- 165-166. 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. Written permission of instructor required. 4 credits each quarter. Microscope fee \$6.00 per quarter. Dr. Downey and Dr. Sundberg.
167. Seminar in Hematology. Discussion of literature and research. Prerequisite, Course 165-166. 11 hours; 1 credit. Dr. Downey.
- 201-202-203-204.* Research in Anatomy. Research work in gross or microscopic anatomy, neurology, hematology, histology, or embryology. Hours and credits arranged. Drs. Boyden, Downey, Rasmussen, Scammon, Campbell, Kirschbaum, and Wells.
- 205-206-207. 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. Boyden and staff.

BACTERIOLOGY AND IMMUNOLOGY

Departmental Office, 228 Millard Hall

Professor Winford P. Larson, M.D., Head, Robert G. Green, M.A., M.D., H. Orin Halvorson, Ch.E., Ph.D.; Associate Professors Charles A. Evans, M.D., Ph.D., Assistant Professors Charles E. Skinner, Ph.D., Ann B. Riebeth, Ph.D.; Instructor Gerald M. Needham, B.S.; Teaching Assistants Helene Brumfield, B.S., Bill Hoyer, M.S., Nora Larson, M.S., Richard M. Marvin, M.S., Mary Muedeking, B.A., Cyril Stulberg, M.S., John Ulrich, B.S.

* These courses may be taken continuously through three or four quarters in any one year.

REQUIRED COURSES

1. Elementary Bacteriology. Nursing students and others. 66 hours; 4 credits. Dr. Skinner and others.
52. General and Special Bacteriology for Dental Students. 66 hours; 4½ credits. Drs. Larson and Evans.
53. General Bacteriology. For students in Home Economics and Agriculture. Prerequisites, 10 credits in chemistry and 4 credits in botany or zoology; 99 hours; 5 credits. Dr. Riebeth and others.
101. Medical Bacteriology. Methods for studying and identifying bacteria; sterilization and disinfection; the pathogenic cocci; water analysis and sewage treatment. Prerequisites, 10 credits in chemistry and 10 credits in biology; 99 hours; 5 credits.
102. Medical Bacteriology. The pathogenic bacteria, especially in relation to definite diseases; principles of infection and immunity. For medical students and others. Prerequisite, Bacteriology 101; 77 hours; 4 credits. Drs. Larson, Green, and Evans.

ELECTIVE COURSES

103. Soil Microbiology. Prerequisites, Bacteriology 53 and 15 credits in chemistry; 9 hours; 5 credits. Dr. Skinner.
104. Sanitary Bacteriology. Prerequisites, Bacteriology 53 and 15 credits in chemistry; 77 hours; 4 credits. Enrollment limited to 15 students. Dr. Skinner.
114. Molds, Yeasts, and Actinomycetes. Prerequisites, Bacteriology 53 or 101; 66 hours; 4 credits. Dr. Skinner.
116. Immunity. Laws of hemolysis; quantitative relationship between antigen and antibody; Wasserman reaction; opsonins, vaccins, toxin, antitoxin, precipitin reactions, blood grouping, atopy, anaphylaxis. Prerequisite, Bacteriology 102; 66 hours; 3 credits. Dr. Larson.
120. Diseases of Animals Transmissible to Man. Plague, tularemia, undulant fever, typhus fever, spotted fever, and other human diseases from animal reservoirs. Prerequisite, Bacteriology 102; 33 hours; 3 credits. Dr. Green.
- 121-122. Physiology of Bacteria. Growth; enzymes; metabolism; dormancy; death. Prerequisites, Bacteriology 53 and 8 credits in organic chemistry or biochemistry; 33 hours; 6 credits. Dr. Halvorson.
123. Applied Bacteriology. Industrial fermentations; bacteriology of water and sewage. Prerequisites, Bacteriology 121-122; 33 hours; 3 credits. Dr. Halvorson.
124. Filterable Viruses. Character, nature and transmission of viruses; important virus diseases. Prerequisites, Bacteriology 102, Histology 103 or 149, and Pathology 101; lectures and laboratory; 44 hours; 4 credits. Drs. Green and Evans.
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. Drs. Larson, Green, Halvorson, Evans, and Skinner.
203. Seminar. 1 hour; 1 credit. Staff.

PATHOLOGY

Departmental Office, 110 Institute of Anatomy

Professors Elexious T. Bell, M.D., Head, Benjamin J. Clawson, M.D., Ph.D.; Associate Professors A. B. Baker, M.D., Ph.D., Kano Ikeda, M.D., Nathaniel H. Lufkin,† M.D., M.S., James S. McCartney, Jr., M.D., John F. Noble, M.D.; Assistant Professor Robert Hebbel, M.D., Ph.D., Ambrose J. Hertzog, M.D., Ph.D., Harold H. Noran, M.D.; Instructors Thomas J. Kenyon,† M.D., M.S., Stanley V. Lofsness, M.D.; Medical Fellows S. Steven Barron, M.D., John Coe, M.D., Walter Walker, M.D.

† On military leave.

REQUIRED COURSES

4. Pathology for Students in Dentistry. 110 hours. Dr. Clawson and assistants.
101. Pathology. General Pathology. For sophomore medical students. Prerequisites, histology, embryology, and special bacteriology; 165 hours; 9 credits. Drs. Bell, Clawson, McCartney, Hebbel, and assistants.
102. Pathology. Special Pathology. For sophomore medical students. Prerequisites, Pathology 101; 165 hours; 9 credits. Drs. Bell, Clawson, McCartney, Hebbel, and assistants.
109. Clinical Pathological Conference. Presentation of clinical data and pathologic specimens from selected cases with discussion of diagnosis. 11 hours; 1 credit in each quarter. Required in three quarters, senior year, elective for others. Dr. Bell and staff.

ELECTIVE COURSES

104. Autopsies. For junior and senior medical students. Dr. Bell and staff.
107. Advanced Pathology. Prerequisite, Pathology 102.
107. Surgical Pathology. 44 hours; 2 credits. Dr. McCartney.
- 107a. Surgical Pathology. 44 hours; 2 credits. Dr. McCartney.
- 107b. Diseases of the Heart. 22 hours; 1 credit. Dr. Clawson.
- 107c. Diseases of the Kidney. 22 hours; 1 credit. Dr. Bell.
110. Seminar in Pathology. Prerequisite, Pathology 102. Dr. Bell.
111. Conference on Autopsies. Prerequisite, Pathology 102. Dr. Bell and staff.
112. Advanced Neuropathology. (See Neuropsychiatry 150, 210.) Hours and credits arranged. Dr. Baker.
114. Problems in Neuropathology. (See Neuropsychiatry 143.) Hours and credits arranged. Dr. Baker.
115. Neuropathology. (See Neuropsychiatry 144.) Hours and credits arranged. Dr. Baker.
116. Intracranial Neoplasma. (See Neuropsychiatry 211.) Hours and credits arranged. Dr. Baker.
117. Survey of Neuropathology. (See Neuropsychiatry 151.) Examination of specimens from current autopsies. Dr. Baker.
201. Research. Graduate students of the necessary preliminary training may elect research in pathology as either a major or a minor field. Hours and credits arranged. Dr. Bell and staff.

PHARMACOLOGY

Department Office, 105 Millard Hall

Professor Raymond N. Bieter, M.D., Ph.D., Head; Associate Professor Harold N. G. Wright, Ph.D.; Associate Professor Emeritus Edgar D. Brown, Ph.D., M.D.; Instructor Elizabeth M. Cranston, Ph.D.; Teaching Assistant Edward McManus, D.V.M.

REQUIRED COURSES

2. Therapeutics and Toxicology for Students in Pharmacy. Lect. 33 hours; lab. 22 hours; 4 credits. Drs. Bieter, Wright, and Cranston.
8. Elementary Pharmacology. For student nurses. 33 hours; 2½ credits. Drs. Wright, Cranston, and others.
53. Dental Pharmacology. For junior dental students. Prerequisites, Physiology 57, 58, 59; lect. 11 hours; 1 credit. Drs. Bieter, Wright, and Cranston.

54. Dental Pharmacology. Continuation of 53. For junior dental students. Prerequisite, Course 53; lect. 33 hours, lab. 22 hours; 4 credits. Drs. Bieter and Wright.
55. Prescription Writing for Dental Students. 11 hours; 1 credit. Prerequisites, Pharmacology 53, 54. Dr. Wright.
101. Introduction to Pharmacology. For sophomore medical students. Prerequisites, Physiology 100, 101, 102; 22 hours; 2 credits. Drs. Bieter and Wright.
102. General and Experimental Pharmacology. A detailed study of drugs important in medical practice. For sophomore medical students. Prerequisite, Course 101; lect. 44 hours, lab. 66 hours; 6 credits. Drs. Bieter and Wright.
103. General Pharmacology. Continuation of 102. For junior medical students. Prerequisite, Course 102; 11 hours; 1 credit. Drs. Bieter and Wright.
104. General Pharmacology. Continuation of 103. For junior medical students. 11 hours; 1 credit. Drs. Bieter and Wright.
108. Prescription Writing. For junior medical students. Prerequisite, Course 102; 11 hours; 1 credit. Dr. Wright.

ELECTIVE COURSES

109. Pharmacological Problems. Experimental study of special topics in pharmacology, with a review of the literature. Hours and credits arranged. Drs. Bieter and Wright.
- 110,110x. Toxicology. A study of the incidence, symptoms, treatment, etc. of the more common poisons; public health and industrial toxicology; medicolegal implications; and laboratory exercises in systematic qualitative toxicological analysis. Lectures only may be taken if desired (110x). Lect. 22 hours, lab. 44 hours; 2 or 4 credits. Dr. Wright.
111. Advanced Toxicology. An intensive laboratory study of analytical methods employed in quantitative toxicological analysis, with assigned readings and critical discussions of methods and interpretations. Prerequisite, Pharm. 110, or may be taken simultaneously. Hours and credits arranged. Dr. Wright.
- 201.§ Seminar in Physiology and Pharmacology. Reviews of recent literature. 11 hours; 1 credit. Staff.
- 203.§ Research in Pharmacology. For graduate and advanced students. Hours and credits arranged. Drs. Bieter and Wright.
- 204.§ Advanced Pharmacology. Hours and credits arranged. Limited to 4 graduate students. Drs. Bieter and Wright.
- 205.§ General Discussions in Pharmacology. With collateral readings. 11 hours; 1 credit. Limited to 6 advanced students. Drs. Bieter and Wright.

PHYSIOLOGY

Departmental Office, 318 Millard Hall

DIVISION OF GENERAL PHYSIOLOGY

Professors Maurice B. Visscher, M.D., Ph.D., Head, Ancel Keys, Ph.D., D.Phil. (Cambridge), Karl W. Stenstrom, Ph.D., Ernst Gellhorn, M.D., Ph.D., John J. Bittner, Ph.D., Herbert S. Wells, M.D.; Professor Emeritus Frederick H. Scott; Associate Professors Allan Hemingway, Ph.D., Joseph T. King, Ph.D., M.D., Karl Sollner, C.M., Ph.D., Berry Campbell, Ph.D., Ernst Simonson, M.D.; Assistant Professors Nathan Lifson, M.D., Ph.D., Victor Lorber, M.D., Ph.D., Henry L. Taylor, Ph.D.; Instructors Myrtle Hodgkins Coe, R.N., B.A., Samuel A. Corson, Ph.D., E. Corrine Dick, Ph.D., William G. Kubicek, B.S., John M. Reiner, M.S., James F. Bosma, M.D.; Research Fellows Frederic Kottke, Ph.D., Robert A. Huseby, M.D., Ph.D.; Research Assistants Akira Omachi, Sybil Beckett.

§ Written permission required.

REQUIRED COURSES

2. Physiology for Nurses. 4 credits. Mrs. Coe.
- 4.* Human Physiology. For academic, home economics, and pharmacy students. (51 may be substituted for this course.) 44 hours; 4 credits. Mr. Kubicek and others.
- 51.* Human Physiology. For physical education students and others. May be taken in place of Course 4 by students having proper qualifications. Prerequisites, human anatomy or comparative anatomy, and Physiology 50 or organic chemistry; 88 hours; 6 credits. Dr. Keys and others.
- 58,59.* Human Physiology. For dental students and others. Prerequisites, zoology and organic chemistry; 154 hours; 10 credits (5 credits each quarter). Dr. King and others.
60. Human Physiology. Primarily for medical technology students, 88 hours; 6 credits. Dr. Lorber and others.
103. Physiology of Circulation, Respiration, etc. For sophomore medical students and others. Prerequisites, organic chemistry and zoology; 154 hours; 9 credits. Drs. Visscher, King, and others.
104. Physiology of Endocrines, Nervous System, etc. For sophomore medical students and others. Prerequisite, Course 103, or organic chemistry and neurology; 110 hours; 6 credits. Drs. Visscher, Gellhorn, and others.
105. Roentgen Rays, Light, and Radium. The physical and physiological basis of physical therapy. Junior medical students. Prerequisites, Course 103, 104; 11 hours; 1 credit. Dr. Stenstrom.

ELECTIVE COURSES

113. 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. Drs. Visscher, Keys, King, and others.
114. Physiology of Muscular Activity. Prerequisites, Physiology 51 with grade of A or B or Physiology 103; reading knowledge of German recommended; 11 hours conference and term paper; 2 credits. (Not offered 1945-46.)
115. Methods in Human Physiology. Prerequisites, Physiology 114 (which may be taken concurrently); 33 hours laboratory; 1 credit. Limited to 8 students. Dr. Keys.
116. Tissue Culture Theory. 2 credits; hours arranged. Dr. King.
117. Tissue Culture Laboratory. Prerequisite, Course 116; 3 credits; hours arranged. Limited to 4 students. Dr. King.
135. Conference on Physiology. Arranged with qualified students. Various topics in the field of physiology will be considered by the several instructors. Consult department office for schedule. 11 hours; 1 credit. Drs. Visscher, Gellhorn, and others.
- 135(b). Seminar in Neurophysiology. Principles of nervous activity. Open to students having completed physiology 103-104 and to graduate students. Dr. Gellhorn.
140. Seminar in Cancer Biology. 1 credit; hours arranged. Dr. Bittner.
141. Problems in Cancer Biology. Credits and hours arranged. Dr. Bittner.
- 163,164,165. Physical Chemistry and Biophysics in Biology and Medicine. Prerequisites, Courses 100, 101 or Biochemistry 112; 33 hours; 3 credits per quarter. (Not offered 1945-46.)
- 166,167,168. Laboratory Work Related to Courses 163, 164, 165. Hours and credits arranged. (Not offered 1945-46.)

* Sequences 50, 51, 52 and 56, 57, 58, 59 are intermediate courses intended for those who desire a less detailed consideration of physiology and physiological chemistry than that given in 100, 101, 103, 104. Students may not receive credit for both intermediate and advanced sequences, nor for Course 4 in addition to either of these sequences.

170. Problems in Biophysics. Special work arranged with qualified students. Dr. Stenstrom.
201. Seminar in Physiology. For advanced students. 11 hours; credits arranged. Drs. Visscher and staff.
202. Readings in Physiology. Topics will be selected for each student and written reviews will be prepared and discussed. 1 to 3 credits arranged. Drs. Visscher, Keys, Gellhorn, and King.
203. Research in Physiology. Hours and credits arranged. Drs. Visscher, Keys, Gellhorn, King, and others.
204. 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 Radiology, page 34.
206. Seminar in History of Physiology and Related Sciences. 11 hours; 1 credit. Dr. Visscher. (Not offered 1945-46.)
- 206(b). Research in Cancer Biology. Credits and hours arranged. Dr. Bittner.

DIVISION OF PHYSIOLOGICAL CHEMISTRY

Professors George O. Burr, Ph.D., Director, Wallace D. Armstrong, Ph.D., M.D.; Associate Professors Walter O. Lundberg, Ph.D., Harland G. Wood, Ph.D.; Assistant Professors S. Cyrus P. Barnum, Ph.D., Olaf Mickelsen, Ph.D., Merton F. Utter, Ph.D.; Instructor Ralph T. Holman, Ph.D.; Teaching Assistants Eugene Grim, M.S., Lorraine Schneider, B.S., Kenneth Tsuboi, B.A., Robert Twedt, B.S.

REQUIRED COURSES

- 1.† Physiological Chemistry for Nurses. 4 credits. Dr. Barnum and others.
- 50.* Physiological Chemistry. For physical education students, degree students in nursing, and others. Prerequisite, general chemistry; 44 hours; 4 credits. Dr. Mickelsen and others.
- 52.* Practical Nutrition. Prerequisite, Physiology 50 or 56 and 57 (latter may be taken concurrently) or 100; 22 hours; 2 credits. Dr. Keys and others.
- 56,57.*‡ Physiological Chemistry. For dental students and others. Prerequisites, zoology and organic chemistry; 132 hours; 9 credits. Drs. Armstrong, Wood, and others.
- 100.‡ Physiological Chemistry. For freshman medical students and others. Prerequisites, organic and physical chemistry and physics; 99 hours; 7 credits. Drs. Burr, Armstrong, Barnum, Holman, and others.
- 101.‡ Physiological Chemistry. For freshman medical students and others. Prerequisite, Physiology 100; 110 hours; 6 credits. Drs. Burr, Armstrong, Barnum, Holman, and others.

ELECTIVE COURSES

153. Problems in Physiological Chemistry. Special work arranged with qualified students. May be taken one or more quarters. Prerequisites, Courses 100, 101; hours and credits arranged. Drs. Burr, Armstrong, Wood, Lundberg, Barnum, and Holman.
154. Conference in Physiological Chemistry. 11 hours; 1 credit. Drs. Burr, Armstrong, Wood, Lundberg, Barnum, Utter, and Holman.

* Sequences 50, 51, 52 and 56, 57, 58, 59 are intermediate courses intended for those who desire a less detailed consideration of physiology and physiological chemistry than that given in 100, 101, 103, 104. Students may not receive credit for both intermediate and advanced sequences, nor for Course 1 in addition to either of these sequences.

‡ The student must purchase a \$5 physiological chemistry card from the bursar in the Administration Building. No student will be assigned a desk in the laboratory until he presents this card. The cost of special chemicals, non-returnable equipment, and breakage will be charged against the deposit.

155. Seminar and Conference on Dental and Oral Biochemistry. Reports on assigned topics and discussions of current literature. Prerequisites, Physiology 100-101, Physiology 56-57 taken in 1939 or later, or registration for these courses; hours and credits arranged. Dr. Armstrong.
180. General Survey of Colloid Chemistry. Prerequisite, Physiological Chemistry 103; 3 credits.
182. Colloids in Biology and Medicine. Prerequisite, Physiological Chemistry 180; 3 credits.
200. Seminar in Physiological Chemistry. Drs. Burr, Armstrong, Lundberg, Wood, Barnum, Utter, and Holman.
205. Research in Physiological Chemistry. Hours and credits arranged. Drs. Burr, Armstrong, Lundberg, Wood, Barnum, Utter, and Holman.

SCHOOL OF PUBLIC HEALTH

Department Office, 121 Millard Hall

DIVISION OF PUBLIC HEALTH ADMINISTRATION AND EPIDEMIOLOGY

Professors Gaylord W. Anderson, M.D., Dr.P.H., Director, Ruth E. Boynton, M.S., M.D.; Harold S. Diehl, M.A., M.D., M.Sc., J. Arthur Myers, M.D., Ph.D.; Clinical Professor§ Albert J. Chesley,* M.D.; Clinical Professor Emeritus Francis E. Harrington, M.D.; Associate Professors Ruth B. Freeman, R.N., M.A., Ruth E. Grout, Ph.D., C.P.H., Alan E. Treloar, Ph.D.; Clinical Associate Professor Emeritus Orianna McDaniel,* M.D.; Professorial Lecturer Haven Emerson, M.A., M.D.; Lecturers Frank J. Hill, B.S., M.D., M.P.H., Floyd Feldman,* M.D., M.P.H., Dr.P.H.; Clinical Instructors Robert N. Barr,* M.D., M.P.H., Leslie W. Foker,* M.D., M.P.H.; Vern D. Irwin,* D.D.S., M.P.H., Paul W. Klabler,* M.D., Ph.D., Viktor O. Wilson,* M.D., M.P.H.

REQUIRED COURSES

53. Elements of Preventive Medicine and Public Health. For public health nurses and students in pre-social work. 5 credits. Dr. Cowan.
90. Measurement in Medicine. Classification and measurement as descriptive methods in medicine; frequency proportions and probability; errors of random sampling and judgment of significance by statistical methods. For freshman medical students only. 22 hours; 2 credits. Dr. Treloar.
91. First Aid. Principles of first aid in home, industry, and community; first aid for war injuries. For freshman medical students. 22 hours; 1 credit.
100. Preventive Medicine. Environmental and biologic factors in the maintenance and transmission of disease, and the possibilities of control or prevention through the efforts of the private physician alone or in collaboration with community, state, or federal agencies. For sophomore medical students. 44 hours; 4 credits. Dr. Boynton and associates.
101. Public Health Administration and Field Work. A series of field trips to acquaint the student with the activities of the State Board of Health and with problems of water filtration, sewage disposal, and milk sanitation. For senior medical students. 12 hours; 2 credits. Drs. Boynton and Todd.

* Member of staff of State Department of Health.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis.

104. Epidemiology I. For graduate physicians in public health or others by permission. 5 credits. Drs. Boynton, Diehl, and Treloar.
105. Epidemiology II. For physicians. 3 credits. Dr. Boynton.
106. Public Health Administration—General. For physicians, engineers, nurses, and social workers. 3 credits. Dr. Emerson.
107. Child and Adult Hygiene. For physicians. 3 credits. Dr. Boynton and associates.
109. Epidemiology III. For physicians. 3 credits.

ELECTIVE COURSES

58. Maternal and Child Hygiene. For public health nurses. 3 credits. Dr. Boynton.
59. Health of the School Child. 3 credits. Drs. Grout and Todd.
60. Tuberculosis and Its Control. 2 credits. Dr. Myers.
103. Public Health Bacteriology. Credits arranged. Dr. Heathman.
108. The Care of the Handicapped Child. 2 credits.
122. Public Health Administration—Problems. 3 credits. Dr. Emerson.
123. Topics in Public Health. Credits arranged. Dr. Boynton.
125. Community Health Education. 3 credits. Dr. Grout.
135. Conservation of Hearing. 1 credit. Dr. Boies and associates.
136. Sight Conservation. 1 credit. Dr. Hanson and associates.
137. Dental Hygiene. 1 credit. Dr. Crawford and associates.
190. Field Work in the Community Health Education Program. Credits arranged. Dr. Grout.
200. Research. Credits arranged. Drs. Boynton, Diehl, and others.
210. Seminar in Preventive Medicine and Public Health. Staff.
227. Problems in the Community Health Education Program. Credits arranged. Dr. Grout.

DIVISION OF PUBLIC HEALTH ENGINEERING AND SANITATION

Professor Charles A. Mann, Ph.D.; Clinical Professor§ Harold A. Whittaker,* B.A.; Associate Professors George O. Pierce, M.S., C.P.H., Theodore A. Olson, M.A.; Lecturers Herbert M. Bosch,* B.S., M.P.H., Philip R. Carter,* D.V.M., M.P.H., Jack J. Handy,¶ B.S., Samuel P. Kingston,* B.Ch.E., M.S., George S. Michaelson,* B.Ch.E., M.S., Harvey G. Rogers,* Dean M. Taylor,* B.Com.Eng.

REQUIRED COURSES

- A4. Rural Sanitation. For subcollegiate students in School of Agriculture. 3 credits. Messrs. Pierce and Bond.
102. Environmental Sanitation I. For engineers, doctors, and nurses. 3 credits. Mr. Pierce.
113. Water Supply Sanitation. For engineers. 4 credits. Messrs. Pierce and Olson.
113. Sewage, Excreta, and Waste Disposal. For engineers. 4 credits. Messrs. Pierce and Olson.
115. Food Sanitation. For engineers. 3 credits. Mr. Olson.
116. Public Health Engineering Administration. For engineers. 2 credits. Messrs. Whittaker, Pierce, and special lecturers.

ELECTIVE COURSES

117. Sanitary Biology. 2 credits. Mr. Olson.
118. Environmental Sanitation II. 2 credits. Messrs. Whittaker and Pierce.
119. Field Practice in Environmental Sanitation. Credits arranged. Messrs. Whittaker and Pierce.

* Member of staff of State Department of Health.

† On military leave.

¶ Member of staff of Minneapolis Health Department.

§ Title prefixed by "clinical" indicates appointments on a part-time basis.

DIVISION OF PUBLIC HEALTH NURSING

Associate Professor Ruth B. Freeman, R.N., M.A., Supervisor; Clinical Assistant Professors Mellie F. Palmer, R.N., M.S., C.P.H., Olivia T. Peterson, R.N., Pearl Shalit, R.N., M.S.S.; Instructors Ruth Von Bergen, R.N., B.S., Heide Henriksen, R.N., B.S., Agnes O'Leary, R.N., B.S., Catherine E. Vavra, R.N., B.S.; Clinical Instructors Katherine McMillan, R.N., B.S., Evelyn C. Nelson, R.N., B.S.

REQUIRED COURSES

- 62,63. Principles of Public Health Nursing. For public health nurses. 3 credits per quarter. Miss Freeman.
 65.‡ Field Work in School Nursing. For public health nurses. Credits arranged. Miss Freeman.
 66.‡ Field Work in Rural Nursing. For public health nurses. Credits arranged. Miss Freeman.
 67.‡ Field Work with Family Health Agency. For public health nurses. Credits arranged. Miss Freeman.
 133. Mental Hygiene Aspects of Public Health Nursing. 3 credits. Miss Shalit.
 Ed.81. Introduction to Education for Public Health Nurses. 3 credits. Dr. Grout.

ELECTIVE COURSES

55. Nursing and Social Problems in Gonorrhea and Syphilis Control. For public health nurses and students in pre-social work. 2 credits. Miss Freeman.
 70.‡‡ Practice Teaching in Home Nursing for Public Health Nurses. 6 credits.
 76. Nutrition in Public Health Nursing. 3 credits. Miss Donelson.
 80w.‡‡‡ Elementary Vital Statistics. 3 credits. Dr. Treloar.
 126. Industrial Health Problems. 3 credits. Dr. Foker, Miss Henriksen.
 170. Supervision in Public Health Nursing. For public health nurses. 3 credits. Miss Freeman.
 171. Advanced Problems in Public Health Nursing. For public health nurses. Credits arranged. Miss Freeman, Miss Palmer.
 173.‡‡‡‡ Advanced Field Work in Public Health Nursing. For public health nurses. Credits arranged. Miss Freeman.
 174f,w,s. Supervision Laboratory. For public health nurses. 2 credits. Miss Freeman.

DIVISION OF PERSONAL HEALTH AND HEALTH EDUCATION

Professors Ruth E. Boynton, M.S., M.D., J. Arthur Myers, M.D., Ph.D., William A. O'Brien, M.D.; Associate Professors Donald W. Cowan, M.D., M.S., Ruth E. Grout, Ph.D., C.P.H., Helen Starr, M.A.; Assistant Professors Ramona L. Todd, M.D., Ph.D., Myron M. Weaver, M.D., Ph.D.; Instructors Heide Henriksen, R.N., B.S.; Philip D. Kernan, B.S., M.D.; Clinical Instructor Donald A. Dukelow, M.S., M.D.; Teaching Assistant Aileen H. Tuttle, R.N., B.S., C.P.H.

REQUIRED COURSES

- A1. Hygiene. Subcollegiate course in School of Agriculture. 1 credit. Dr. Weaver.
 A2. First Aid. Subcollegiate course in School of Agriculture. 1 credit. Miss Henriksen.
 A3. Family Care. Subcollegiate course in School of Agriculture. 3 credits.

* On leave of absence with the American Red Cross.

† On military leave.

‡ Title prefixed by "clinical" indicates appointments on a part-time basis.

‡ A fee of \$50 a month is charged for this course.

‡‡ A fee of \$1 per credit is charged for this course.

‡‡‡ A fee of \$1 per quarter is charged for this course.

‡‡‡‡ A fee of \$3 per quarter is charged for this course.

3. Personal Health. 2 credits. Dr. O'Brien.
4. Health Problems of Adult Life. 2 credits.
50. Public and Personal Health. 3 credits.
51. Community Hygiene. 3 credits.
52. Health Care of the Family. For home economics students. 3 credits. Dr. Todd, Miss Henriksen.

ELECTIVE COURSES

56. First Aid and Safety for Nurses. 3 credits. Dr. Weaver.
57. Health of Infant and Preschool Child. 2 credit. Dr. Boynton.
59. Health of the School Child. 3 credits. Drs. Grout and Todd.
60. Tuberculosis and Its Control. 2 credits. Dr. Myers.
- Ed.81. Introduction to Health Education. 3 credits. Dr. Grout.
125. Community Health Education. 3 credits. Dr. Grout.
190. Field Work in the Community Health Education Program. Credits arranged. Dr. Grout.
227. Problems in the Community Health Education Program. Credits arranged. Dr. Grout.

DIVISION OF BIOSTATISTICS

Associate Professor Alan E. Treloar, Ph.D.; Assistant Professor Margaret Martin, Ph.D.; Teaching Assistant Benjamin T. McClure, B.A.

ELECTIVE COURSES

- 80w.‡ Elementary Vital Statistics. 3 credits. Dr. Treloar.
110. Biometric Principles. Introduction to statistical analysis with emphasis on basic principles of statistical reasoning. The description of univariate distribution, normal correlations, simple tests of significance, and goodness of fit. Course 111 will be taken concurrently. 3 credits, lab. 2 credits; to be taken concurrently. Dr. Treloar.
- 111.‡ Biometry Laboratory. Practical training in machine calculation and statistical techniques discussed in Course 110. 2 credits. Dr. Martin.
120. Correlation Analysis. 3 credits. Dr. Martin.
- 121.‡ Correlation Laboratory. 2 credits. Dr. Martin.
130. Random Sampling Distributions. 3 credits. Dr. Treloar.
- 131.‡ Sampling Laboratory. 2 credits. Dr. Martin.
- 140.‡ Vital Statistics. Credits arranged. Dr. Treloar.
- 150.‡ Life Tables. 3 credits. Dr. Treloar.
201. Topics in Biometry. Credits arranged. Dr. Treloar.
211. Seminar in Biometry. 1 credit. Dr. Treloar.

MEDICINE

Departmental Office, 221E University Hospital

Cecil J. Watson,* M.D., Ph.D., Professor and Head

DIVISION OF INTERNAL MEDICINE

Professors Cecil J. Watson,* M.D., Ph.D., Moses Barron, M.D., George E. Fahr,*¶ M.D., J. Arthur Myers, M.D., Ph.D.; Professor Emeritus S. Marx White, M.D.; Clinical Professor§ Henry L. Ulrich, M.D.

* Full-time appointment.

‡ A fee of \$1 per quarter is charged for this course.

§ Titles prefixed by "clinical" indicate appointments on part-time basis.

¶ In charge at Minneapolis General Hospital.

- Associate Professors Wesley W. Spink,* M.D.; Clinical Associate Professors§ Karl W. Anderson, M.D., Archibald H. Beard,** M.D., James B. Carey, M.D., Carl B. Drake, M.D., Edwin L. Gardner,** M.D., Alfred Hoff, M.D., Reuben A. Johnson, M.D., Arthur C. Kerkhof, M.D., Ph.D., Chauncey A. McKinlay, M.D., Ernest T. F. Richards,** M.D.C.M., Frederick H. K. Schaaf, M.D., John P. Schneider,** M.D., Morse J. Shapiro, M.D., Macnider Wetherby, M.D., Ragnvald S. Ylvisaker, M.D.
- Assistant Professors George N. Aagaard, Jr.,* M.D., Edmund B. Flink,* M.D., Ph.D., Frederick W. Hoffbauer,* M.D., Myron M. Weaver,* M.D., Ph.D.; Clinical Assistant Professors§ Jacob S. Blumenthal, M.D., John J. Boehrer, M.D., Joseph F. Borg, M.D., Everett K. Geer, M.D., Douglas P. Head, M.D., Edgar T. Herrman, M.D., George X. Levitt, M.D., Thomas Lowry, M.D., Ernest S. Mariette, M.D., Donald McCarthy, M.D., Johannes K. Moen, M.D., Harry Oerting, M.D., Thomas A. Peppard, M.D., Robert I. Rizer,** M.D., Adam M. Smith, M.D., Horatio B. Sweetser, Jr., M.D., Alphonse E. Walch, M.D., Thomas Ziskin, M.D.
- Instructors O. L. Norman Nelson,† M.D.; Clinical Instructors Theodore J. Bulinski,† M.D., Charles R. Drake, M.D., Robert K. Grau,† M.D., Paul S. Hagen, M.D., Wendell H. Hall, M.D., Bergliot Hansen, B.S., DeForest R. Hastings, M.D., William H. Hollingshead, M.D., John E. Holt, M.D., Norman Johnson, M.D., Emmett V. Kenefick,† M.D., Russell C. Lindgren, M.D., Harold E. Richardson, M.D., L. Raymond Scherer, M.D., Asher A. White, M.D.
- Clinical Assistants§ John F. Briggs, M.D., Dorothy Hutchinson Brown, M.A., M.D., Leonard K. Buzzell, M.D., Archibald E. Cardle, M.D., Sumner S. Cohen, M.D., John A. Dahl, M.D., Ejvind P. K. Fenger, M.D., Victor K. Funk,† M.D., Wayne S. Hagen,† M.D., Lynn Hammerstad,† M.D., Emil W. Johnson,† M.D., Robert E. Johnson,† M.D., Herbert W. Jones, Jr.,† M.D., Marcus A. Keil, M.D., Leonard M. Larson, M.D., Beatrice Lovett, M.D., Stanley W. Lundblad,† M.D., Peter M. Mattill, M.S., M.D., John R. Meade, M.D., Alton C. Olson,** M.D., Dean K. Rizer, M.D., Robert G. Rogers,† M.D., David V. Sharpe,** M.D., Samuel M. Wells, M.D., J. Allen Wilson, M.D., Ph.D.
- Teaching Assistant Eileen Hansen, B.S.; Medical Fellows Abraham I. Braude, M.D., David M. Craig, M.D., Charles S. Christianson, M.D., Miguel V. Gonzalez, M.D., Howard L. Horns, M.D., Robert B. Howard, M.D., David T. Kaung, M.D., Paul Lober, M.D.

REQUIRED COURSES

- 18-19. Principles of Medical and Surgical Nursing.
101. Physical Diagnosis. Lectures and practical work on the examination of the normal body and on various aspects of physical diagnosis in disease. Students are assigned to hospital wards for the examination of selected cases. Sophomore year. Prerequisites, Anatomy 100, Physiology 103. 44 hours; 3 credits. Dr. Watson and staff.
103. Clinics in Medicine. Half divisions at Ancker Hospital, St. Paul. Junior year. Part of Course 111. Drs. Drake, Hoff, Oerting, and staff.
104. Introduction to Internal Medicine. Systematic lectures and clinics in the field of internal medicine. Junior year. Prerequisite, Medicine 101, 102. 22 hours a quarter, 66 hours total; 6 credits. Dr. Watson and staff.
110. Medicine Clinic. One hour per week two quarters of the senior year. Drs. Watson, Barron, and others.

* Full-time appointment.

† On military leave.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis.

** Inactive status.

111. 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 carrying out assigned laboratory work. Clerks are held responsible for history and course of disease as well as a detailed knowledge of the treatment given to patients assigned them. Junior year. Prerequisites, clear record in all prior subjects. 260 hours; 6 credits. Dr. Watson and staff.
- 111x. Same as Course 111 at the Minneapolis General Hospital. Dr. Fahr and staff.
112. Senior Clerkship in Internal Medicine (Admissions). Supervised study of new cases in the Outpatient Medical Clinic. Rotation through special clinics including cardiology, gastrointestinal diseases, chest diseases, diabetes, metabolism and endocrinology, hematology, allergy, rheumatoid diseases, peripheral vascular disease, and gastroscopy. 260 hours; 6 credits. Drs. Aagaard, Wetherby, and others.

ELECTIVE COURSES

128. Abnormal Physical Signs in the Chest. Juniors and seniors. 17 hours per student. Not more than 4 students. Tuberculosis Pavilion, Ancker Hospital, St. Paul. Dr. Geer.
129. Advanced Physical Diagnosis. Prerequisite, Medicine 101. Juniors. Not less than 3 nor more than 6 students. Minneapolis General Hospital. Dr. Peppard.
132. Diagnosis and Treatment of Diseases of the Lungs. Three lectures and two clinics per week (hospital wards and dispensary). Lectures with or without hospital work. Sophomores, juniors, and seniors. Hours and credits arranged. Dr. Myers.
133. Gastroenterology. Clinic demonstration and discussions of disorders of the gastrointestinal tract. Junior year. 4 to 8 students. Dr. Carey.
134. Gastroscopy. Senior year. Not less than 2 students. University Hospital. Dr. Carey.
135. Essentials of Diagnosis and Treatment of Heart Disease. Practical clinics on cardiac patients. Junior year. Limited to 8 students. Dr. Shapiro.
136. The Respiratory Organs in Health and Disease. One or more quarters. Limited to 6 students. Dr. Myers.
139. Clinical Electrocardiography. Juniors. Hours and credits arranged. Minneapolis General Hospital. Dr. Kerkhof.

COURSES FOR GRADUATE STUDENTS

201. Clinical Medicine. Drs. Watson, Barron, Fahr, S. M. White, and Spink.
202. Diseases of the Cardiovascular Apparatus. Dr. Fahr.
203. Research in Medicine. Drs. Watson, Fahr, and Spink.
205. Tuberculosis. Dr. Myers.
206. Clinical Conference. Weekly meeting on Friday at 9 a.m. Presentation of problem cases. Discussion of diagnosis and treatment and consideration of pertinent literature. 1 credit. Dr. Watson and staff.
207. Clinical Pathological Conference. Weekly meeting on Wednesday at 11 a.m. Presentation of clinical features, necropsy findings, and discussion. Medical and surgical cases. 1 credit. Drs. Bell, Wangenstein, Watson, and staff.
208. Clinical Radiological Conference. Weekly meeting on Monday at 9 a.m. Presentation and discussion of X-ray films from the medical service, with clinical correlation. 1 credit. Drs. Rigler, Watson, and staff.

For other courses see Graduate Medical School Bulletin.

DIVISION OF DERMATOLOGY

Professors Henry E. Michelson, M.D., Director, Samuel E. Sweitzer, M.D.; Clinical Associate Professors§ Harry G. Irvine, M.D., Carl W. Laymon, M.D., Ph.D., Francis W. Lynch, M.D., M.S.; Clinical Assistant Professors§ Charles D. Freeman, M.D., John F. Madden, M.D., M.S., Elmer M. Rusten, M.D.; Clinical Instructors§ Clifton A. Boreen, M.D., Harry A. Cumming, M.D., Rodney F. Kendall, M.D., Henry N. Klein, M.D.; Medical Fellows Robert Goltz, M.D., John R. Haserick, M.D., Richard J. Steves, M.D.; Visiting Lecturer S. Epstein.

REQUIRED COURSES

123. Dermatology and Syphilology. Clinical lectures upon the common skin diseases and syphilis, including diagnosis and treatment. Senior year. Prerequisites, Medicine 101, 102. 33 hours; 3 credits. Dr. Michelson.
124. Senior Clerkship in Dermatology. Sections of the senior class in dermatology and syphilis, in the dispensary at the University Hospital. 90 hours; 2 credits. Dr. Michelson and staff.
- 124x. Part of Course 124 at the Minneapolis General Hospital. Drs. Sweitzer, Cumming, and staff.

ELECTIVE COURSES

157. Ward Clinics in Dermatology. Junior year. 17 hours. Ancker Hospital, St. Paul. Drs. Lynch, Madden, and Klein.
158. Clinic in Dermatology. Wilder Dispensary. Dr. Klein.
159. Assistantship, Dermatology and Syphilis. Prerequisite, junior medical clerkship. Limited to one student. Minneapolis General Hospital. Dr. Sweitzer.
160. Assistantship and Conference in Dermatology. Prerequisite, junior medical clerkship. Limited to one student. University Hospital and Dispensary. Dr. Michelson and staff.
161. Assistantship in Dermatology. Prerequisite, Medicine 124. Limited to 2 students. University Dispensary. Dr. Michelson and staff.
162. Assistantship in Dermatology. Prerequisite, Medicine 124. Limited to 2 students. Minneapolis General Hospital. Dr. Sweitzer.
163. Treatment of Syphilis. Limited to 2 students. University Dispensary. Dr. Michelson.
164. Seminar in Pathology. Histopathology of the skin. Clinical and pathologic phases will be exemplified. Prerequisite, Pathology 102. Dr. Michelson.
165. Seminar in Dermatology. Hours arranged. Dr. Michelson and others.
166. Allergy and Dermatology. Limited to 1 student. Hours and credits arranged. Drs. Rusten and Epstein.

COURSES FOR GRADUATE STUDENTS

225. Clinical Dermatology and Syphilology. Dr. Michelson and staff.
226. Clinical Dermatology and Syphilology. Dr. Sweitzer and staff.
227. Histopathology of the Skin. Dr. Michelson and staff.
228. Research in Dermatology and Syphilology. Dr. Michelson and staff.

Students in Dermatology are urged to elect Surgery 205, 206, 207, for instruction in the Tumor Clinic of the Outpatient Department of the University Hospital.

† On military leave.

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DIVISION OF CLINICAL LABORATORY MEDICINE

Professor Gerald T. Evans,* M.D.C.M., Ph.D., Director of Laboratories, University Hospital; Instructor Evrel A. Larson,* B.S., M.D.

REQUIRED COURSES

102. Clinical Laboratory Medicine. Methods of laboratory examination for diagnostic purposes. Sophomore year. Prerequisites, Physiological Chemistry 100, students must have completed or be taking Pathology 101. 66 hours, 5 credits. Drs. Evans, Watson, and staff.

COURSES FOR GRADUATE STUDENTS

209. Advanced Clinical Laboratory Medicine. Dr. Evans and staff.

NEUROPSYCHIATRY

Departmental Office, 126 Millard Hall

Professor J. C. McKinley,* M.D., Ph.D., Head; Clinical Professor§ Ernest M. Hammes, M.D.; Associate Professors A. B. Baker,* M.D., Ph.D., Starke R. Hathaway,* Ph.D., Reynold A. Jensen,* M.D., Robert G. Hinckley,* M.D., Joseph C. Michael, M.D., Burtrum C. Schiele,* M.D.; Clinical Associate Professors§ Royal C. Gray, M.D., Ph.D., Hyman S. Lippman, M.D., Ph.D., Frank W. Whitmore, M.D.; Assistant Professors Lillian Cottrell,* M.D., M.S., Charlotte Henry,* M.S.S., Paul E. Meehl, Ph.D.; Clinical Assistant Professors§ S. Allan Challman, M.D., Alexander G. Dumas, M.D., Walter P. Gardner, M.D., Hewitt B. Hannah, M.D., Harold B. Hanson, M.D., Charles J. Hutchinson, M.D., Gordon R. Kamman, M.D., Robert L. Meller, M.D., M.S., Harold H. Noran, M.D., Ph.D., George N. Ruhberg, M.D.; Professorial Lecturers George H. Freeman, M.D., William L. Patterson, M.A., M.D.; Instructor Marcella J. Vig, M.A.; Clinical Instructors§ Nathan J. Berkwitz, M.D., Ph.D., Alex S. Blumstein, M.D., Harold Buchstein, M.D., M.S., Burton P. Grimes,† M.D., Joel C. Hultkrans, M.D.; Clinical Assistants§ Ralph Rossen,† M.D.; Teaching Assistant W. Grant Dahlstrom, B.A.; Medical Fellows David deR. Daley, M.D., George W. Holt, M.D., Robert T. Patey, M.D.

REQUIRED COURSES

101. Clinical Neuropsychiatry. Systematic clinics, demonstrations, and lectures. Junior year. Prerequisites, Medicine 101, 102; 4 credits. Drs. McKinley, Hammes, and staff.
 103. Junior Clinical Clerkship in Neuropsychiatry. Sections of the class for nine-week periods in the University Hospital. 260 hours; 6 credits. Dr. McKinley and staff.
 105. Neuropsychiatry Clinic. Seniors. 11 hours; no credit. Dr. McKinley and staff.

ELECTIVE COURSES FOR NONMEDICAL STUDENTS

70. Introductory Psychiatry (Social Work 170.) For upper group only. Prerequisites, elementary psychology and sociology. 33 hours. Dr. Hinckley.
 171. Descriptive Neuropsychiatry (Social Work 171). Prerequisites, Medicine 70 or Psychology 144-145. 33 hours. Drs. Baker and Cottrell.

ELECTIVE COURSES FOR MEDICAL STUDENTS

144. Problems of Neuropathology. (Same as Pathology 115.) Individual gross and microscopic studies on existing preparations in neuropathology. Prerequisites, Pathology 101 and 102. Credits and hours arranged. Limited to 2 students. Dr. Baker.

* Full-time appointment.

† On military leave.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis.

145. Problems in Neuropsychiatry. The student will be assigned a topic for special study. Prerequisite, Pathology 102. Credits and hours arranged. Limited to 2 students. Drs. Baker, Hathaway, and Schiele.
146. Psychiatric Problems in General Medical Practice, including the psychoneuroses. Junior year. Not less than 5 students. University Hospital. Dr. Schiele.
150. Advanced Neuropathology. Same as Course 210 in Graduate School. Prerequisites, Pathology 101 and 102. Credits and hours arranged. Drs. Baker and Noran.
151. Survey of Neuropathology. (Same as Pathology 117.) Same as Course 212 in the Graduate School. Credits and hours arranged. Drs. Baker and Noran.

COURSES FOR GRADUATE STUDENTS

208. Clinical Neurology. Drs. McKinley, Baker, and Scheile.
- 208x. Clinical Psychiatry. Drs. McKinley, Hathaway, and Schiele.
209. Research in Neurology and Psychiatry. Drs. McKinley, Baker, and Hathaway.
210. Advanced Neuropathology. Prerequisites, Pathology 101 and 102. Dr. Baker.
211. Intracranial Neoplasms. (Same as Pathology 116.) Prerequisites, Pathology 101 and 102. Dr. Baker.
212. Survey of Neuropathology. Drs. Baker and Noran.
213. Orientation in Psychiatric Social Service. Miss Henry.
214. Neuropsychiatric Disorders of Childhood. Dr. McKinley and staff.
215. Seminar in the Application of Psychological Methods to the Study of Neuropsychiatry. Dr. Hathaway.
216. Neuropsychiatric Case Conference. Credits and hours arranged. Dr. McKinley and staff.
217. Didactic Review of Psychoanalytical Theory. Credits and hours arranged. Dr. Lippman.
218. Child Neuropsychiatry. Clinical experience and didactic conferences in the juvenile clinic. Credits and hours arranged. Dr. Jensen.
219. Personality Structure, Normal and Abnormal. Drs. Schiele and Hathaway.
220. Advanced Neuropsychiatry. Dr. McKinley and staff.
221. Psychometric Clerkship. Psychological testing of inpatient and outpatient cases in the University Hospital. Credits and hours arranged. Drs. Hathaway and Meehl.
222. Interviewing Techniques in Psychiatry. Drs. McKinley and Hathaway.
223. History of Neuropsychiatry. Drs. Baker and Schiele.

OBSTETRICS AND GYNECOLOGY

Departmental Office, University Hospital

Professor John L. McKelvey,* M.D.C.M., Head; Professor Emeritus Jennings C. Litzenberg, M.D.; Associate Professor Curtis J. Lund,* M.D.; Clinical Associate Professor§ Robert Meyer, M.D.; Associate Professor Emeritus Arthur E. Benjamin, M.D.; Clinical Assistant Professors§ Lee W. Barry, M.D., Ph.D., Claude J. Ehrenberg, M.D., Everett C. Hartley, M.D., George E. Hudson, M.D., Leonard A. Lang,|| M.D., Rae T. La Vake, M.D., Clarence O. Maland, M.D., Jalmer H. Simons, M.D., Samuel B. Solhaug, M.D., Ph.D., Roy E. Swanson, M.D., Ph.D., Herbert M. N. Wynne, M.D.; Instructor George E. Rogers, M.D.; Clinical Instructors§ Milton Abramson, M.D., Ph.D., Duma C. Arnold, M.D., Joseph F. Bicek, M.D., Ray F.

* Full-time appointment.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis, except as noted.

|| In charge at Minneapolis General Hospital.

Cochran,† M.D., Louis Friedman, M.D., John A. Haugen,† M.D., Albert F. Hayes,† M.D., Eugene M. Kasper, M.D., Ph.D., Arthur A. H. Koepsell,† M.D., Harold R. Leland, M.D., Edward C. Maeder, M.D., Ph.D., Charles E. Proshek,† M.D., Owen F. Robbins, M.D., William P. Sadler, M.D., Albert G. Schulze, M.D., Melvin B. Sinykin,† M.D., James J. Swendson, M.D., Thurston W. Weum, M.D.; Clinical Assistants† Paul N. Larson, M.D., Charles H. McKenzie,† M.D.; Medical Fellows* Titus P. Bellville,† M.D., Helen L. R. Haberer, M.D., Rodney F. Sturley, M.D., Roy Holly, M.D., Harold B. Hulme, M.D., John S. Gillam, M.D.

REQUIRED COURSES

1. Obstetrical Nursing. For student nurses. Dr. McKelvey and others.
2. Gynecological Nursing. For student nurses. Dr. McKelvey and others.
120. Obstetrics. The physiology of pregnancy, labor, and the puerperium. For senior medical students. 11 hours; 1 credit. Drs. McKelvey, Lund, Rogers, and staff.
121. Obstetrics. The pathology of pregnancy, labor, and the puerperium. For senior medical students. Prerequisite, Course 120. 11 hours; 1 credit. Drs. McKelvey, Lund, Rogers, and staff.
123. Gynecology. A study of diagnostic methods in diseases of women. For senior medical students. 22 hours; 2 credits. Drs. McKelvey, Lund, Rogers, and staff.
124. Introduction to Obstetrics and Gynecology. For medical students in the last quarter of the junior year. 11 hours; 1 credit. Drs. McKelvey, Lund, Rogers, and staff.
135. Clinical Clerkship in Obstetrics and Gynecology. Includes clinics in obstetrics and gynecology in the University Hospital and Dispensary. 260 hours; 6 credits. Drs. McKelvey, Lund, Rogers, and staff.
- 135x. Part of Course 135 at the Minneapolis General Hospital. Dr. Lang and staff.

ELECTIVE COURSES

155. Prenatal Clinics. Antepartum care of pregnant women at the various prenatal stations. Limited to one student at each station. Dr. Abramson and others.

COURSES FOR GRADUATE STUDENTS

- 201-202-203-204. Advanced Obstetrics and Gynecology. Part I. Required of first year fellows. Drs. McKelvey, Lang, and associates.
- 205-206-207-208. Advanced Obstetrics and Gynecology. Part II. Required of second year fellows. Drs. McKelvey, Lang, and associates.
- 209-210-211-212. Advanced Obstetrics and Gynecology. Part III. Third year fellows. Drs. McKelvey, Lang, and associates.
- 216-217-218-219. Research. Staff.

OPHTHALMOLOGY AND OTOLARYNGOLOGY

Departmental Office, 534E Todd Memorial Hospital

DIVISION OF OPHTHALMOLOGY

Clinical Professor§ Erling W. Hansen, M.D., Director; Professor Emeritus Frank E. Burch, M.D.; Clinical Assistant Professors§ Edward P. Burch,† M.D., Walter E. Camp, M.A., M.D., Hendrie W. Grant, M.D., M.S., Walter L. Hoffman, M.D., M.S., Charles Hymes, M.D., M.S., Malcolm C. Pfunder, M.D., Virgil J. Schwartz, M.D., Charles E. Stanford, M.D.; Clinical Instructors§ Thomas J. Edwards, M.D.,

* Full-time appointment.

† On military leave.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis.

Walter H. Fink, M.D., M.S., Walter K. Havens, M.D., M.S., Bjarne Houkom, M.D., M.S., Richard O. Leavenworth, M.D., Robert R. Tracht, M.S., M.D., Richard C. Horns, M.D., Donald E. Otten, M.S., M.D.; Medical Fellows Wilfred J. Bushard, M.D., George H. Dolmage, M.D., Malcolm E. McCannel,† M.D., John N. Peterson, M.D.; Clinical Assistants Frank Adair, M.D., Vernon L. Koepcke, M.D.

REQUIRED COURSES

100. Ophthalmology. Lectures and demonstrations. For senior medical students. 2 credits. Dr. Hansen and staff.
106. Clerkship in Diseases of the Eye. Diagnosis and treatment of cases. 45 hours; 2 credits. Drs. Hoffman, Stanford, and Horns.

ELECTIVE COURSES

121. Operative Clinic in Eye. 13 hours. Limited to 6 students. University Hospital. Drs. Hansen, Hymes, Hoffman, and Stanford.
122. Medical and Neurological Ophthalmology. 2 sections. 22 hours; 2 credits. Limited to 8 students per section. Todd Memorial Room. Drs. Schwartz and Edwards.
123. Advanced Ophthalmology. Prerequisite, 122. 22 hours; 2 credits. Limited to 6 students. University Dispensary. Eye Clinic. Drs. Stanford and Schwartz.

COURSES FOR GRADUATE STUDENTS

200. Refraction. Dr. Tracht.
201. Advanced Refraction. Dr. Tracht.
202. Clinical Ophthalmology. Drs. Hansen, Hymes, Hoffman, and Stanford.
203. Biomicroscopy. Dr. Hoffman.
204. Ocular Muscles. Drs. Grant and Otten.
205. Perimetry. Dr. Horns.
206. Surgery of the Eye. Drs. Hansen and Hymes.
207. Pathology of the Eye. Dr. Camp.
208. Ophthalmoscopy. Drs. Edwards and Schwartz.
209. Neuro-ophthalmoscopy. Dr. E. P. Burch.
211. Physiology of Vision and Physiological Optics. Dr. Simonson.
212. Seminar in Ophthalmology. Dr. Hansen and staff.
213. Review of Texts on External Diseases. Dr. Stanford.
214. Histology of the Eye. Dr. Camp.
215. Radiology of the Eye, Orbit, and of the Head. Dr. Peterson.
217. Allergy of the Eye. Dr. Hansen.
218. Ophthalmic Therapeutics. Dr. Horns.
219. History of Ophthalmology. Dr. Hansen.

DIVISION OF OTOLARYNGOLOGY

Courses Offered at the Medical School

Clinical Professors§ Lawrence R. Boies, M.A., M.D., Director, Anderson C. Hilding, M.D., Ph.D.; Clinical Associate Professors§ Charles E. Connor, M.A., M.D., Kenneth A. Phelps, M.D.; Clinical Assistant Professors§ Frank L. Bryant,† M.D., C. Alford Fjelstad, M.S., M.D., John J. Hochfilzer, M.D.; Clinical Instructors§ Jerome A. Hilger, M.D., M.S., Conrad J. Holmberg,† M.D., Robert E. Priest,† M.D., M.S., George M. Tangen, M.D., M.S., in Otol.; Clinical Assistant Gerald Koepcke,† M.D.; Medical Fellows J. Donald Sjoding,† M.D., Eugene F. McElmeel, M.D., Neill F. Goltz, M.D., Gudmundur Eyjolfsson, M.D.

† On military leave.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis.

REQUIRED COURSES

101. Otology. Lectures and demonstrations. Senior medical students. 1 credit. Dr. Boies and staff.
102. Rhinology. Lectures and demonstrations. Senior medical students. 1 credit. Dr. Boies and staff.
103. Laryngology. Lectures and demonstrations. Senior medical students. 1 credit. Dr. Boies and staff.
104. Clinic and Conferences in Diseases of the Ear. Diagnosis and treatment of cases. 45 hours; 2 credits. University Dispensary. Drs. Boies, Bryant, Connor, Fjeldstad, Hochfilzer, Hilger, Holmberg, Priest, and Tangen.
105. Clinic and Conferences in Diseases of the Nose and Throat. Diagnosis and treatment of cases. 45 hours; 2 credits. University Dispensary. Dr. Boies, Bryant, Connor, Fjeldstad, Hochfilzer, Hilger, Holmberg, Priest, and Tangen.

COURSES PRIMARILY FOR GRADUATE STUDENTS

230. Clinical Otology. 132 hours per quarter. Staff.
231. Clinical Rhinology and Laryngology. 132 hours per quarter. Staff.
232. Surgery of the Ear, Nose, and Throat. Operative clinic in the University Hospital. 32 hours per quarter. Staff.
233. Operative Surgery of the Temporal Bone. 22 hours.
234. Operative Surgery of the Nose and Throat. 22 hours.
235. Roentgenology of the Head. 11 hours. Dr. Rigler.
236. Functional Ear Tests. 11 hours.
237. Endoscopy. Lectures and demonstrations. 22 hours.
238. Pathology of the Ear, Nose, and Throat. 22 hours. Drs. Connor and Hilger.
239. Endocranial Complications of Ear Diseases. 11 hours.
240. Physiotherapy and Surgery of Malignant Diseases of the Ear, Nose, and Throat. 6 hours. Drs. Boies and Stenstrom.
241. Seminar in Otolaryngology. Weekly.
242. Diseases of the Labyrinth. 6 hours.
243. Ophthalmoscopic and Perimetric Findings in Endocranial Complications. 4 hours.
244. Speech Pathology. 6 hours. Dr. Bryngelson.
245. Allergy. 11 hours. Dr. Priest.
246. Practical Acoustics for Otolologists. 6 hours. Dr. Hartig.
247. Plastic Surgery of the Nose. 11 hours. Dr. Hochfilzer.

PEDIATRICS

Departmental Office, 205W Eustis Hospital

Professors Irvine McQuarrie,* Ph.D., M.D., Head; Clinical Professor Emeritus§ James T. Christison, M.D., Walter Ramsey, M.D.; Clinical Professors§ Edgar J. Huenekens, M.A., M.D., Erling S. Platou, M.D., Frederick C. Rodda, M.D., Max Seham, M.D.; Associate Professors John M. Adams,* M.D., Ph.D., Bryng Bryngelson,* Ph.D., Reynold Jensen,* M.D., Albert V. Stoesser,* M.D., Ph.D.; Clinical Associate Professors§ Edward D. Anderson,† M.D., Joseph T. Cohen, D.D.S., Hyman S. Lippman, M.D., Ph.D., Robert L. Wilder, M.D., Oswald S. Wyatt, M.D.; Assistant Professors Marguerite Booth,* M.D., M.S., Mildred R. Ziegler,* Ph.D.; Clinical Assistant Professors§ Woodard Colby, M.D., Lyman R. Critchfield, M.D.,

* Full-time appointment.

† On military leave.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis.

Paul F. Dwan, M.D., Harold B. Hanson, M.D., Frank G. Hedenstrom, M.D., Emanuel S. Lippman, M.D., Lillian Nye, M.D., Lawrence F. Richdorf, M.D., Ph.D., Edwin F. Robb, M.D., Robert Rosenthal, M.D., W. Ray Shannon, M.S. M.D., David M. Siperstein, M.A., M.D., Alexander R. Stewart, M.D.C.M., Willis H. Thompson, M.D., Viktor O. Wilson, M.D., M.P.H.; Instructor James F. Bosma,* M.D.; Clinical Instructors§ Northrop Beach, M.D., Alice K. Brill, M.D., Harold F. Flanagan, M.D., Aaron Friedell, M.D., Alice Fuller, M.D., Hermina Hartig, M.D., Evelyn Johnson, M.D., Arthur E. Karlstrom, M.D., Elizabeth Lowry, M.D., Alfred J. Ouellette, M.D., Everett C. Pearlman, M.D., Eva Shaperman, M.D.; Clinical Assistants§ Carolyn G. Adams, M.D., Stuart Arey, M.D., Evelyn S. Harris, M.D., Edward N. Nelson, M.D., Richard B. Tudor, M.D.; Teaching Assistants Mary S. Crawford,* M.D., Douglas T. Lindsay,* M.D., Barbara Sanborn, B.A.; Medical Fellows* Forrest H. Adams, M.D., Robert W. Gibbs, M.D., Wayne E. LeBien, M.D., William M. Mulholland, M.D., Robert D. Semsch, M.D.

REQUIRED JUNIOR COURSES

120. The Normal Child. (a) Physical growth and development. Dr. Beach, Dr. Bosma. (b) Psychological development. Dr. John E. Anderson, Mrs. Sanborn. (c) Physiology and metabolism of infancy and childhood. 11 hours; 1 credit. Drs. McQuarrie and Ziegler.
121. Clinical Diagnosis in Infancy and Childhood. The pathogenesis of all diseases and disorders of childhood, their recognition and classification, including the disturbances of speech, psychiatric disorders, dental diagnosis, and indications for orthodontia. Follows Course 120. 11 hours; 1 credit. Drs. McQuarrie, Adams, Bryngelson, Cohen, and staff.
122. Diseases of Infancy and Childhood and Their Treatment. Emphasis is placed on the diseases which are more or less peculiar to the age periods before the sixteenth year. Follows Course 121. 22 hours; 2 credits. Drs. McQuarrie, Adams, Jensen, Stoesser, and senior staff.
123. Divisional Demonstration Clinic on Noncontagious Diseases. One quarter for each student. (Part of 124.) 17 hours. Minneapolis General Hospital. Dr. Huenekens.
124. Junior Clinical Clerkship in Pediatrics. Patients in the wards are assigned to individual students for examination, treatment, and "follow-up" observation under supervision. Each student has five weeks at University Hospital and five weeks at Minneapolis General Hospital. 260 hours; 6 credits. Drs. McQuarrie, Adams, Jensen, Stoesser, Booth, Bosma, Beach, and junior staff.
130. Divisional Demonstration Clinic on Contagious Diseases. One quarter for each student. (Part of 124.) 11 hours. Minneapolis General Hospital and Ancker Hospital. Dr. Stoesser and clinical staff.

REQUIRED SENIOR COURSES

135. Senior Clinical Clerkship in Pediatrics. Patients in dispensaries are assigned to individual students for examination, treatment, and "follow-up" observation under supervision. Special clinics in well-baby care, allergy, heart, metabolism, and child psychiatry are attended each week. One sixth of class on pediatric clerkship at one time—one half assigned to the University Hospital, the other half to the Minneapolis General Hospital. 108 hours; 3 credits. Drs. McQuarrie, Adams, Jensen, Stoesser, and staff.

* Full-time appointment.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis.

ELECTIVE COURSES

- 150.¶ Physiology and Diseases of the Newborn. Drs. Adams and Stoesser.
 152.¶ Fundamental Principles of Nutrition and Metabolism as Applied to Children. Seminar course. Drs. McQuarrie and Ziegler.
 154.¶ Endocrinology as Applied to Pediatrics. Seminar course. Dr. McQuarrie.
 156.¶ Advanced Study of Noncontagious Diseases. Both clinical and experimental subject matter included. Drs. Adams and Stoesser.
 158.¶ Advanced Study of Contagious Diseases. Drs. Platou and Stoesser.
 160. Allergic Disorders in Childhood. Dr. Stoesser.
 162. Common Behavior Disturbances in Childhood. Their recognition and management. Drs. Jensen and Hall.
 166. Weekly Seminar for Detailed Discussion of Fundamental Subjects Related to Pediatrics. Drs. McQuarrie, Ziegler, and staff.
 168. Speech Disturbances in Childhood. Clinic course. Drs. Bryngelson and Jensen.
 170. Rheumatic Infection and Heart Diseases in Childhood. Drs. Adams, Dwan, and Seham.
 172. Dental Disorders in Relation to General Health. Dr. Cohen.

COURSES FOR GRADUATE STUDENTS

200. Graduate Seminar in Pediatrics. 17 hours; 1½ credits per quarter. Dr. McQuarrie and senior clinical staff.
 202. Pediatric Clinic. Outpatient Department, University Hospitals. Daily, 9:00-12:00 noon. Drs. Adams, Jensen, and Beach.
 204. Three month's residence in pediatrics at the University Hospital. Drs. McQuarrie, Adams, Jensen, and Ziegler.
 206. Three month's residence in pediatrics at the Minneapolis General Hospital. Drs. Huenekens, Platou, Richdorf, Seham, and Stoesser.
 208. Pediatric Research. Special problems. Students may collaborate with members of the staff or with other students. Drs. McQuarrie, Ziegler, and staff.
 210. Special Clinics in Pediatrics. Drs. Adams, Jensen, and Stoesser.

RADIOLOGY

Departmental Office, University Hospital, M534

Professors Leo G. Rigler,* M.D., Head, K. Wilhelm Stenstrom,* Ph.D.; Clinical Associate Professors§ Harold O. Peterson, M.D., Walter Ude, M.D.; Clinical Assistant Professors§ Robert G. Allison,** M.D., J. Richards Aurelius, M.D., Chauncey N. Borman, M.D., Cyrus Hansen, M.D., Malcolm B. Hanson, M.D., Oscar Lipschultz, M.D., Russell Morse, M.D.; Instructors Solveig M. Bergh, M.D., Samuel Blank, M.D., James F. Marvin,* M.S.; Clinical Instructors§ Frank R. Gratzek, M.D., Gjert M. Kelby, M.D., John P. Medelman,† M.D., Leo A. Nash, M.D.; Clinical Assistants§ Alfred B. Greene, B.S., Ames Naslund, M.D.; Medical Fellows Leslie P. Anderson, M.D., Thomas B. Merner, M.D., Harry W. Mixer, M.D.

REQUIRED COURSES

- 103a. Neuroradiology for Neuropsychiatric Clerks. Part of Neuropsychiatry 103. 9 hours. Dr. Peterson.

* Full-time appointment.

† On military leave.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis.

¶ Not offered to fewer than 10 students.

** Inactive status.

111. Medical Roentgenologic Conference for Medical Clerks. Part of Medicine 111. 9 hours. Dr. Rigler.
112. Roentgen Diagnostic Clinic for Medical Clerks. Part of Medicine 112. 9 hours. Dr. Rigler.
121. Roentgenology and Radiation Therapy and Biophysics. Lectures and demonstrations. For junior medical students. 44 hours; 4 credits. Drs. Rigler and Stenstrom.
122. Physical Therapy. Lectures and demonstrations. For senior medical students. 1 credit. Dr. Knapp.
124. Pediatric-Roentgenologic Conference for Pediatric Clerks. Part of Pediatrics 124. 9 hours. Dr. Rigler.
126. Clinical Lectures in Roentgen Diagnosis and Therapy. For senior medical students. Prerequisite, Radiology 121. 1 credit. Drs. Rigler and Stenstrom.
- 135a. Radiation Therapy for Surgical Clerks. Part of Surgery 135. 3 hours. Dr. Stenstrom.
- 135b. Roentgen Diagnostic Clinic for Surgical Clerks. Part of Surgery 135. 9 hours. Dr. Rigler.
- 135c. Surgical Roentgenologic Conference for Surgical Clerks. Part of Surgery 135. 9 hours. Dr. Rigler.
- 163a. Neurosurgical-Roentgenologic Conference for Neurosurgical Clerks. Part of Surgery 163. 9 hours; 1 credit. Drs. Peterson and Peyton.

ELECTIVE COURSES

104. Roentgen and Radium Therapy. Junior, senior, and graduate students. 11 hours. Dr. Stenstrom.
105. Clinic in Physical Therapy. Junior, senior, and graduate students. 22 hours. Dr. Knapp.
106. Lectures in Physical Therapy. 11 hours. Senior medical students and graduate students. Drs. Stenstrom and Knapp.
185. Interpretation of Roentgenograms. Junior or senior year. Prerequisite, Radiology 121; 11 hours. Drs. Rigler and Peterson.
186. Roentgen Technique. Junior or senior year. 22 hours. Dr. Rigler.
- 187a. Roentgen Anatomy of Bones and Joints. Same as Anatomy 148. Prerequisites, Anatomy 100 and 101; 11 hours. Dr. Borman.
- 187b. Roentgen Anatomy of Viscera. Prerequisites, Anatomy 100 and 101; 11 hours. Dr. Borman.
- 188a. Roentgen Diagnosis of Diseases of Bones and Joints. 11 hours. Dr. C. O. Hansen.
- 188b. Roentgen Diagnosis of Diseases of Thorax. 11 hours. Dr. M. B. Hanson.
- 188c. Roentgen Diagnosis of Diseases of Abdominal Viscera. 11 hours. Dr. Aurelius.
- 188d. Roentgen Diagnosis of Diseases of the Gastrointestinal Tract. 11 hours. Dr. Morse.
- 189a. Clinic in X-ray Diagnosis. 11 hours. University Hospital. Dr. Rigler.
- 189b. Clinic in X-ray Diagnosis. 11 hours. Minneapolis General Hospital. Dr. Ude.
190. Roentgen Diagnosis of the Head and Neck. Junior, senior, and graduate students. 22 hours. Dr. Peterson.
195. Clinic in X-ray Therapy. Junior or senior year. 11 hours. Dr. Stenstrom.
200. Research in Roentgenology. Hours and credits arranged. Dr. Rigler.
205. Research in Radiation Therapy. Hours and credits arranged. Dr. Stenstrom.
208. Radiology Seminar. 11 hours. Drs. Rigler and Stenstrom.

DIVISION OF PHYSICAL THERAPY

83. Muscle Function in Physical Therapy. A review of the muscular system in regard to origins and insertions. Analysis of body mechanics in relation to therapeutic exercises. 3 credits, 33 hours. Dr. Knapp and staff.

SURGERY

Departmental Office, University Hospital, E201

DIVISION OF GENERAL SURGERY

Professors Owen H. Wangenstein,* M.D., Ph.D., Director, Alexander R. Colvin, M.D., Arthur C. Strachauer,** M.D., Arthur A. Zierold, D.D.S., M.D., Ph.D.; Clinical Professors§ Walter A. Fansler, M.A., M.D., James A. Johnson, M.D., Harry B. Zimmerman, M.D.; Associate Professors Clarence Dennis,* M.D., Ph.D., John R. Paine,* M.D., Ph.D.; Clinical Associate Professors§ James K. Anderson, M.D., Orwood J. Campbell, M.D., Ph.D., L. Haynes Fowler, M.S., M.D., William A. Hanson, M.D., James M. Hayes, M.D., E. Mendelssohn Jones, M.D., Thomas J. Kinsella, M.D., N. Logan Leven, M.D., Ph.D., Stanley R. Maxeiner, M.D., Martin Nordland, M.D., Edward A. Regnier, M.D., M.S., Roscoe C. Webb, M.D., Oswald S. Wyatt, M.D.; Associate Professor Emeritus Archa E. Wilcox, M.D.; Assistant Professor Richard L. Varco,* M.D., Ph.D.; Clinical Assistant Professors§ George S. Bergh, M.D., Ph.D., Arthur F. Bratrud, M.D., Harry W. Christianson, M.D., George R. Dunn,** M.D., George D. Eitel, M.D., Victor P. Hauser, M.D., Earl C. Henrikson, M.D., M.S., Frank S. McKinney, M.D., Charles E. Rea,† M.D., Ph.D., Carl O. Rice, M.D., Ph.D., Wallace P. Ritchie, M.D., M.S., Emil C. Robitshek,** M.D., Willard White, M.D.; Clinical Assistant Professor Emeritus§ Edward Moren, M.D.; Professorial Lecturer Carl W. Waldron, M.D., D.D.S.; Instructors K. Alvin Merendino,* M.D., David State,* M.D., M.S.; Clinical Instructors§ Harry F. Bayard, M.D., William C. Bernstein,† M.D., Kenneth Bulkley, M.D., Richard R. Cranmer, M.D., John M. Culligan, M.D., M.S., Leo Culligan, M.D., D. Greth Gardiner, M.D., Harold E. Hullsiek, M.D., Bernard G. Lannin, M.D., Ph.D., Lawrence M. Larson, M.D., Ph.D., Donald C. MacKinnon,† M.D., Robert F. McGandy, M.D., Rolla I. Stewart, M.D.; Clinical Assistants§ U. Schuyler Anderson,† M.D., Edwin G. Benjamin, M.D., Theodor Bratrud, M.D., Robert M. Caron, M.D., Edward C. Emerson, M.D., John M. Feeney, M.D., Kenneth Fritzell,† M.D., Hamlin Mattson, M.D., Maynard C. Nelson,† M.D., Wallace Nelson, M.D., Horace G. Scott, M.D., M.S.; Medical Fellows Ivan Baronofsky, M.D., Schuyler P. Brown,† M.D., Jerome Ettinger, M.D., Stanley R. Friesen, M.D., David Gavisier, M.D., Lyle Hay, M.D., Howard Hall,† M.D., Fred Kolouch, M.D., Arnold Kremen, M.D., Robert McCleery, M.D., Frederick B. Mears,† M.D., Leonard F. Peltier, M.D., Beatty Ramsay,† M.D., Enrique Sanchez, M.D., J. Ordie Shaffer, M.D.; Medical Fellows at Minneapolis General Hospital Harry L. Berge, M.D., Robert G. Bronson, M.D., Gerhard Nesse, M.D., Walter P. Eder, M.D.

REQUIRED COURSES

121. Principles of Surgery. The basic principles of surgery, including anesthesia, anti-septics, asepsis, hemostasis, inflammations, and the process of the repair of tissues. Lectures and demonstrations. Sophomores. 33 hours; 3 credits. Drs. Knight, Dennis, Varco, Lannin, and Merendino.
122. Basic Principles Involved in the Diagnosis, Treatment, and Prognosis of Fractures and Dislocations. Juniors. 11 hours; 1 credit. Drs. Zierold, Campbell, and Regnier.

* Full-time appointment.

† On military leave.

§ Titles prefixed by "Clinical" indicate appointments on a part-time basis except as noted.

** Inactive status.

126. Orientation Course in General Surgery. A series of clinical lectures on regional surgery (exclusive of urology, orthopedics, and neurosurgery), emphasizing pathology, diagnosis and essentials of treatment. These lectures attempt to orient the student in his study and reading. Juniors. 11 hours; 1 credit. Surgical staff.
129. Surgical Clinics for Juniors. Amphitheater clinic demonstrating surgical conditions in hospital patients. 33 hours; 3 credits. Surgical staff.
135. Clinical Clerkship. The individual study of assigned patients: case histories, physical examinations, diagnostic procedures, provisional diagnoses, and consideration of therapy; attendance at operations and observation of postoperative care. Juniors. 260 hours; 6 credits. Surgical staff.
- 135a. Clinical Pathology of Tumors. A combined clinical and pathological consideration of tumors. In so far as available material permits, a systematic presentation of the manifestations and effects of malignant tumors which come in the province of general surgery and its divisions will be reviewed. Part of Course 135. University Hospitals. Surgical staff.
- 135b. Reading Course. A weekly recitation during the clerkship based on reading the surgical literature of an assigned topic.
- 135c. Medico-Surgical Pathological Conference. Weekly combined meetings of medical and surgical staffs in which the post-mortem findings of particularly interesting and instructive cases are discussed. Part of Course 135.
- 135d. Roentgenological-Surgical Conference. The films of all surgical patients presenting interesting roentgen findings are reviewed. (See also Radiology program.) Part of Course 135. Staffs of the Departments of Radiology and Surgery.
- 135e. Surgical Ward Conference. Weekly conference in which cases presenting interesting problems are discussed. Part of Course 135. Surgical staff.
- 135f. Outpatient Surgical Clinic, General Surgery, and Proctology. Sections daily in the Outpatient Department. Part of Course 135. Drs. Wangenstein, Paine, Dennis, Emerson, Varco, J. K. Anderson, and Merendino.
- 135g. Applied Surgical Anatomy. Weekly demonstrations in which by the use of dissections prepared by surgical fellows a systematic review of the regional anatomy of the major conditions coming within the purview of surgery and its specialties is presented. Part of Course 135. Surgical staff.
- 135h. Emergency Traumatic Surgery. Under the supervision of the hospital staff the student participates in the care of such cases. Part of Course 135. Minneapolis General Hospital surgical staff.
- 135k. Physiological-Surgical Conference. Weekly combined meetings of physiological and surgical staff in which cases of particular interest are discussed. (See also Physiology program.) Staffs of the Departments of Physiology and Surgery. No credit.
136. Surgical Specialties. The individual study of assigned patients on the urological, orthopedic, and neurosurgical services. History taking, examination, special studies, diagnosis, and therapy are considered, with attendance at operations. Seniors. 135 hours; 3 credits. Drs. Cole, Creevy, Peyton, Knight, and staff.
- 136d. Anesthetics. Administration of anesthetics under supervision. Part of Course 136. University Hospitals. Dr. Knight and staff.
138. Clerkship in Fractures and Dislocations. Seniors. Students are instructed and supervised in care of fracture cases and dislocations. Part of Course 136. Minneapolis General Hospital, Surgical staff.

ELECTIVE COURSES

139. Operative Surgery. The student is permitted to participate in surgical procedures on hospital patients in the operating room. Hours and credits arranged. Staff.

152. Problems in Clinical Investigations. A study of special case records correlated with literature study. Hours and credits arranged. Drs. Wangensteen, Creevy, Peyton, Paine, Dennis, and Varco.
167. Problems in Experimental Surgery. Students under supervision will investigate problems assigned to them. As their experience increases they are permitted to do the operations incident to their problems. Hours and credits arranged. Drs. Wangensteen, Creevy, Peyton, Paine, Dennis, and Varco.
169. Diagnostic Bedside Surgical Clinic. Hours and credits to be arranged. Minneapolis General Hospital. At least four students must register if course is to be given. Dr. Zierold.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

200. Outpatient Clinic in Surgery. The student is required to assist in the Outpatient Surgical Clinic, and to participate in diagnosis and treatment. University Hospital surgical staff.
201. Outpatient Clinic in Surgery. Minneapolis General Hospital surgical staff.
202. Applied Surgical Anatomy on the Cadaver. Surgical fellows prepare dissections with staff supervision.
203. Proctoscopy and Sigmoidoscopy. The diagnosis and treatment of lesions of the lower bowel. University Hospital surgical staff.
- 203a. Proctoscopy and Sigmoidoscopy. Minneapolis General Hospital surgical staff.
204. Tumor Clinic. A combined clinical and pathological consideration of tumors as seen by the general surgeon. University Hospital surgical staff.
214. Surgical Ward Conference. Presentation of interesting cases by the students. University Hospital surgical staff.
215. Roentgenological-Surgical Conference. A weekly review of the films of all surgical patients. Staffs of the Departments of Radiology and Surgery.
218. Medical and Surgical Pathological Conference. Review of interesting cases by the medical, surgical, and pathological staffs.

COURSES PRIMARILY FOR GRADUATE STUDENTS (GENERAL SURGERY)

205. Surgical Diagnosis. The surgical fellow assists in the instruction of the clinical clerks and interns, and studies problems in diagnosis in the Outpatient Department and in the University Hospital. Drs. Wangensteen, Dennis, Paine, Rea, Buirge, Varco, and Bernstein.
208. Surgical Service. The surgical fellow acts as house surgeon at the University Hospital. Drs. Wangensteen, Paine, Dennis, Leven, Rea, Varco, and Bernstein.
211. Operative Surgery. The surgical fellow acts as first assistant at operations in the University Hospitals, and later may be permitted to operate. Drs. Wangensteen, Paine, Dennis, Leven, Rea, Varco, and Bernstein.
216. Surgical Research. Problems in experimental or clinical surgery. University Hospital surgical staff.
217. Surgical Seminar. Conferences for review of surgical literature, for presentation of cases, and as research. University Hospital surgical staff.
225. Surgical Diagnosis. Minneapolis General Hospital. Drs. Zierold, Campbell, Fansler, and Regnier.
228. Surgical Service. Minneapolis General Hospital. Drs. Zierold, Campbell, Dennis, Fansler, and Regnier.
231. Operative Surgery. Minneapolis General Hospital. Drs. Zierold, Campbell, Dennis, Fansler, and Regnier.

236. Surgical Research. Minneapolis General Hospital. Drs. Zierold, Campbell, Dennis, Fansler, and Regnier.
237. Surgical Seminar. Minneapolis General Hospital. Surgical staff.

DIVISION OF NEUROSURGERY

Professors William T. Peyton,* M.D., Ph.D., Director, Arthur A. Zierold, D.D.S., M.D., Ph.D.; Clinical Professor Emeritus§ J. Frank Corbett, M.D.; Clinical Assistant Professors§ George R. Dunn,** M.D., Wallace P. Ritchie, M.D., M.S.; Clinical Instructors§ Harold F. Buchstein, M.D., M.S.; Medical Fellows Lyle A. French, M.D., Donald Simmons, M.D.

REQUIRED COURSES

127. Surgical Diseases of the Nervous System. Lectures on the surgical diseases of the brain, spinal cord, meninges, peripheral nerves, and sympathetic nervous system. Juniors. 11 hours; 1 credit. Dr. Peyton and associates.
162. Outpatient Clinic in Neurosurgery. Examination and observation of patients with surgical diseases of the nervous system before and after operation. Part of Course 136.
163. Clinical Clerkship in Neurosurgery. Case studies. Part of Course 136.

ELECTIVE COURSES

164. Head Injuries. Minneapolis General Hospital. Junior or senior year. 11 hours; 1 credit. Dr. Zierold and associates.

COURSES FOR GRADUATE STUDENTS IN NEUROSURGERY

305. Neurosurgical Diagnosis. The neurosurgical fellow assists in the instruction of the clinical clerks and interns, and studies problems in diagnosis in the Outpatient Department and in the University Hospital. Dr. Peyton.
308. Neurosurgical Service. The neurosurgical fellow acts as house surgeon at the University Hospital. Dr. Peyton.
311. Operative Neurosurgical Surgery. The neurosurgical fellow acts as first assistant at operations in the University Hospital, and later may be permitted to operate. Dr. Peyton.
316. Neurosurgical Research. Problems in experimental or clinical surgery. University Hospital surgical staff. Dr. Peyton.
318. Neurosurgical Conference. A review of X rays and case histories on neurosurgical service.

DIVISION OF ORTHOPEDICS¶

Professors Wallace H. Cole, M.D., Director; Associate Professor Emeritus Charles A. Reed, M.D.; Clinical Associate Professors§ Carl C. Chatterton, M.D., Edward T. Evans, M.D.; Clinical Assistant Professors§ Paul W. Giessler, M.D., John H. Moe, M.D., John F. Pohl, M.D.; Clinical Instructors§ Harry Hall, M.D., M.S., Vernon L. Hart, M.D., Myron O. Henry, M.D., Stewart W. Shimonek, M.D., William von der Weyer, M.D., George A. Williamson, M.D.; Clinical Assistants§ John D. Galloway,† M.D., Meyer Z. Goldner, M.D., Mavlin Nydah1, M.D.; Medical Fellow Forrest H. Foreman, M.D.

* Full-time appointment.

† On military leave.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis.

¶ All members of this division are on part-time basis.

** Inactive status.

REQUIRED COURSES

140. Orthopedic Surgery in Children. Clinical lectures, demonstrations, and operations. Juniors. 11 hours; 1 credit. Drs. Cole, Chatterton, and others.
142. Lectures in Orthopedic Surgery. Orthopedic conditions in the adult; lantern slides and demonstrations. Juniors. 11 hours; 1 credit. Orthopedic surgery staff.
145. Orthopedic Outpatient Clinic. Part of required section clinics. Three times weekly. Part of Course 136.

COURSES FOR GRADUATE STUDENTS IN ORTHOPEDICS

405. Orthopedic Diagnosis. The orthopedic fellow assists in the instruction of the clinical clerks and interns, and studies problems in diagnosis in the Outpatient Department and in the University Hospital. Dr. Cole.
408. Orthopedic Service. The orthopedic fellow acts as house surgeon at the University Hospitals. Dr. Cole.
411. Orthopedic Operative Surgery. The orthopedic fellow acts as first assistant at operations in the University Hospital, and later may be permitted to operate.
416. Orthopedic Research. Problems in experimental or clinical surgery. University Hospital. Dr. Cole.

DIVISION OF ANESTHESIA¶

Clinical Professor Ralph T. Knight, M.D., Director; Associate Professor Joseph Baird, M.D.; Clinical Associate Professor§ Stanley R. Maxeiner, M.D.; Assistant Professor A. William Friend, M.D.; Instructor Frank Cole, M.D.; Medical Fellow Isadore Kremen, M.D.

- 121b. Principles of Anesthesia. Part of Course 121. 5 lectures. Dr. Knight.
- 136e. Individual Instruction in Anesthesia. Part of Surgical Specialties, Surgery 136.
- 136g. Clinical Conferences in Anesthesia. Part of Surgical Specialties, Course 136.

ELECTIVE COURSES

165. Clinical Anesthesia. Selected students may spend additional time in the clinical administration of anesthetics. Dr. Knight.

COURSES FOR UNDERGRADUATE AND GRADUATE STUDENTS

104. Principles of Anesthesia. Lectures and conferences. 11 hours; 1 credit. Dr. Knight.

COURSES PRIMARILY FOR GRADUATE STUDENTS

266. General Anesthesia. Instruction and experience in general and regional anesthesia. Dr. Knight.
267. Pre- and Post-operative Evaluation. Selection of the proper anesthetic and observation of its after-effects upon the patient. Dr. Knight.
268. Research in Anesthesia. Qualified students may investigate problems in anesthesia either in the laboratory of experimental surgery or in the hospital. Dr. Knight.
269. Seminar in Anesthesia. Regular conferences for review of anesthesia literature and reports on interesting cases and problems, as well as of research work being done by the Division of Anesthesia. Dr. Knight.

† On military leave.

§ Titles prefixed by "clinical" indicate appointments on a part-time basis.

¶ All members of this division are on part-time basis.

DIVISION OF UROLOGY¶

Professors C. D. Creevy, M.D., Ph.D., Director; Clinical Associate Professors§ Frederick E. B. Foley, M.D.; Clinical Assistant Professor§ Theodore H. Sweetser, M.D.; Clinical Instructors§ Philip F. Donohue, M.D., Joseph C. Giere, M.D., William J. Noonan, M.D., Francis X. Roach, M.D., Ragner T. Soderlind, M.D., Edgar Webb, M.D.; Clinical Assistants§ Irving Farshat, M.D., Richard F. Leick,† M.D., Edward G. Olsen,† M.D., Theodore L. Stebbins,† M.D.; Medical Fellows George B. Eaves, M.D., Baxter A. Smith, Jr., M.D.

REQUIRED COURSES

170. Clinical Clerkship in Urology. Case studies. Part of Course 136.
 170a. Cystoscopic Clinic. Demonstration of cystoscopy. Part of Course 136. Hours and credits arranged. Staff.
 170b. Outpatient Clinic in Urology. The observation, examination, and treatment of patients. Seniors. Part of Course 136. Urological staff.
 172. Conference in Urology. Seniors. 9 hours; 1 credit.
 173. Clinics in Urology. The etiology, diagnosis, and treatment of diseases of the urogenital tract. Seniors. 22 hours; 2 credits. Urological staff.

ELECTIVE COURSES

160. Clinic in Urology at Minneapolis General Hospital. Seniors. 17 hours. Dr. Sweetser.
 161. Clinic in Urology at Ancker Hospital. Seniors. 17 hours. Drs. Foley and Donohue.

COURSES FOR GRADUATE STUDENTS

250. Urological Surgery.
 251. Cystoscopy and Urological Diagnosis.
 252. Urological Conference.
 253. Research in Urology.

Details will be found in the Bulletin of the Graduate Medical School.

SCHOOL OF NURSING

(With departmental status)

Professor Katharine J. Densford, R.N., M.A., D.Sc., Director.

See School of Nursing Bulletin.

UNIVERSITY HOSPITAL

(With departmental status)

Ray M. Amberg, Ph.C., Superintendent.

† On military leave.

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¶ All members of this division are on part-time basis.

MEDICAL SCHOOL

DIVISION OF DIETETICS

Assistant Professor Gertrude I. Thomas, Director.

For courses see School of Nursing Bulletin and special circular.

DIVISION OF SOCIAL SERVICE

Associate Professor and Director of Social Service Department Frances M. Money, M.S.; Instructors and Medical Social Workers Lydia B. Christ, B.A., Evelyn Parkin, B.A., Frances D. Boone, M.A.; Medical Social Workers Miriam C. Andrus, M.A., Elizabeth D. Moses, M.A., Grace Fooshé, M.A., Frieda Van Hale, M.A.; Assistant Professor and Chief of Psychiatric Social Work, Charlotte Henry, M.A.; Instructor and Psychiatric Social Worker, Joe Ann Kramer, B.A.; Psychiatric Social Worker, Betty Lightman, B.A.

INTERDEPARTMENTAL INSTRUCTION

CORRELATION CLINICS

Regular weekly clinics are held for both the freshman and sophomore classes. The aim is to emphasize the condition of various patients in terms of the fundamental sciences.

Freshman year: first quarter, General Introduction, Dr. O'Brien; second quarter, Anatomy, Physiology, Bacteriology; third quarter, Anatomy, Physiology, Bacteriology.

Sophomore year: first quarter, Bacteriology, Anatomy, Physiology; second quarter, Physiology, Pathology, Pharmacology; third quarter, Physiology, Pathology, Pharmacology.

SPECIAL COURSES

Orientation to Practice. Last quarter of senior year. 15 hours. Dr. Weaver and others.
Military Medicine. Second quarter of senior year. 33 hours. Dr. O'Brien and others.

INSTITUTE OF TECHNOLOGY

SCHOOL OF CHEMISTRY

Any advanced work given in the School of Chemistry may be elected for credit in the Medical School. Such courses as Colloid Chemistry, 128, 129, 130 by Dr. Reyerson, and Organic Chemistry 142-143, The Chemistry of Natural Products, by Drs. Lauer and Arnold are recommended.

For description of these courses see Bulletin of the Institute of Technology.

DEPARTMENT OF ZOOLOGY

(Contributing elective courses to the Medical School)

For faculty, see the Science, Literature, and the Arts Bulletin.

51.†Introductory Animal Parasitology. An elementary course dealing with parasitic Protozoa, worms, and anthropods, and their relation to diseases of man and animals. 5 credits. Dr. Cuckler.

- 107‡-108‡ Protozoology. Lectures, laboratory, and reference work. 3 credits each quarter. Dr. Osterud.
- 144‡-145‡-146.*‡ Animal Parasites and Parasitism. 3 credits each quarter. Dr. Cuckler.
147. Tropical Medicine. 66 hours; 3 credits. Dr. Cuckler and co-operating members of medical staff.
- 170‡-171‡ Advanced Genetics. 3 credits. Dr. Oliver.
- 180‡ Comparative Embryology. 3 credits. Dr. Ringoen.
181. Endocrines and Reproduction. 3 credits. Dr. Ringoen.
182. Experimental Embryology. Lectures and discussions of the more recent investigations in developmental mechanics. 3 credits. Dr. Ringoen.

This department through Dr. Oliver also contributes ten lectures on genetics with special medical reference to Course 103, Department of Physiology.

* 144-145 is a 6-credit course. 146 (3 credits) may be taken simultaneously with 145, at hours to be arranged.

‡ A fee of \$1 is charged for this course.