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Bulletin of the

UNIVERSITY OF MINNESOTA



College of Pharmacy 1953-1955

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Volume LVI

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GENERAL INFORMATION

COURSES OF STUDY

The College of Pharmacy offers one undergraduate course of four academic years leading to the degree of bachelor of science in pharmacy (B.S. in Phm.).

The College of Pharmacy and the School of Business Administration offer an optional combined course in pharmacy and business administration leading to the degrees of 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. See page 11.

Graduate study with major work in pharmaceutical chemistry or pharmacognosy, leading to the degrees of master of science (M.S.) and doctor of philosophy (Ph.D.), respectively, is offered by the Graduate School. Graduate work with a major in pharmaceutical chemistry or pharmacognosy is open to those students who have shown exceptional scholarship and ability in the undergraduate course of this or some other college of pharmacy of equal standing. Consideration will be given to the applications of those students who are not graduates in pharmacy but whose pattern of undergraduate work includes training in such allied or related subjects as would implement them to pursue work successfully at the graduate level with a major in pharmaceutical chemistry or pharmacognosy. Detailed information on graduate courses in pharmaceutical chemistry and pharmacognosy is contained in the *Bulletin of the Graduate School*.

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 Office 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 Office 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. Directions for registration will be sent to successful applicants.

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 bookkeeping, higher algebra, solid geometry, trigonometry, 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 10. Those students who have had one unit of higher algebra and/or one-half unit of trigonometry in high school, should refer to footnote (†) on page 10 before entering another college or university to complete the required subjects of the first year of the pharmacy curriculum. See Admission to the Professional Work of the Sophomore Year in Pharmacy, page 5.

A review of the pharmacy curriculum will show it to be comprised of 208 credit hours of work in professional, scientific, and pharmacy 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 Committee on Student Scholastic Standing.

ADVANCED STANDING STUDENTS

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 of mature age and experience (generally 24 years of age or older) who desire a specific and limited course of study and who are not at present candidates for an undergraduate degree, or persons who hold Bachelor degrees, may, upon approval of the dean of the college concerned, be admitted as adult special students. An adult special student may not become a candidate for a degree without the approval of his college, nor will advanced standing be allowed while the student is in the adult special classification. Applicants as adult specials are subject to the ruling on residency. 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. (See graduation requirements, page 5.)

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 canceled without grade. An extension of time may be permitted for removal of incomplete grades upon recommendation of the instructor concerned and approval of the Committee on Student Scholastic Standing 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 Committee on Student Scholastic Standing of the college concerned upon the recommendation of the instructor but removal of incomplete 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 persist-

Supplement to the

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UNIVERSITY OF MINNESOTA

College of Pharmacy 1953-1955

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NEW PHARMACY CURRICULUM

(1 year Prepharmacy, 4 years Pharmacy)

Upon the recommendations of the faculty of the College of Pharmacy, the All-University ad hoc committee appointed by the President to study the proposed 1-4 curriculum in pharmacy, and with the endorsement of the Administrative Committee of the Senate, the Board of Regents of the University of Minnesota at its meeting on June 13, 1953, approved the proposed 1-4 curriculum in pharmacy to become effective beginning the fall of 1954.

Students from high school who begin their college attendance in the fall of 1953 will be under the old curriculum and with normal progress may expect to graduate in four years.

Students entering from high school in the fall of 1954 will follow the new curriculum (1 year prepharmacy, 4 years pharmacy) which requires five years for completion.

The requirements for admission to the first year in pharmacy under the new curriculum are the same as the requirements for admission to the professional work of the sophomore year in pharmacy (old curriculum) described on page 5 of the 1953-55 *Bulletin of the College of Pharmacy*.

New Pharmacy Curriculum

PREPHARMACY YEAR

(In the College of Science, Literature, and the Arts or at any accredited college.)

Course	Credits		
	Fall	Winter	Spring
Inorganic Chemistry 6-7, 12.....	5	5	5
*Mathematics 15-16	—	5	5
†Communication 1-2-3	4	4	4
*Pharmacy 1	3	—	—
Electives	3	—	—
Total	15	14	14

FIRST YEAR PHARMACY

Zoology 1-2-3	3	3	4
Botany 1-2	3	3	—
Pharmacy 3	—	—	3
Pharmaceutical Chemistry 1-2.....	—	4	4
Physics 4-5-6	5	5	5
Public Health 50.....	3	—	—
Total	14	15	16

SECOND YEAR PHARMACY

Bacteriology 53	—	—	5
Anatomy 5	—	5	—
Organic Chemistry 61-62-63.....	4	4	3
Pharmaceutical Chemistry 54-55.....	5	5	—
Pharmacognosy 1-2-3	3	3	3
Economics 8-9	3	—	3
Electives	—	—	3
Total	15	17	17

* A student who is pursuing his prepharmacy year at an accredited institution other than the University of Minnesota may substitute college algebra, 5 quarter credits, and trigonometry, 5 quarter credits, for Mathematics 15-16 and may defer Pharmacy 1 until his first year in pharmacy.

† Comp. 4-5-6, 3 credits per quarter, may be substituted for Comm. 1-2-3; if so, 3 additional elective credits could be taken winter or spring quarter.

ently poor scholarship 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*. See *Class Schedule* issued at registration for course fees.

ADMISSION OF HIGH SCHOOL GRADUATES

Diplomas or other evidences of the completion of an accredited 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*.

ADMISSION TO THE PROFESSIONAL WORK OF THE SOPHOMORE YEAR IN PHARMACY

In order to maintain instruction at the necessary professional level, it is imperative to restrict admissions to the sophomore year in the College of Pharmacy. Students interested in entering the sophomore year of this college at the beginning of any fall quarter should apply for admission as soon as possible after completion of the required work of the freshman year, and not later than August 1. Applications should be accompanied by an official transcript of the student's record. These applications will be reviewed and all applicants will be notified within thirty days after complete application and transcript have been received. All resident applicants with honor point ratios of 1.5 (C plus) or above, meeting all prerequisites, will be admitted to the sophomore year. Nonresident applicants will be considered individually. Other applicants (those with honor point ratios below 1.5 and those removing deficiencies) will be considered individually and will be notified of their admission status either before or shortly after September 1.

Students who plan to complete course deficiencies during a Summer Session should proceed as indicated above, being sure to supply information on (1) deficient subjects to be removed; (2) the dates of Summer Sessions at which work will be taken; (3) the college at which the courses will be pursued; and (4) application for admission to the professional work of the sophomore year in pharmacy.

Application forms may be used by present pharmacy freshmen at the University of Minnesota. Additional copies are obtainable at the college office, 101 Wulling Hall. Other students in the University should also obtain forms for change of college at window 5, Office of Admissions and Records. Students requesting admission with advanced standing from other institutions may obtain other necessary application forms at window 4 of the Office of Admissions and Records, University of Minnesota, Minneapolis 14.*

GRADUATION REQUIREMENTS

An over-all C average in the required and elective courses in the curriculum is a requirement for graduation. Scholastic averages for graduation will be based

* NOTE: It is the responsibility of these students to submit to the Office of Admissions and Records complete official transcripts, indicating honorable dismissal, at the conclusion of all work at any other college or university. Final action on each such admission will be deferred pending receipt of this material.

only on work completed at the University of Minnesota. In addition, all candidates for the degree of bachelor of science in pharmacy are required to pass a comprehensive examination covering the four years of work as set forth in the curriculum. The comprehensive examination will be given during the spring quarter final examination period.

A student who has met all other requirements for graduation but has failed in the comprehensive examination is eligible for re-examination during the week immediately preceding any subsequent announced commencement. Application for re-examination must be made at the college office not less than fifteen days prior to the particular examination he wishes to take. A fee of \$5 is charged for each re-examination.

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 a 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 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.

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, (1) notice of employment form showing the date his apprenticeship began, and (2) an affidavit by his employer 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 Minnesota 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.

MINNESOTA 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 all matters coming under the jurisdiction of the State Board, address Secretary of the Minnesota State Board of Pharmacy, 3965 Minnehaha Avenue South, Minneapolis 6, Minnesota.

THIRD YEAR PHARMACY

Course	Credits		
	Fall	Winter	Spring
Pharmacy 54-55-56	4	4	4
Pharmacognosy 55-56-57	3	3	3
Physiology 4	4	.....	.....
Pharmaceutical Chemistry 161-162-163.....	3	3	4
Pharmaceutical Chemistry 53.....	.....	.....	5
Economics 24-25	3	3	.....
Electives .....	.....	3	.....
Total	17	16	16

FOURTH YEAR PHARMACY

Pharmacy 58-59-60	5	5	5
Pharmacy 70 .....	.....	.....	1
Pharmacy 71 .....	.....	.....	3
Pharmacy 64 .....	.....	.....	3
Business Administration 67.....	4	.....	.....
Pharmacognosy 59 .....	.....	3	.....
Pharmacology 101-105-106	2	6	2
Public Health 75.....	3	.....	.....
Professional Electives	3	3	3
Total	17	17	17

Professional Electives—Each student is required to elect 9 quarter credits of professional electives. Any combination of subjects would be acceptable. The six combinations which follow are suggested in order to permit a student to specialize in a particular phase of pharmacy.

Students interested in pharmaceutical chemistry, considering graduate work:

1. Physical Chemistry 107-108 (f-w), 6 cr.; and Organic Chemistry 64 (s), 3 cr.
2. Pharmaceutical Chemistry 164-165 (f-w), 6 cr.; and Organic Chemistry 64 (s), 3 cr.

Students interested in pharmacy, retail store, hospital, manufacturing:

3. Pharmacy 65-68-69 (f,w,s), 9 cr.
4. Pharmacy 65-66-67 (f,w,s), 9 cr.

Students interested in biology, considering graduate work, retail store, manufacturing:

5. Pharmacy 72 (f), 3 cr.; and Pharmacognosy 162-164 (w,s), 6 cr.
6. Pharmacognosy 60-61-164 (f-w-s), 9 cr.

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.

PHARMACEUTICAL MILITARY SCIENCE AND TACTICS

Elective Course

On July 1, 1948, a Pharmacy Reserve Officers Training Corps unit was established at the College of Pharmacy as a component of the Department of Military Science and Tactics, University of Minnesota, by the Department of the Army, General Orders, No. 34, dated May 20, 1948.

This elective course in pharmaceutical military science is given by an officer of the Medical Service Corps of the Army, detailed by the Surgeon General. It is a progressive course of four years, with 32 hours of instruction annually, arranged as an hour conference or weekly lecture.

Any male citizen who is regularly enrolled in the College of Pharmacy and who meets the physical and other requirements for an Army Reserve Commission is eligible to take the course. Students who hold commissions in Army Reserve units are eligible, but members of the Navy or Marine Corps Reserve cannot be officially enrolled unless they resign such commissions. Students who have been honorably discharged after more than 6 months of active service with any component of the Armed Forces may elect exemption from the first year of instruction and those with more than 12 months of honorable service may elect exemption from the first two years of instruction with the approval of the Professor of Military Science and Tactics.

No uniform is worn, there are no drill periods, and the obligation assumed is to complete the advanced course if started, to accept a commission in the Army Reserve if offered, and to accept orders to active duty for a period of two years if the national situation provides for such service on the part of ROTC graduates.

Admission to the advanced Pharmacy ROTC course will be limited to those who have maintained a satisfactory scholastic standing during their freshman and sophomore years and who have made satisfactory progress in the basic Pharmacy ROTC courses. There is a six-week camp at Fort Sam Houston, Texas, during the summer after the second or third year of instruction. The student receives a monthly stipend from the government during the last two years, and is paid for camp attendance and transportation to and from the camp. On receiving his degree in pharmacy, the graduate of this course in pharmaceutical military science will receive a commission in the Medical Service Corps Reserve.

This course is designed to supplement the regular pharmacy curriculum so that the pharmacy graduate may be better qualified in case of national emergency, thus benefiting his country and himself.

For further information see description of courses on page 12.

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 EDUCATION 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 and/or biological manufacturer. Students are urged to make at least one of these trips at some time during their four years in college.

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 Committee on Student Scholastic Standing.

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 is 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 Phm. 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.

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

Graduate fellowships have been made available by the American Foundation for Pharmaceutical Education to graduate students majoring in pharmaceutical subjects. Applications for such fellowships should be made directly to the American Foundation for Pharmaceutical Education, 1450 Broadway, New York City.

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 Phm., and 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 Phm., and who has earned the second highest general average rating during the four years of undergraduate study.

Merck Award—Merck and Company, Inc., manufacturing chemists of Rahway, New Jersey, offers annually the Merck Award to two senior students in the College of Pharmacy who have earned the highest scholastic average in the three years of professional work. This award consists of the *Merck Index* and *Merck Manual*.

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

Correspondence relating to registration or advanced standing should be addressed to the Office of Admissions and Records, University of Minnesota, Minneapolis 14. 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 Office of the Dean, College of Pharmacy, University of Minnesota, Minneapolis 14.

COURSES OF STUDY

The College of Pharmacy offers one four-year course in pharmacy and one optional combined course in pharmacy and business administration.

The Graduate School offers courses in pharmaceutical chemistry and pharmacognosy. (See *Bulletin of the Graduate School.*)

Four-Year Course

The College of Pharmacy offers one undergraduate course of four years' duration leading to the degree of bachelor of science in pharmacy. This course includes one year of work in certain subjects in the College of Science, Literature, and the Arts, or other college of equal standing.

Course	Credits		
	Fall	Winter	Spring
FIRST YEAR			
*Botany 1-2	3	3	.....
Inorganic Chemistry 6-7, 12	5	5	5
Composition 4-5-6	3	3	3
†Mathematics 1, 6 .....	.....	5	5
Public Health 3 .....	.....	.....	2
§Military Science and Tactics 1-2-3	0	0	0
Pharmacy 1	2	0	0
Total	13	16	15
SECOND YEAR			
Pharmacy 2, 3	1	.....	3
Pharmaceutical Chemistry 1-2	4	4	.....
Pharmacognosy 1-2-3	3	3	3
Anatomy 5 .....	.....	.....	5
Organic Chemistry 61-62	4	4	.....
Physics 1a-2a-3a	4	4	4
Zoology 14-15	3	3	.....
§Military Science and Tactics 4-5-6	0	0	0
Total	19	18	15
THIRD YEAR			
Pharmacy 54-55-56	5	5	5
Pharmaceutical Chemistry 161-162-163	3	4	3
Pharmacognosy 55-56-57	3	3	3
Pharmacy 57	1	.....	.....
Physiology 4	4	.....	.....
Bacteriology 53 .....	.....	.....	5
Economics 10f	3	.....	.....
Economics 30 .....	.....	3	.....
Business Administration 67 .....	.....	.....	3
Public Health 51 .....	.....	3	.....
§Military Science and Tactics 151-152-153	0	0	0
Total	19	18	19

* A student who is pursuing the first year of the pharmacy curriculum at some accredited institution, other than the University of Minnesota, must present a minimum of 6 quarter credit hours of botany to meet this requirement. Also, a course in Public Health 3 is offered by correspondence for such students.

† A student who has completed one unit of high school higher algebra and/or one-half unit of high school trigonometry may register for Math. 1 and/or Math. 6 for credit or *must* substitute elective credits of equal value approved by the Committee on Student Scholastic Standing.

§ Elective: Three quarter credits in Pharmacy ROTC may be used toward 10 quarter credits of electives in the freshman year.

Course	FOURTH YEAR		
	Fall	Winter	Spring
Pharmacy 58-59-60	5	4	4
Pharmacy 64 .....	.....	.....	2
Pharmacy 65	2	.....	.....
Pharmacy 70	1	.....	.....
Pharmacy 71 .....	.....	.....	3
Pharmaceutical Chemistry 54-55	5	5	.....
Pharmaceutical Chemistry 53 .....	.....	.....	5
Pharmacognosy 59	3	.....	.....
Pharmacology 101-105-106	2	6	2
‡Professional electives .....	.....	3	3
§Military Science and Tactics 154-155-156	0	0	0
Total	18	18	19
Grand Total	69	70	68 207

Optional Combined Course in Pharmacy and Business Administration

The College of Pharmacy and the School of Business Administration offer an optional combined course in pharmacy and business administration leading to the degrees of bachelor of science in pharmacy and bachelor of business administration. 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. Requirements for these degrees are: (1) the completion of all courses, except Economics 10 and 30 listed in the four-year course in pharmacy; and (2) completion of the following courses in business administration:

	Credits
Econ. 8-9 (General Economics)	6
Econ. 28 (Business Law)	3
Econ. 22-23 (Principles of Accounting)	8
B.A. 58 (Elements of Public Finance)	3
B.A. 70 (Statistics Survey)	3
B.A. 89 (Production Management)	3
B.A. 77 (Survey in Marketing)	3
B.A. 67 (Retail Store Management for Pharmacy Students)	3
B.A. 130 (Cost Accounting Survey)	3
B.A. 112 (Business Statistics)	3
Econ. 142 (Monetary and Banking Policy)	3
B.A. 88 (Advertising)	3
B.A. 155 (Corporation Finance)	3
B.A. 180-181-182C (Senior Topics: Marketing)	9
Econ. 149 (Business Cycles)	3
Econ. 161 (Labor Problems and Trade Unionism)	3
Econ. 80-81 (Intermediate Economic Analysis)	6
Total five years	68

‡ Elective: Three quarter credits in Pharmacy ROTC may be used toward 10 quarter credits of electives in the freshman year.

‡ Professional electives:

1. Pharmacy 66-67 (Pharmaceutical Manufacturing), 6 credits
2. Pharmacy 68-69 (Hospital Pharmacy), 6 credits
3. Pharmaceutical Chemistry 164-165 (Special Analytical Methods), 6 credits
4. Pharmacognosy 60-61 (Pharmacognosy and Pharmaco-Histology), 6 credits
5. Pharmacognosy 162 (Biological Assay of Drugs), 3 credits. (Students who elect biological assay of drugs as their professional elective for the winter quarter must take insecticides and fungicides for their spring quarter professional elective.)
6. Pharmacognosy 164 (Insecticides and Fungicides), 3 credits
7. Pharmacy 72 (Veterinary Products), 3 credits. Lecture course only; three lectures a week. (Students who elect veterinary products as their professional elective for the winter quarter must take insecticides and fungicides for their spring quarter professional elective.)
8. Organic Chemistry 63,64 (Elementary Organic Chemistry), 5 credits. (See page 17.)

No credit will be given for professional electives 1, 2, 3, 4 until the work of the two quarters in the same elective is completed.

If the professional and administration courses are taken concurrently, it is estimated that between five and six academic years will be necessary to meet the requirements for both of these degrees. There is the possibility that by taking business administration courses during the terms of Summer Session, the time necessary to meet the requirements for these degrees could be reduced to the minimum (five years).

DESCRIPTION OF COURSES

Courses Offered in the College of Pharmacy

Following each course is a statement in parentheses of credits, classes of students eligible, prerequisites, and number of lectures and laboratory hours per week. Thus (4 cred.; sr.; prereq. Pharm. 56; 2 lect. and 6 lab. hrs. per wk.) means the course offers 4 credits; is open to seniors; that Pharmacy 56 is a prerequisite; and carries 2 lectures and 6 hours of laboratory per week.

All sophomores, juniors, and seniors are required to purchase a \$5 Pharmacy Deposit Card from the Bursar. Pharmacy course fees, breakage, and supplies will be deducted from these cards. Pharmacognosy course fees: 55, 56—\$3.00; 162, 163—\$5.00.

PHARMACY

Professors Charles V. Netz, Ph.D., Head, Charles H. Rogers, Sc.D., Willard J. Hadley, Ph.D.; Assistant Professor Robert H. Miller, Ph.D.; Chief Pharmacist Hallie Bruce, Phm.G.; Special Lecturers Richard H. Bachelder, LL.B., John R. Hartmann, Director of Safety, Minnesota Chapter, American Red Cross; Graduate Assistants; Student Pharmacist Supervisors Stewart Brokaw, B.S. in Phm., Harold Rafferty.

- 1f. Orientation. General survey of pharmacy and related sciences. Includes: (1) university environment and student activities; (2) Minnesota Pharmacy Law; (3) State Board regulations; (4) the Minnesota Preceptor Plan; (5) use of library, catalogs, periodical indexes, and pharmaceutical reference books; (6) aims and accomplishment of state and national pharmaceutical, medical, chemical, and educational organizations. (2 cred.; fr., soph.; no prereq.; 2 lect. hrs. per wk.) Rogers
- 2f. Pharmaceutical Latin. Latin and Latinized words and constructions commonly encountered in pharmaceutical practice. (1 cred.; soph.; no prereq.; 1 lect. hr. per wk.) Miller
- 3s. Pharmaceutical Calculations. Weights and measures, balances, thermometry, specific gravity, calculations of doses, and percentage and stock solutions. (3 cred.; soph.; no prereq.; 3 lect. hrs. per wk.) Netz
- 54f-55w-56s. Pharmaceutical Preparations. (15 cred.; jr.; prereq. Pharm. 2, 3, Org.Chem. 62, Pharm.Chem. 2; 3 lect. and 6 lab. hrs. per week per qtr.) Hadley
 - 54f—Waters, infusions, decoctions, syrups, honeys, solutions, injections, lotions, magmas, gels, and mixtures.
 - 55w—Spirits, elixirs, tinctures, fluidextracts, extracts, powders, mucilages, glycerites, soaps, liniments, collodions, and sprays.
 - 56s—Resins, oleoresins, plasters, petroxolins, ointments, cerates, pastes, jellies, emulsions, effervescent salts, suppositories, masses, pills, tablets, troches, dental and cosmetic preparations.

- 57f. History of Pharmacy. Development of pharmacy from 1500 B.C., including pharmaceutical literature, education, legislation, and organizations. (1 cred.; jr.; no prereq.; 1 lect. hr. pr wk.) Miller
- 58f-59w-60s. Prescription Compounding. Compounding and dispensing of prescriptions written in actual medical practice with special attention to incompatibilities. (13 cred.; sr.; prereq. Pharm.Chem. 2, 163, Pharmacog. 57, Pharm. 56; fall: 3 lect. and 6 lab. hrs. per wk., winter: 2 lect. and 6 lab. hrs. per wk., spring: 2 lect. and 6 lab. hrs. per wk.) Netz, Miller
- 64s. Pharmaceutical Jurisprudence. 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 pharmacy; common legal problems of practical importance to the pharmacist. (2 cred.; sr.; no prereq.; 2 lect. hrs. per wk.) Bachelder
- 65f. Cosmetics. Composition and methods of manufacture of powders, creams, lotions, soaps, and other cosmetic products. (2 cred.; sr.; prereq. Pharm. 56, Org.Chem. 62; 2 lect. hrs. per wk.) Netz
- 66w-67s. Pharmaceutical Manufacturing. Problems involved in the production of pharmaceutical preparations on a pilot-plant scale. Formula development and product stabilization. Manufacture of compressed tablets. Simple and enteric tablet coating and polishing. Milling of ointments. Preparation of granulations, colloidal suspensions, solutions, etc. Registration limited. Professional elective. (6 cred.; sr.; prereq. Pharm. 56; 1 lect. and 6 lab. hrs. per wk.) Miller
- 68w-69s.* An Introduction to Hospital Pharmacy. Training for those who expect to practice in a hospital pharmacy. Includes 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 allergenic extracts. Registration limited. Professional elective. (6 cred.; sr.; prereq. Pharm. 58; 1 lect. and 6 lab. hrs. per wk.) Bruce
- 70f. First Aid. The standard American Red Cross First Aid course. (1 cred.; sr.; no prereq.; 1 lect. hr. per wk.) Hartmann
- 71s. Pharmaceutical Specialties. New drugs, medicinal preparations, and sickroom supplies. Lectures by representatives of pharmaceutical manufacturers. (3 cred.; sr.; prereq. Pharm.Chem. 163; 3 lect. hrs. per wk.) Soine
- 72w. Veterinary Products. Chemical, pharmaceutical, and pharmacological study of therapeutic agents used in the prevention and treatment of disease in domestic animals and poultry. Professional elective. Students who elect this course must take Pharmacog. 165 (Insecticides and Fungicides) spring quarter. (3 cred.; full sr.; 3 lect. hrs. per wk.) Hadley
- 73f,w,s. Special Problems. Prescription incompatibilities and problems in formulation of pharmaceuticals and their manufacture in small and large quantities. (Cred. ar.; sr.; prereq. Pharm. 56, Pharm.Chem. 163) Netz, Hadley, Miller

PHARMACEUTICAL CHEMISTRY

Professors Ole Gisvold, Ph.D., Head, Charles H. Rogers, Sc.D., Taito O. Soine, Ph.D.; Associate Professor Frank E. DiGangi, Ph.D.; Graduate Assistants; Student Pharmacist Supervisor Ruth Livingston, B.S. in Phm.

* At the conclusion of the spring quarter, students who have completed the Course 68w-69s 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.

- 1f-2w. Inorganic Pharmaceutical Products. Histories, sources, commercial methods of manufacture, laboratory preparation, properties, and uses of inorganic chemicals. (8 cred.; soph.; prereq. Semimicro Qual.Anal. 12 or equiv.; 2 lect. and 6 lab. hrs. per wk.) Soine
- 53s. Pharmaceutical Biochemistry. Constituents of normal and pathological urine; some of the therapeutic agents excreted in urine; the normal constituents of the blood and the effect of pathological conditions upon these constituents. Qualitative and quantitative tests for abnormal constituents in urine; erythrocyte and leucocyte counts, blood typing, and other clinical determinations. (5 cred.; sr.; prereq. Org.Chem. 62; 3 lect. and 6 lab. hrs. per wk.) DiGangi, Fischer
- 54f-55w. Quantitative Pharmaceutical Chemistry. Principles, methods, and procedures of gravimetric, volumetric, and oxidation-reduction methods of analyses of inorganic and organic pharmaceutical products. (10 cred.; sr.; prereq. Semimicro Qual.Anal. 12, Org.Chem. 62, Pharm.Chem. 2; 3 lect. and 6 lab. hrs. per wk.) DiGangi
- 161f-162w-163s. Organic Pharmaceutical Products. Sources, methods of production, properties, reactions, relationships of structures to activity, and uses of the natural and synthetic organic compounds. (10 cred.; jr., sr., grad.; prereq. Org.Chem. 2; fall, winter: 3 lect. hrs., spring: 4 lect. hrs. per wk.) Gisvold
- 161f—Hydrocarbons, halogenated hydrocarbons, alcohols, aldehydes, ketones, acids, phenols, tannins, ethers, and esters.
- 162w—Organometallics (i.e., mercurials, silver compounds, arsenicals, bismuth compounds), dyes, surface active agents, miscellaneous antiseptic agents, sulfonamides, and antibiotics.
- 163s—Analgesics, sympathomimetics, sympatholytics, parasympathomimetics, parasympatholytics, antispasmodics, local anesthetics, barbiturates and related compounds, alkaloids, cardiac glycosides, sex hormones and structurally related compounds, and vitamins.
- 164w-165s. Special Analytical Methods. The Food, Drug, and Cosmetic Act and many of the official analytical methods of the U.S.P., N.F., and the A.O.A.C. The laboratory work consists of the analyses of some drugs and foods. Professional elective. Students contemplating graduate work with a major in pharmaceutical chemistry and a minor in organic chemistry should elect Pharm. Chem. 164 (3 cred.) for their winter professional elective and Org.Chem. 63 (3 cred.) and Org.Chem. 64 (2 cred.) for their spring quarter professional elective. (6 cred.; sr., grad.; prereq. Pharm.Chem. 2, 54, Org.Chem. 62; 1 lect. and 6 lab. hrs. per wk.) DiGangi or Soine

PHARMACOGNOSY

Professor Earl B. Fischer, Ph.D., Head; Associate Professor Wallace F. White, Ph.D.; Assistant Professor _____; Graduate Assistants; Gardener George Balok

- 1f. Drug Collection and Medicinal Plant Study. Methods of cultivating and preparing crude drugs from medicinal plants grown in the University of Minnesota medicinal plant garden. The characteristics of living plants which produce

- vegetable drugs are studied together with methods of evaluating the latter, factors which influence their quality, and the production of volatile oils from them. (3 cred.; soph.; prereq. Bot. 2; 2 lect. and 3 lab. hrs. per wk.) Fischer
- 2w-3s. Vegetable Drug Histology. The microscopic structure of vegetable drugs including cell contents, cell forms, and types of tissues used in identifying and detecting adulteration in such products. Also the development, function, and nature of plant parts which furnish vegetable drugs. (6 cred.; soph.; prereq. Pharmacog. 1f, Bot. 2; winter: 2 lect. and 3 lab. hrs. per wk., spring: 2 lect. and 3 lab. hrs. per wk.) Fischer
- 55f-56w. Identification and Medicinal Properties of Vegetable Drugs. The identification, nature, and therapeutic properties of U.S.P. and N.F., and some of the more important nonofficial vegetable drugs. Emphasis is placed upon doses and evaluation of the vegetable drugs as therapeutic agents. The pharmacodynamic actions of the less frequently used vegetable drugs are considered. (6 cred.; jr.; prereq. Pharmacog. 3, Bot. 2; 3 lect. hrs. per wk. per qtr.) White
- 57s. Antibiotics and Glandular Products. The development, production, methods of assay and standardization and medicinal uses of important antibiotics such as penicillin, streptomycin, tyrothricin, aureomycin, etc. Important glandular products, chiefly those derived from endocrine glands, are considered with reference to the location and function of the glands in the body, and methods of preparation, assay and standardization of their active principles, and their uses in the treatment of disease arising from glandular or hormone deficiencies. (3 cred.; jr.; prereq. Pharmacog. 3, Physiol. 4, Anat. 5; 3 lect. hrs. per wk.) White
- 59f. Biological Products. The preparation, standardization, and medicinal and pharmaceutical properties of important biological preparations such as modified virus and bacterial vaccines, antitoxins, immune serums, toxoids, tuberculins, normal serums, blood plasma, diagnostic biological reagents, etc. (3 cred.; sr.; prereq. Bact. 53; 3 lect. hrs. per wk.) Fischer
- 60w-61s. Pharmacognosy and Pharmaco-Histology. Continuation of Course 3 for students wishing to elect further work in this field. The microscopic appearance, structure, and function of drug tissues, cells and cell contents is considered by means of which the identity and purity of vegetable drugs are determined. Microscopical accessories such as the micropolariscope, microtome, microphotographic camera are used. Registration limited. Professional elective. (6 cred.; sr.; prereq. Pharmacog. 54; 1 lect. and 6 lab. hrs. per wk.) Fischer
- 162w. Biological Assay of Drugs. Didactic and laboratory consideration of biological assays of vegetable and animal drugs of the U.S.P. and N.F. Registration limited. Professional elective. Students who elect Course 162 as their professional elective must take Pharmacog. 164 (Insecticides and Fungicides) for their spring quarter professional elective. (3 cred.; sr., grad.; prereq. Pharmacog. 57, Pharm.Chem. 55; 1 lect. and 6 lab. hrs. per wk.) White
- 164s. Insecticides and Fungicides. The principal 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 methods and substances used for the prevention or control of damage caused by such insects and diseases. Professional elective. (3 cred.; sr., grad.; prereq. Pharmacog. 56; 3 lect. hrs. per wk.) Fischer

Courses Included in the Pharmacy Curriculum and Offered by Other Departments of the University

ANATOMY

Professor Edward A. Boyden, Ph.D., Head; Instructor Samuel Cornwell, Ph.D.

- 5s. General Survey Course in Human Anatomy. For pharmacy students. (5 cred.; soph.; prereq. Zool. 14-15; 4 lect. and 4 lab. hrs. per wk.) Cornwell

BACTERIOLOGY AND IMMUNOLOGY

Professor Jerome T. Syverton, M.D., Head; Assistant Professors Karl R. Johanson, Ph.D., Edwin L. Schmidt, Ph.D.

- 53f,w,s,su.† General Bacteriology. Lectures, demonstrations, and laboratory exercises are employed for instruction in the morphology, physiology, taxonomy, and ecology of bacteria. The practical applications of these fundamental principles in other phases of science and industry are emphasized. (5 cred.; soph. with a C average in the prerequisite courses, jr., sr.; prereq. 10 cred. in chem. and 4 cred. in biological sciences, or consent of instructor)

BOTANY

Professor A. Orville Dahl, Ph.D., Chairman.

- 1f-2w. General Botany. A survey lecture and laboratory course on the form, structure, and functions of plants; reproduction in plants and the principles of inheritance and variation; relations of plants to environment; the principal groups of plants; and organic evolution. (6 cred.; fr.; no prereq.) Hall and assistants

CHEMISTRY: INORGANIC

Associate Professors Paul R. O'Connor, Ph.D., Acting Chief, Thomas D. O'Brien, 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. (10 cred.; fr.; no prereq.; credits earned in Inorg.Chem. 9 and 10 are accepted in lieu of Inorg.Chem. 6-7) O'Brien and assistants
- 12s.* Semimicro Qualitative Analysis. Laboratory work in systematic qualitative analysis of the cations with lectures on solutions, ionization, chemical and physical equilibria, oxidation, and reduction, etc. (5 cred.; prereq. Inorg.Chem. 7 or 10.) O'Brien and assistants

CHEMISTRY: ORGANIC

Professors Lee I. Smith, Ph.D., Chief, Walter M. Lauer, Ph.D., C. Frederick Koelsch, Ph.D.; Associate Professor William E. Parham, Ph.D.; Assistant Professors Stuart W. Fenton, Ph.D., Wayland Noland, Ph.D.

* The student should purchase a \$10 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 course fee, laboratory material, and breakage will be charged against this deposit.

† Microscope required. Students may obtain use of microscope by purchasing \$3 microscope cards from the bursar.

- 61f,w,su*-62w,s,su.* Elementary Organic Chemistry. Discussion of important classes of organic compounds, both aliphatic and aromatic. Laboratory work includes the preparation of typical substances. (8 cred.; pharm., premed., predent.; pre-req. Inorg.Chem. 12 or 11.) Fenton, Koelsch, Noland, and assistants
- 63f,s. Elementary Organic Chemistry. Lecture course. Discussion of the important classes of organic compounds, both aliphatic and aromatic, together with some heterocyclic compounds. Courses 63 and 64 are prerequisite to all other advanced courses in organic chemistry. Those senior pharmacy students who contemplate pursuing graduate work with a major in pharmaceutical chemistry and a minor in organic chemistry must elect this course and Course 64 as their professional elective of the spring quarter. Those students who contemplate pursuing graduate work and intending to obtain a minor in organic chemistry must have completed, before their preliminary examination, Phys.Chem. 101, 102, 103, 104, 105, 106. In the case of a split minor in organic chemistry, Phys.Chem. 107 and 108 will have to be completed before their preliminary examination. (3 cred.; 3 lect. hrs. per wk.) Parham
- 64f,s.* Elementary Organic Chemistry. Laboratory course. To accompany Course 63. Preparation of typical substances, some original work. Must be accompanied or preceded by Course 63. (3 cred.; 1 lect. and 6 lab. hrs. per wk.) Parham and assistants.

ECONOMICS AND BUSINESS ADMINISTRATION

ECONOMICS

- Professor Richard L. Kozelka, Ph.D., Dean; Instructors Kenneth H. McCartney, M.A., Roy E. Tuttle, M.B.A., Lillian Werner, M.S. in Retailing.
- Econ.10s. 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.) McCartney
- 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; no prereq.) Tuttle

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.) Werner

ENGLISH

Professor Theodore Hornberger, Ph.D., Chairman; and instructors.

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

* The student should purchase a \$10 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 course fee, laboratory material, and breakage will be charged against this deposit.

MATHEMATICS

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

- 1f,w,s. Higher Algebra. (5 cred.; 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 and to others who secure the consent of the department.) Ar.
- 6f,w,s. Trigonometry. (5 cred.; prereq. plane geometry and either Math. 1 or high school higher algebra.) Ar.
- 7f,w,s. College Algebra. (5 cred.; prereq. 6 or high school trigonometry if approved by the department chairman.) Ar.
- 15f,w-16w,s. Elementary Mathematical Analysis. A course for pharmacy, pre-medical, 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 either Math. 1 or high school higher algebra.) Ar.

MILITARY SCIENCE AND TACTICS

Professor Robert T. Connor, Colonel, U.S.A.; Assistant Professor William C. Luehrs, B.S. in Phm., Major, MSC.

- 1f-2w-3s. Pharmaceutical Military Science. Instruction stresses the organization of the army, military law, military training methods, military administration, courtesies and customs of the service, first aid, bandaging and splinting. (3 cred.; fr., soph.; no prereq.) Luehrs and assistant
- 4f-5w-6s. Pharmaceutical Military Science. A study of the organization of the Medical Department and consideration of the tactical and professional motives involved in providing ideal medical care to the military forces. Map reading and medical supply are also covered. (3 cred.; soph.; prereq. Pharm.M.S. 3, or 6 months of prior military service.) Luehrs and assistant
- 151f-152w-153s. Pharmaceutical Military Science. This course deals with pharmaceutical service in the army and duties of the pharmacy officer, including principles of military preventive medicine and Medical Department reports and records. (3 cred.; soph., jr.; prereq. Pharm.M.S. 6, or 12 months of prior military service.) Luehrs
- 154f-155w-156s. Pharmaceutical Military Science. A study of military personnel management, administration of military hospitals, and food service in the army. Medical aspects of atomic and chemical warfare are briefly reviewed. (3 cred.; jr., sr.; prereq. Pharm.M.S. 153.) Luehrs

NAVAL ROTC

For complete information, see *Bulletin of General Information*.

PHARMACOLOGY

Professors Raymond N. Bieter, M.D., Ph.D., Head, Harold N. Wright, Ph.D.; Assistant Professor Elizabeth M. Cranston.

- 101f. Introduction to Pharmacology. The first course in a sequence in which drugs and related chemical compounds are presented for study from the standpoints of chemical structure, beneficial pharmacological actions or effects upon the

living body and on living organisms, toxic or harmful effects, and their applications to the treatment of disease. (2 cred.; sr.; prereq. Physiol. 106, 107, or equiv.; 22 hrs.) Bieter, Wright, Cranston

105w. General and Experimental Pharmacology. A continuation of Course 101 with laboratory experiments and demonstrations. (6 cred.; sr.; prereq. Pharmacol. 101; 110 hrs.) Bieter, Wright, Cranston

106s. General Pharmacology. A lecture continuation of Course 105. (2 cred.; sr.; prereq. Pharmacol. 105; 22 hrs.) Bieter, Wright, Cranston

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.)

Students who contemplate going into graduate work in the physical or biological sciences should take Physics 4, 5, and 6 or 7, 8, and 9 in place of Physics 1a, 2a, 3a.

PHYSIOLOGY

Professor Maurice B. Visscher, M.D., Ph.D., Head; and instructors.

4s. Human Physiology. Lecture, demonstrations, and quiz. (4 cred.; Pharm., SLA, H.Econ. and others; prereq. one qtr. zool., one qtr. chem.) Ar.

SCHOOL OF PUBLIC HEALTH

Professor Gaylord W. Anderson, M.D., Dr.P.H., Director; Associate Professors Donald W. Cowan, M.D., M.S., Stewart C. Thomson, M.D., M.P.H.; and assistants.

3f,w,s.* Personal Health. Normal body function; causes and prevention of disease; (2 cred.; fr., soph.; no prereq.; not open to students who have taken G.C. 10C) Thomson

51f,w.* Community Hygiene. Community programs for disease control. (3 cred.; jr., sr.; prereq. P.H. 3, or G.C. 10C; not open to students who have taken P.H. 4, 50, 52, or 100 nor to students exempted from P.H. 3 on basis of military service) Cowan

ZOOLOGY

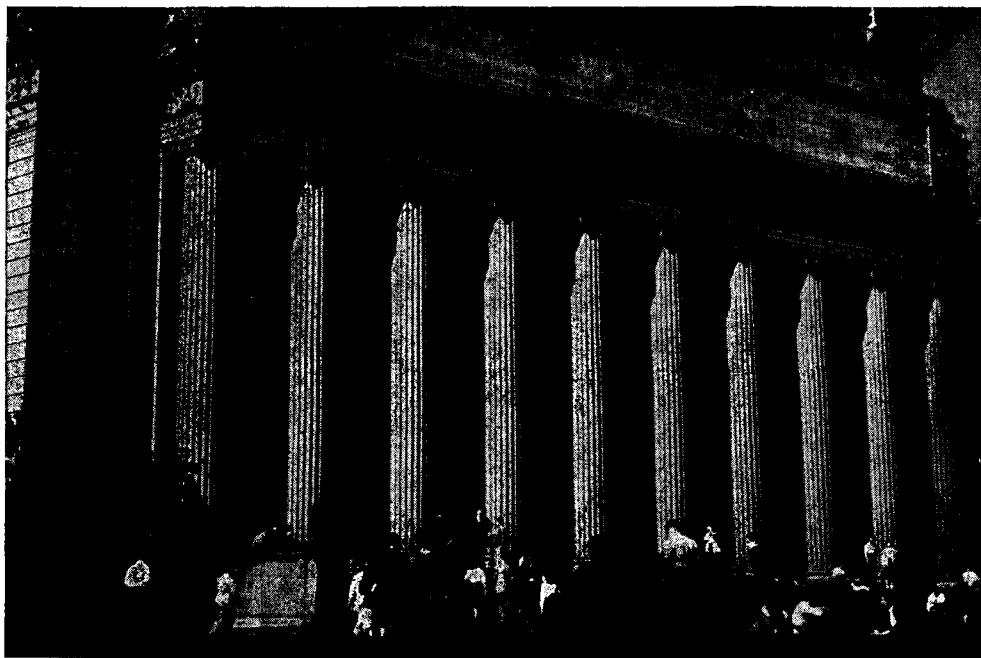
Professor Dwight E. Minnich, Ph.D., Chairman; Associate Professor Magnus Olson, Ph.D.; and assistants.

14f-15w.* General Zoology. Structure, physiology, embryology, classification, and evolution of animals. (For students of the College of Agriculture, Forestry, and Home Economics, School of Nursing, and College of Pharmacy.) (6 cred.; no prereq.) Olson and assistants

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

7/29/53
7/31/53

Bulletin of the
UNIVERSITY OF MINNESOTA



School of Nursing 1953-1955

BOARD OF REGENTS

The Board of Regents is composed of The Honorable James F. Bell, Minneapolis; The Honorable Daniel C. Gainey, Owatonna; The Honorable Richard L. Griggs, Duluth; The Honorable Marjorie J. Howard, Excelsior; The Honorable George W. Lawson, St. Paul; The Honorable Lester A. Malkerson, Minneapolis; The Honorable Charles W. Mayo, Rochester; The Honorable Karl G. Neumeier, Stillwater; The Honorable E. E. Novak, New Prague; The Honorable A. J. Olson, Renville; The Honorable Ray J. Quinlivan, St. Cloud; and The Honorable Herman F. Skyberg, Fisher.

ADMINISTRATIVE OFFICERS

James Lewis Morrill, B.A., LL.D., President
Malcolm M. Willey, Ph.D., L.H.D., LL.D., Vice President, Academic Administration
William T. Middlebrook, B.A., M.C.S., Vice President, Business Administration
Robert Edward Summers, M.S., M.E., Dean of Admissions and Records
Edmund G. Williamson, Ph.D., Dean of Students
Harold S. Diehl, M.A., M.D., D.Sc., Dean of the College of Medical Sciences
Walter W. Cook, Ph.D., Dean of the College of Education
Horace T. Morse, Ph.D., Dean of the General College
Katharine J. Densford, M.A., D.Sc., LL.D., Director, School of Nursing
Ruth Harrington, M.A., Assistant Director, School of Nursing

FACULTY STANDING COMMITTEES

Admissions	Public Information
Curricula—advanced curricula (including master of education program)	Research and Studies
Curriculum—basic professional nursing	Student Welfare
Curriculum—practical nursing	Joint Committee with School of Agriculture (practical nursing and home management)
Audio-Visual Materials (including library)	

SCHOOL OFFICES

Office of the Director, 125 Owre Hall (Ext. 6273-6274)
Office of the Counselor, 116 Millard Hall (Ext. 489 and 187)
Office of Nursing Records, 125 Owre Hall (Ext. 6273-6274)
Other offices, 116 Millard Hall, 215 Temporary South of Powell Hall, and 3324 Powell Hall

For office numbers and office hours consult corridor bulletin board outside 125 Owre Hall or call School of Nursing Office (Ext. 6273-6274)

FACULTY

Katharine J. Densford, M.A., D.Sc., LL.D., Professor and Director
Ruth Harrington, M.A., Professor and Assistant Director
Rena E. Boyle, Ph.D., Associate Professor
Florence J. Julian, M.N.A., Associate Professor
Myrtle H. Coe, B.A., Assistant Professor
Margaret F. Grainger, M.A., Assistant Professor
Ruth V. Johnston, Ph.D., Assistant Professor
Cecelia R. Lediger, M.S., Assistant Professor
Frances Lucier, B.S., Assistant to Director and Instructor
Alyhild M. Akre, B.S., Instructor
Lois D. Anderson, B.S., Instructor
Helen W. Bowditch, B.S., Instructor
Florence M. Brennan, B.S., Instructor
Beulah T. Gautefald, M.A., Instructor
Ethel M. Giziewski, B.S., Instructor
Helen C. Hanson, M.A., Instructor
M. Isabel Harris, M.Ed., Instructor
Helen E. Johnson, B.S., Instructor
Mary Sue Kern, B.S., Instructor
Helen B. Linehan, B.S., Instructor
Agnes D. Love, M.S., Instructor
Margery Low, B.S., Instructor
Mary Ann P. McIntyre, B.S., Instructor
• Monica L. Murphy, B.S., Instructor
Nadine O. Nice, M.Ed., Instructor
Sibyl G. Norris, M.A., Instructor
Frances Pike, M.A., Instructor
Ruth S. Range, B.S., Instructor
Marjorie L. Reif, B.S., Instructor
Kathryn I. Schaaf, B.S., M.N., Instructor
Alma G. Sparrow, M.S., M.P.H., Instructor
Eugenia R. Taylor, B.S., Instructor
Dorothy E. Titt, M.A., Instructor
Elizabeth A. Whitney, B.S., Instructor
D. Joan Williams, B.S., Instructor
Helen Goodale Florentine, M.A., Lecturer and Assistant to Director

PARTICIPATING ASSOCIATED AGENCIES*

Basic Professional Nursing

Hospitals

Glen Lake Sanatorium, Oak Terrace
Glencoe Municipal Hospital (rural), Glencoe
Charles T. Miller Hospital, St. Paul

Public Health Agencies

Family Nursing Service, St. Paul
Visiting Nurse Service, Minneapolis
Minnesota Department of Health, Public Health Nursing, University of
Minnesota:
Big Stone County, Ortonville
Brainerd City Health Department, Brainerd
Brown County, New Ulm
Douglas County, Alexandria

* Appropriate facilities within Minnesota and other states are utilized for observation, field visits, and student experience.

Fillmore County, Preston
 Isanti County, Cambridge
 Kandiyohi County, Willmar
 Lake County, Two Harbors
 Martin County, Fairmont
 St. Louis County, Virginia
 Steele County, Owatonna
 Winona City Health Department, Winona
 Wright County, Buffalo

Practical Nursing

Homes for the Aged

Ebenezer Home, Minneapolis
 Walker Methodist Home, Minneapolis

Rural Hospitals

Glencoe Municipal Hospital, Glencoe
 Murray County Memorial Hospital, Slayton
 Swift County-Benson Hospital, Benson
 Wesley Memorial Hospital, Wadena

Advanced Professional Nursing (student teaching; field practice for ward administration and nursing service; teaching internship)

Schools of Nursing

Abbott Hospital, Minneapolis
 College of St. Catherine, St. Paul
 Fairview Hospital, Minneapolis
 Hamline University, St. Paul
 Lutheran Deaconess Hospital, Minneapolis
 Charles T. Miller Hospital (practical), St. Paul
 Minneapolis General Hospital, Minneapolis
 Northwestern Hospital, Minneapolis
 St. Barnabas Hospital, Minneapolis
 Swedish Hospital, Minneapolis

Hospitals

Abbott Hospital, Minneapolis
 Asbury Methodist Hospital, Minneapolis
 Fairview Hospital, Minneapolis
 Fergus Falls State Hospital, Fergus Falls
 Lakeview Memorial Hospital, Stillwater
 Charles T. Miller Hospital, St. Paul
 Minneapolis General Hospital, Minneapolis
 Northwestern Hospital, Minneapolis
 Rochester State Hospital, Rochester
 St. Barnabas Hospital, Minneapolis
 St. Mary's Hospital, Minneapolis
 Swedish Hospital, Minneapolis
 Veterans Hospital, Fort Snelling

Affiliated Program

Rochester State Hospital, Rochester

SECTION I—GENERAL INFORMATION

Philosophy and Objectives of the School

A democratic philosophy of education with its concept of the social role of education in a democratic society, its emphasis upon the inherent worth of the individual and the dignity and value of human life, and its acceptance of the task of building free citizens who strive not only for their own rights and liberties but for those of others, and who assume the responsibilities and obligations of free citizenship, best expresses the general educational philosophy of the faculty.

Such a philosophy of education places upon the School of Nursing the responsibilities of providing opportunities for learning which will enable the student to attain the following outcomes:*

1. To develop the knowledge, appreciations, attitudes, and skills which will enable the nurse to function effectively as a member of the health team in meeting the physical, social, psychological, spiritual, and health educational needs of the patient, family, and community.
2. To develop for the regulation of one's personal, professional, and civic life a code of behavior based on ethical principles consistent with democratic ideals.
3. To participate actively as an informed and responsible citizen in solving the social, economic, and political problems of one's community, state, and nation.
4. To participate actively as an informed and responsible member of the nursing profession in solving professional problems.
5. To recognize the interdependence of the different peoples of the world and one's personal responsibility for fostering international understanding and peace.
6. To understand the ideas of others and to express one's own effectively.
7. To understand the common phenomena in one's physical environment, to apply habits of scientific thought to personal, professional, and civic problems, to appreciate the implications of scientific discoveries for human welfare, and to apply scientific principles in the promotion of health.
8. To acquire and use the skills and habits involved in critical and constructive thinking.
9. To attain a satisfactory emotional and social adjustment.
10. To maintain and improve one's own health and to cooperate actively and intelligently in solving community health problems.
11. To understand and enjoy literature, art, music, and other cultural and recreational activities as expressions of personal and social experience, and to participate to some extent in some form of creative activity.
12. To acquire the knowledge and attitudes basic to a satisfying family life.
13. To choose a socially useful and personally satisfying field of work that will permit one to use to the full individual interests and abilities.

Statement of Purpose—The School of Nursing has a three-fold purpose. It aims to prepare young men and women for the practice of professional nursing, for the practice of practical nursing, and for supervisory, teaching, and administrative posts in the various fields of nursing.

Accreditation and Association Membership

The University of Minnesota is accredited by the North Central Association of Colleges and Secondary Schools. The University of Minnesota School of Nursing is accredited by the National Nursing Accrediting Service and by the Minnesota State Board of Examiners of Nurses. The University of Minnesota Hospitals is approved by the Joint Commission on Accreditation of Hospitals, and is a member of the American Hospital Association. All other fields used for student experience are accredited by the appropriate agency.

* The statement of objectives has been adopted by the faculty from the objectives of General Education as published in Volume I of *A Report of the President's Commission on Higher Education*, entitled "Higher Education for American Democracy," Washington, D. C., 1947.

Historical Statement

The University of Minnesota School of Nursing, the first university school of nursing in the world, 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. Originally the school carried a basic three-year curriculum leading to the degree of graduate in nursing. On June 9, 1919, a curriculum leading to the degree of bachelor of science and graduate in nursing was established. Until 1949 both a basic and a bachelor of science curriculum have been carried. A distinctive feature of the bachelor of science curriculum in this period was the requirement of 75 university credits before the student matriculated in the School of Nursing. As a result, the entire clinical program was made more meaningful than would otherwise have been possible.

Another first step was taken December 14, 1920, when the plan of a central school was approved by the University. It was felt that the inclusion of other 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 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. The arrangements were completed in 1921. Though 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 tuberculosis patients.

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

Beginning March, 1934, all students received six weeks of field experience in public health nursing (many had received it since 1932) in the Community Health Service in Minneapolis or the Family Nursing Service in St. Paul. Due to the overcrowding of facilities, these agencies, beginning in the fall, 1939, were no longer able to give field experience to all basic three-year students. Instead, students received four weeks of experience in nursery school plus two additional weeks in the out-patient department.

In June, 1934, the Charles T. Miller Hospital offered to discontinue accepting freshman students for assignment to that hospital, replacing freshman students with graduate nurses and professional workers. It continued to provide experience in nursing of private patients to all students in the school. Due to the wartime increase in student enrolment, freshman students were assigned there again from September, 1942, to September, 1946.

Beginning March, 1938, trial was made of having basic three-year students enter in the fall quarter only. Students in the bachelor of science curriculum 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. 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 University of Minnesota School of Nursing was

one of the training centers, the largest, of the United States Cadet Nurse Corps, admitting students under this plan from 1943 to 1945.

Spring quarter, 1941, a refresher course for inactive graduate nurses was first offered. Beginning fall quarter, 1941, this course was 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.

Other wartime activities were numerous, all members of the faculty participating in some measure in intra- and extracurricular war work.

With the the beginning of the postwar period, other changes were made in the curricula of the school. Beginning with the spring quarter, 1947, the only students admitted to the basic professional curriculum were those who had satisfactorily completed the required prenursing credits for the degree curriculum and those who held Bachelor's degrees from accredited colleges and universities. Classes were admitted fall and spring quarters.

To meet the need for a technical group of workers in the field of nursing, a four-quarter program in practical nursing was offered for the first time to both men and women students in 1947. A limited number of these students also qualify for the associate in arts degree. A six-quarter program combining home management and practical nursing, operated jointly by the School of Agriculture and the School of Nursing, was initiated fall quarter, 1949.

Beginning with the class admitted to the basic professional program, fall 1949, a four-year (16-quarter) curriculum was established which replaced the former 18-quarter curriculum. In the 18-quarter curriculum each student had in addition to preparation for professional nursing a major in nursing education or public health nursing. The new 16-quarter curriculum shifts the emphasis to an improved general education background with a major in professional nursing. It is open to both men and women students.

The School of Nursing continues to offer the major in nursing education for graduate nurses leading to the Bachelor's degree. Minors in this program include child care, initiated 1935; science teaching in schools of nursing, initiated 1942; ward administration, initiated 1942; and advanced clinical, developed during the period 1946-1951 with support from the W. K. Kellogg Foundation and during the period 1951-1953 with assistance from foundations, groups, and individuals in Minnesota. Beginning July 1, 1947, federal support of psychiatric nursing programs has been provided through the National Mental Health Act. Two areas of concentration, formerly offered in this program, were nutrition and physical therapy. Nutrition, initiated in 1935 under the title diet therapy, was offered until 1948. Physical therapy was offered from 1942 to 1946.

Postgraduate courses leading to a certificate in medical, surgical, pediatric, obstetric, and operating room nursing and in the care of private patients were initiated in 1932. All except the program in the care of private patients continued to be offered until 1949 at which time medical, surgical, pediatric, and obstetric programs were discontinued. In 1950 the certificate program in operating room was discontinued. A certificate program in communicable disease nursing was begun in 1936 and was continued until 1949. In January, 1944, a certificate curriculum in psychiatric nursing was first offered and is currently continued. The students registered in the first curriculum in psychiatric nursing received full tuition and maintenance scholarships through federal aid made available by the United States Public Health Service for the preparation of graduate nurses in critical fields. Beginning with the initiation of the advanced minors in the degree program the certificate programs in clinical areas were markedly enriched through addition of new courses and increase in number of highly qualified faculty members. Another factor contributing to the improvement of the certificate curricula was the change in tuition and maintenance practices. Beginning fall, 1946, the students paid regular tuition and provided for their own maintenance. This change permitted freedom of assignment for clinical study.

The first three full-time students in the program in nursing education leading to the master of education degree began their programs in the fall quarter, 1950, the first degree being awarded in the summer quarter, 1951. The first four full-time students in the program in nursing administration leading to the master of nursing degree began their programs in the fall quarter, 1951, the first degrees being awarded in the summer quarter, 1952.

Alumnae Association

Graduates of the basic professional curricula in nursing of the University of Minnesota are eligible for membership in the general University of Minnesota Alumni Association and, upon registration by some state board of nurse examiners, are also eligible for membership in the Alumnae Association of the School of Nursing. Graduates of the four-quarter practical nursing program are eligible for membership in the Practical Nurses' Alumnae Association.

Organization

The School of Nursing functions in the field of medical sciences and in the field of education. 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 meets as a whole frequently and works also through committees whose responsibility is to analyze, study, and make recommendations to the faculty regarding matters within their province. Standing committees are listed on page 2. *Ad hoc* committees are appointed as needed. Representatives from all agencies which provide facilities for student experience work with the faculty in planning the programs offered by the school.

Committee on Student Scholastic Standing

This committee is made up of the director and the assistant director of the School of Nursing, the director of nursing services of the University of Minnesota Hospitals, a representative from the office of the dean of students, the student counselor for the School of Nursing, and faculty representatives. The committee interprets policies of the faculty as they apply to individual students. It reviews progress toward graduation, determines probationary status when necessary, approves schedule adjustments, and takes action on special requests and problems of individual students. The committee makes recommendations to the faculty concerning the general conduct of the school. Its functions include considering exceptions to programs, assignments, and requirements within the school. Any matters which involve more than one college are cared for by the appropriate university committee.

Student Organizations

Students of nursing automatically hold membership in two campus organizations. One is the Powell Hall Governing Association to which all residents of Powell Hall belong. The purpose of this association is to deal with all matters pertaining to residence in the hall.

The second organization is the School of Nursing College Board which cooperates with the School of Nursing faculty in student affairs. This College Board is made up of elected members and College Board appointees to the All-University Congress and the Minnesota and Minneapolis Student Nurse Councils. The responsibilities of the board include the consideration of matters affecting students in the School of Nursing and the appointment of student representatives to faculty committees. Any student in the School of Nursing is eligible to become a member

of the College Board. Nominal dues are paid upon entrance to the school. The College Board usually sends a representative to the meetings of the American Nurses' Association, the National League for Nursing, the Minnesota Nurses' Association, the Minnesota League for Nursing, and the International Council of Nurses.

Student Personnel Services

Student Orientation and Counseling Program—To receive maximum benefit from the educational programs of the University many students need individual assistance in their professional or personal adjustments. Students in all of the nursing curricula are encouraged to become familiar with and make full use of the many personnel services of the University. Handbooks and bulletins containing helpful information concerning these services are issued to students at the time of entrance. The week before the opening of the fall quarter is set aside as New Students' Week. Participation in the activities scheduled at that time helps to orient the students to the academic and social world they are entering.

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

Faculty advisers and a counselor who devotes full time to student activities and problems make every effort to become personally acquainted with students in order to help them evaluate and make use of the offerings of the University in relation to their own specific needs, and to the requirements of their professional experience.

Student Activities—The Student Activities Bureau, with headquarters in 114 TSMA, exists to aid all students. During the quarters in the School of Nursing, students take part in any campus activities that can be satisfactorily fitted into their professional program. (See *Bulletin of General Information* and the *Moccasin*.)

Coffman Memorial Union, the center of student activities on the campus, is open to all 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.

The leading student organization of the School of Nursing is the College Board (see Student Organizations). Students in nursing are eligible for membership in honorary and social societies.

Students plan frequent informal teas and parties and any form of recreation which interests them and which can be wisely undertaken in addition to their nursing duties. Alpha Tau Delta and Sigma Theta Tau, the two national nursing organizations which have chapters at the University of Minnesota, have monthly meetings and sponsor various professional and social activities. The Campus Nurses' Club was organized to meet the needs of students on campus in public health nursing and in nursing education. All students in these fields are eligible for membership.

Cultural and Recreational Opportunities

Students have access to the University Library which is located along the Mall of the University. The nursing library proper is located on the second floor of the building as a part of the biological-medical library.

One of the greatest privileges accorded students is that of attending lectures and concerts at 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. The University

Theatre and the University Film Society offer a rich variety of plays and films each quarter.

Students are entitled to student rates for use of university tennis courts, golf course, skating arena, gymnasium, and swimming pool and on tickets for all athletic events.

The school is nonsectarian; however, 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. Opportunities for worship and religious activities are many. Y.W.C.A., Newman Club, Hillel Foundation, and various Protestant denominational groups have campus organizations which seek to enrich the spiritual life of the student.

Health

Students in all nursing curricula are entitled to the same privileges for health care as are other university students. This includes an entrance physical examination by the Students' Health Service and opportunity for advice and treatment at the Health Service (see *Bulletin of General Information*). It should be noted that there are charges in connection with special service or hospitalization. *Before entering the School of Nursing* students should be vaccinated for smallpox and immunized against diphtheria and typhoid fever.

Some special provisions apply to students in the basic professional curricula. Those who take their prenursing work at the University of Minnesota are urged to bring any special health problems to the attention of the Health Service physicians early in the prenursing period in order that advice and treatment may be given before the beginning of the clinical period. Students whose physical condition will not permit admission to the School of Nursing can thus replan their programs toward more suitable goals without waste of time. Upon entrance to the School of Nursing the applicant must pass satisfactorily the physical examination, including dental examination, given by the Students' Health Service. Students whose conditions need further observation may be admitted tentatively but must cancel later if 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.

All students receive an annual physical examination. In addition a Mantoux test is given to all students on entrance, and to negative reactors preceding and following tuberculosis nursing experience. Positive reactors are given chest X rays at these times. A complete physical examination is given on completion of the course, including a chest X ray for students having a positive Mantoux reaction. Students will have chest X rays as often as necessary for the protection of the students and the hospitals.

Through the Students' Health Service a special examination of students' feet is made and recommendation made 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 by the physician or surgeon of their choice.

Except in unusual circumstances a regular student in the basic professional curricula 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, 21 school days of illness without being required to

make up the time lost. Exception to this rule may be necessary if a student loses more than one week from any one clinical service.

Housing

Students in the basic professional curricula provide their own maintenance through the first two quarters in the School of Nursing and during the eight weeks of public health nursing experience. They may secure rooms in the women's dormitories or in approved rooming houses near the university for the first two quarters in the school. Students needing help regarding housing should consult the Student Housing Bureau, Room 209 Eddy Hall, University of Minnesota, Minneapolis 14, Minnesota. During the last eight quarters of the program maintenance is provided in the various hospital nurses' and approved private residences. The University of Minnesota Hospitals houses students in the Louise M. Powell Hall situated on ground overlooking the Mississippi River in the group of medical buildings on campus. The Charles T. Miller Hospital has several attractive residences. While assigned to Glen Lake Sanatorium, students are housed in an attractive building at short distance from the main hospital. Dining rooms for students are under the direction of qualified dietitians. 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 School of Nursing College Board.

Students in all advanced professional curricula and in practical nursing curricula provide their own maintenance throughout their entire program. They may live at home if within easy commuting distance. Room and board may be had in university dormitories, nurses' residences, or approved local rooming houses near the University.

Student Employment

Students in the basic professional curricula may carry outside employment through the first two quarters in the School of Nursing. However, they are advised to confer with their faculty adviser regarding the number of credits they should take. Some students earn room and board in return for services in private homes; others work for hourly wages in various types of employment. If outside employment is desired, students are advised to consult with the Student Employment Bureau, 153 TSF.

Students in practical nursing who wish to carry outside employment are advised to confer with their faculty adviser regarding the number of hours they should work. They also may use the Student Employment Bureau, 153 TSF.

Part-time employment in Minneapolis or St. Paul hospitals is occasionally available for graduate nurses attending the University. Application for such employment should be made to the Counseling and Placement Service, Minnesota Nurses' Association, 2395 University Avenue, St. Paul 4, Minnesota. The University Hospitals (on campus) can usually arrange for a limited number of graduate nurses who are attending the University to do special duty nursing in the hospitals on weekends or evening hours. Part-time work also is available in fields other than nursing through the Civil Service Personnel Office, University of Minnesota. Graduate nurses who are carrying a full program of class work are strongly urged not to carry outside employment. Students planning to accept part-time employment should consult their major adviser so that hours of employment do not interfere with time needed for conferences, field trips, etc. They should also consider the advisability of carrying less than the full academic load when carrying part-time employment.

Placement Service—The School of Nursing processes the application of senior students and graduate nurses for the Professional Counseling and Placement Service of the American Nurses' Association. The Counseling Service has national offices in New York and Chicago. Each state nurses' association maintains a local

counseling and placement office as part of the professional service program of the association. No charge is made to members of the American Nurses' Association. Nurse nonmembers and licensed practical nurses may register with the Counseling and Placement Service, Minnesota Nurses' Association for a nominal fee. Counseling and placement may then be obtained at no further cost.

Scholarships, Loans, Prizes

Should you need financial aid or advice, contact should be made with the Bureau of Student Loans and Scholarships in 201 Eddy Hall.

Sally Richards Memorial Loan Fund—Qualified students in any sequence in nursing are eligible for loans from the Sally Richards Memorial Loan Fund.

Richard Olding Beard Loan Fund—The alumnae of the University of Minnesota School of Nursing 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 for Nursing Loan Fund—The Minnesota League for Nursing has made available the sum of \$500 to be used as a loan to qualified graduate nurses for the purpose of further academic study.

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 is awarded to that member of the March and August graduating classes in the School of Nursing who has attained the highest degree of efficiency in practical work.

State Scholarships—The Minnesota Legislature has provided scholarships not to exceed \$600 for students in professional nursing and \$300 in practical nursing. Awards are made on the basis of need and ability to residents of the state. Students must have been accepted in the School of Nursing before they can be recommended for scholarships.

Marion L. Vannier Scholarship—A gift of \$100 annually from the School of Nursing College Board provides for the Marion L. Vannier Scholarship. The recipient of this scholarship must be a graduate of the School of Nursing or be a senior within four quarters of graduation.

Katharine J. Densford Scholarship—This scholarship fund was established by the faculty of the school in 1949 on the occasion of the fortieth anniversary of the founding of the School of Nursing. It provides annual scholarships of \$100 each for deserving students in any nursing program.

Greater University Fund Scholarship—Scholarships ranging from \$150 to \$400 are awarded freshmen entering from Minnesota high schools on the basis of scholarship, character, leadership, vocational and academic promise, and relative need. Applications should be made through Minnesota high school principals.

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.

Sigma Theta Tau Scholarship—Sigma Theta Tau, national scholarship society in nursing, provides an annual scholarship of \$100 for a deserving student in basic professional nursing.

Minnesota Department of Public Welfare Scholarship—A limited number of stipends for graduate nurses for the certificate program in psychiatric nursing will be available from the Department of Public Welfare of the State of Minnesota, 117 University Avenue, St. Paul, Minnesota. Admission to the University is required for eligibility to apply for the scholarship.

Other Scholarships and Loan Funds—Students are eligible, after two quarters of satisfactory work in the University, to apply for loans from the university loan funds.

In many communities some financial aid to students is available through churches, women's clubs, medical and medical auxiliary groups, American Legion, and service groups such as Rotary, Kiwanis, Zonta, Quota. Students interested should explore local resources.

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

Uniforms

Students in the basic professional curricula pay for their first complete set of uniforms. The hospital replaces worn-out uniforms. The charge of approximately seventy-five (\$75) dollars is payable during the first quarter in the School of Nursing when the order is sent to the manufacturer. Students may purchase uniforms second hand but may not have replacement by the 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 name tapes should be sufficient.

Students in practical nursing pay approximately forty-five (\$45) dollars for a complete set of uniforms.

Students in all curricula will be expected to be in uniform when having experience or observation in the care of patients. They will be responsible for supplying their own uniforms and for having them laundered.

Registration and Grade Reports

While in the School of Nursing students register each quarter and receive grades in accordance with the general university plan.* The passing grades are A, B, C, D. The grade of F in a course indicates failure. A failure in a required course must be removed by repeating the course as soon as it is offered. When a student does not complete the work of a course for any reason one of various symbols is used to indicate the student's status.

Students in the basic professional curriculum are governed during the pre-nursing portion of the program by the regulations of the College of Science, Literature, and the Arts in regard to registration, grades, credits, and honor points. Students in advanced professional curricula are governed by the regulations of the college in which they are registered in regard to registration, grades, credits, and honor points.

Requirements for Graduation

The Board of Regents of the University of Minnesota upon recommendation of the faculty of the School of Nursing confers the degree of bachelor of science in professional nursing upon those students who have completed satisfactorily 255 credits and have met the requirements of the bachelor of science program in professional nursing as outlined on pages 17-19.

The Board of Regents of the University of Minnesota upon recommendation of the faculty of the School of Nursing confers the degree of bachelor of science in professional nursing upon those students who held a B.S. or a B.A. degree at time of entrance to the School of Nursing and who subsequently complete satisfactorily the two and one-half year curriculum indicated on page 19.

The bachelor of science degree will be granted those graduate professional

* Necessary changes in registration are made by filing cancellation forms in the School of Nursing office. Prior to the end of the sixth week in a quarter the student may cancel registration in any course.

nurses who have completed satisfactorily the requirements for this degree as outlined on pages 20-25.

The master of education degree and the master of nursing administration degree will be granted those graduate professional nurses who have completed satisfactorily the requirements for these degrees as outlined on pages 26 and 27.

Upon satisfactory completion of the requirements of the certificate curriculum in psychiatric nursing, in practical nursing, and in practical nursing and home management, a certificate is issued to the student from the Office of Admissions and Records.

State Registration

To practice as a registered nurse in the state of Minnesota it is necessary to be licensed. Students completing the bachelor of science program in professional nursing are eligible at the age of twenty years to take the state board examination given by the Minnesota State Board of Examiners of Nurses. Successful passing of this examination entitles the nurse to registration in Minnesota and makes her eligible for membership in her district, state, and national nursing organizations. Registration for professional practice is done on an individual application and qualification basis. Graduates from the University of Minnesota School of Nursing are eligible for registration in any part of the United States.

To practice as a licensed practical nurse in the state of Minnesota it is necessary to be licensed. Students completing the practical nursing curricula are eligible to take the state board examination given by the Minnesota State Board of Examiners of Nurses. Successful passing of this examination entitles the individual to practice in Minnesota as a licensed practical nurse.

Curricula

The following curricula are offered by the School of Nursing and associated divisions of the University. The admission requirements, required courses, and other items of information for each curriculum are described in Section II of this bulletin. Changes in course offerings and requirements are made from time to time. These appear in the quarterly *Class Schedule* and the Official Daily Bulletin of the University. During the registration period students planning to register in any of the following curricula are urged to consult their adviser in the School of Nursing:

Basic Professional Curricula in Nursing

Advanced Professional Curricula in Nursing

- Bachelor of science program in nursing education
- Master of education program in nursing education
- Master of nursing administration program
- Certificate program in psychiatric nursing

Practical Nursing Curricula

- Four-quarter program in practical nursing
- Six-quarter program in practical nursing and home management

Refresher Courses

From time to time when there is evidence of unusual community need the School of Nursing offers refresher courses for groups of graduate nurses who have not been engaged in professional practice for a comparatively long period of time. At any time the School of Nursing is happy to advise individual graduate nurses who feel the need of reorientation to professional practice because of having been inactive for a period of time or because their recent practice has been in another country.

Estimated Average Expenses

Curriculum	Per Quarter					Total	
	Tuition Fee Resident	Non- resident	Special Fees*	Room and Board	Books and Instru- ments	Resident	Non- resident
Bachelor of Science—Profes- sional Nursing§ Prenursing (six quarters) ... Cost depends upon college or university at- tended. For estimate at University of Minnesota see <i>Bulletin of General In- formation</i> .							
School of Nursing (Two quarters†)	\$33	\$ 50	\$24	\$234	\$20	\$692†	\$726†
(Eight quarters)	33	50	**	††	20	424	560
Professional Nursing for Col- lege Graduates§ (Two quarters†)	33	50	24	234	20	692†	726†
(Eight quarters)	33	50	.....	.....	20	424	560
Practical Nursing§ (Four quarters‡)	33	50	24	§	15	318‡	386‡
Bachelor of Science in Nurs- ing Education (Three to nine quarters) ...	33	100	24	234	20	.....	.....
Master of Education (Minimum of three quarters)	33	100	24	234	20	.....	.....
Certificate in Psychiatric Nurs- ing (approximately three quarters)	45	115	24	234	20	.....	.....
Master in Nursing Adminis- tration (minimum of four quarters)	33	100	24	234	20	.....	.....

* \$5 matriculation fee included paid only once.

† Uniforms at \$75 included in total.

‡ Uniforms at \$45 included in total.

§ Maintenance is not included in the above estimate. Students are usually able to work part-time to cover major cost of board and room.

¶ Upon graduation students purchase their own pins.

** Transportation for field trips, rural and public health nursing experience varies.

†† Room and board for the eight weeks of public health nursing experience averages \$165.

Summer Session Courses

The University of Minnesota offers courses during two terms of the Summer Session, during which period students may complete approximately 18 credits of work in pre-nursing subjects or advanced professional curricula. Special courses for graduate nurses are offered during the first term of the Summer Session in the School of Nursing and the School of Public Health. Courses usually offered cover such subjects as clinical nursing, ward administration, teaching, supervision, personnel programs, administration in schools of nursing and nursing services, and public health nursing in its various phases. A special summer announcement describing these courses may be had upon request to the Summer Session office.

Courses for Nurses from Other Countries

All nurse applicants from countries other than the United States of America must send application and credentials to the Office of Admissions and Records, University of Minnesota, Minneapolis 14, Minnesota, U.S.A. Nurses qualified for the regularly offered curricula may register for credit toward a degree. Nurses who do not qualify for admission to any of the curricula described may, by special

arrangement, be admitted to courses and experiences to meet their individual needs. These courses and experiences will not necessarily carry credit toward a degree or certificate. Ability to read and write English and to understand spoken English is essential.

Graduate Study

Graduate nurses who hold a Bachelor's degree and who meet the requirements of the Graduate School may matriculate for a higher degree in any one of the Graduate School majors appropriate to their educational objectives. All inquiries concerning admission should be addressed to the Dean of the Graduate School, 316 Johnston Hall, University of Minnesota, Minneapolis 14, Minnesota.

SECTION II—CURRICULA

A. BASIC PROFESSIONAL CURRICULA IN NURSING

1. Bachelor of Science Program in Professional Nursing

Purpose—This program aims to prepare nurses for beginning positions in professional nursing under supervision in all areas.

Admission—The ten-quarter basic professional program in nursing constitutes the major in the sixteen-quarter curriculum leading to the bachelor of science degree in professional nursing. Admission to the major is open to men and women who meet the prenursing requirements.

Prenursing Requirements—95 quarter credits (64 semester credits) in general education courses taken in an accredited college or university with a C average (1.0 honor point ratio) including:

	Credits		Credits
English A-B-C or Comp. 4-5-6 or Com. 1-2-3	9-15	Child Care, Child Psychology, or Child Development	3
P.H. 3 (Personal Health)	2	Nutrition	2
Zool. 14-15* or Zool. 1-2-3	6-10	Physical Education	5
Inorganic Chemistry†	8-10	Electives	25-40
Sociology or Social Science	9-12		
History or Political Science or Economics	5	Total	95†
Psychology	6		

Students who take the prenursing credits in the College of Science, Literature, and the Arts at the University of Minnesota must meet entrance requirements of that college. (See *Bulletin of General Information.*) They should, before registering each quarter, review their programs with an adviser in the School of Nursing. Students may enter the University any quarter, including the Summer Session terms.

A suggested six-quarter program in the College of Science, Literature, and the Arts follows:

FIRST YEAR

<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
English 4f or Af or Com. 1f	English 5w or Bw or Com. 2w	English 6s or Cs or Com. 3s
Zoology 14	Zoology 15	Sociology or Social Science
Physical Education	Physical Education	Physical Education
Electives§	Electives§	Electives§

SECOND YEAR

<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Psychology 1f	Psychology 2w	Sociology or Social Science
Chemistry 4 or 1	Chemistry 5 or 2	Hist. or Pol. Sci. or Econ.
Hist. or Pol. Sci. or Econ.	Sociology or Social Science	Public Health 3
Physical Education	Physical Education	Electives§
Electives§	Electives§	

At the time of entrance to the School of Nursing the student must pass satisfactorily a physical examination by the Students' Health Service.

Students may enter the School of Nursing at the beginning of fall or spring quarter.

Students planning to transfer from the College of Science, Literature, and the Arts to the School of Nursing should make application for transfer at the Office of Admissions and Records.

* Preferred course.

† Quality credits earned in the University of Minnesota College of Science, Literature, and the Arts may be used as elective credits for transfer to the School of Nursing.

§ Electives should be chosen to make, on the average, a program of 16 credits per quarter.

¶ For students who take chemistry at the University of Minnesota, the section of Chemistry 4, 5 offered for nurses is recommended.

Students entering the School of Nursing from other colleges should obtain application materials from the Office of Admissions and Records, University of Minnesota, Minneapolis 14, Minnesota. Completed applications, including transcript of college credits and birth certificate, must be returned to that office.

Applicants for admission to the School of Nursing about whose requirements there is question may be referred to the admissions committee of the school for special consideration on an individual basis.

Students applying for state scholarships should process their applications early. Tentative acceptance, pending satisfactory completion of all prerequisites, may be made for scholarship purposes.

Course Requirements in Major in Basic Professional Nursing—

Course No.	Title	Clinical Assignment	Credits	Quarter
<i>Biological Sciences</i>				
Anat. 4	Elementary Anatomy		5	1st
Bact. 53	General Bacteriology		5	2nd
Pharm. 9-10	Pharmacology		4	2nd-3rd
Physiol.Chem. 50	Physiological Chemistry		4	1st
Physiol. 60	Human Physiology		6	2nd
<i>Social Science and Public Health</i>				
Soc. 91	Case Method Applied to the Study of Human Problems		3	3rd
P.H. 62-63	Principles of Public Health Nursing		10	6th-7th
P.H. 100	Elements of Preventive Medicine and Public Health		5	5th
<i>Nursing</i>				
Nurs. 17-18	Introduction to Clinical Nursing	Selected Experiences	11	1st-2nd
Nurs. 50-51	Medical and Surgical Nursing	24 weeks	24	3rd-4th
Nurs. 54	Pathology		2	4th
Nurs. 55	Introduction to Communicable Disease		1	4th
Nurs. 56	Nursing in the Operating Room	6 weeks	6	5th, 6th
Nurs. 58	Orthopedic Nursing	2 weeks	2	5th, 6th, 7th
Nurs. 59	Gynecologic Nursing	4 weeks	4	5th, 6th, 7th
Nurs. 60-61	Maternal and Child Nursing	24 weeks	24	5th, 6th, 7th, 8th
Nurs. 66	Neuropsychiatric Nursing		4	5th, 8th
or				
Neuropsy. 171	Principles of Psychiatry and Neurology		4	5th, 8th
Nurs. 67	Nursing Care of Neuropsychiatric Patients	12 weeks	8	5th, 8th
Nurs. 79	Tuberculosis Nursing	2 weeks	3	9th, 10th
Nurs. 87	Field Experience in Public Health Nursing	8 weeks	10	9th, 10th
Nurs. 88	Rural Nursing	4 weeks	5	9th, 10th
Nurs. 96	Nursing in the Out-Patient Department	4 weeks	5	9th, 10th
Nurs. 97	Medical and Surgical Nursing	6 weeks	7	9th, 10th
Nurs. 98	The Nursing Profession		3	8th
Nurs.Ad. 50	Nursing Administration		1	9th, 10th
Total credits			162	

The student has most of the clinical experiences, which are an essential part of the courses in nursing, in the University of Minnesota Hospitals. The University of Minnesota Hospitals, situated on the Minneapolis Campus, includes the Elliot Memorial Hospital, the Cancer Institute, the Todd Memorial, Eustis Children's Hospital, the Variety Club Heart Hospital, and the Psychopathic Hospital. They are supported by state appropriations, endowments, gifts, federal and other special grants, and income from patients. They care for patients referred from all parts of the state. The daily average of in-patients for the year 1952 was 418; the num-

ber of out-patient visits was 100,656. Of this number 28,343 were new patients and 72,313 were revisits.

Other hospitals and agencies are also used for observation and experience. The Nursery School of the University is used for the observation of normal children. The Charles T. Miller Hospital in St. Paul provides experience in nursing care of private and semiprivate patients, and of patients with diseases of the eye. The Hennepin County Tuberculosis Sanatorium at Glen Lake offers two weeks of observation and instruction. The Maternity Hospital provides three weeks of clinical experience in obstetric nursing. The Visiting Nurse Service of Minneapolis, the Family Nursing Service of St. Paul, and the State Department of Public Health Nursing give selected field experiences in urban and rural community public health agencies. Gillette State Hospital for Crippled Children is being utilized for additional observation and experience in orthopedic conditions. Many other health and community agencies are used for observation and experience, particularly in the field of public health nursing.

During the ten quarters of the basic professional program the student has ten weeks of vacation. The time allowed for illness is three weeks. Exception to the illness allowance may be necessary if a student is absent through illness for more than one week of a clinical assignment.

Progress in School—In the professional school the necessity for having a thorough foundation of knowledge for each new subject and clinical experience requires that the student satisfactorily complete the work of each quarter before registering for the succeeding quarter. A student is considered to be making satisfactory progress toward graduation as long as she has (1) received a passing grade in each required subject, and (2) received an average of C for the total credits completed. In special circumstances and with the permission of the Committee on Student Scholastic Standing a student may repeat courses in order to raise her honor point average to the necessary level for continuation in the basic nursing program.

A student who misses more than a third of a course or assigned clinical experience through illness or leave of absence may be required to cancel the entire quarter's work. In unusual circumstances it may be necessary for the student to discontinue her program for more than one quarter until such time as the classes and clinical experiences are again offered.

2. Program in Professional Nursing for College Graduates

Admission—Applicants with a Bachelor's degree from an accredited college or university are admitted to a ten-quarter program leading to the degree of bachelor of science in professional nursing. Application blanks may be obtained from the Office of Admissions and Records, University of Minnesota, Minneapolis 14, Minnesota. Each applicant must file with the dean of admissions and records an application blank and an official copy of college credits. Applicants who hold a degree from the University of Minnesota file application blanks only. Upon admission to the University the student registers in the School of Nursing.

College graduates should have completed the following prenursing courses or their equivalent: English or communication (9-15 cred.); P.H. 3, Personal Health (2 cred.); general zoology (6-10 cred.); chemistry (8 cred.); sociology or social science (9 cred.); history, political science, or economics (5 cred.); psychology (6 cred.); child care, child psychology, or child development (3 cred.); nutrition (2 cred.); and physical education (5 cred.). Applicants not meeting all prenursing course requirements receive special consideration on an individual basis.

During the first two quarters of the program, often referred to as preclinical quarters, the student has observations and experiences preparatory to the full clinical assignment of later quarters. While the student is registered for the two preclinical quarters, she provides her own maintenance at home, in dormitory, or other approved housing. When the student begins her clinical study and experience she is

assigned for residence to Powell Hall and later to hospital nurses' residences in other units. Throughout the clinical quarters, maintenance (board, room, and laundry) is provided, with the exception of the period during which the student is assigned to public health nursing field experience.

Sequence of Required Courses

<i>First Quarter</i>		<i>Second Quarter</i>		<i>Third Quarter</i>	
Course No.	Credits	Course No.	Credits	Course No.	Credits
Anat. 4	5	Bact. 53	5	Pharm. 10	2
Physiol.Chem. 50	4	Physiol. 60	6	Nurs. 50	12
Nurs. 17	7	Pharm. 9	2	Soc. 91	3
		Nurs. 18	4		
<i>Fourth Quarter</i>		<i>Fifth Quarter</i>		<i>Sixth Quarter</i>	
Nurs. 51	12	Nurs. 56	6	Nurs. 60	12
Nurs. 54	2	Nurs. 58	2	P.H. 62	5
Nurs. 55	1	Nurs. 59	4		
		P.H. 100	5		
<i>Seventh Quarter</i>		<i>Eighth Quarter</i>		<i>Ninth-Tenth Quarter</i>	
Nurs. 61	12	Nurs. 66	4	Nurs. 79	3
P.H. 63	5	Nurs. 67	8	Nurs. 87	10
		Nurs. 98	3	Nurs. 88	5
				Nurs. 96	5
				Nurs. 97	7
				Nurs.Ad. 50	1

B. ADVANCED PROFESSIONAL CURRICULA

Admission—Applicants for admission to the nursing education curricula must submit evidence of graduation from an accredited high school and school of nursing. Application blanks on which the high school and nursing records should be submitted may be obtained from the Dean of Admissions and Records, University of Minnesota, Minneapolis 14, Minnesota. Applicants are required to take a college aptitude test before they can be considered for admission. If the applicant has attended an accredited college or university, an official transcript of work taken should also be submitted. Applications and transcript should be sent directly to the Dean of Admissions and Records, University of Minnesota, Minneapolis 14, Minnesota.

Credit toward the bachelor of science degree for professional nursing courses will be determined by the admissions committee which will indicate the number of credits allowed and any additional clinical services to be completed before credit is granted. Such clinical experiences should be completed in the summer following the sophomore year if the student elects a clinical minor; they *must be completed before the beginning of the senior year*. Forty-five credits represent approximately the average advanced standing granted for a satisfactory course of study in a hospital school of nursing; 53 credits for a course in a hospital school having its pre-nursing sciences taught in the University of Minnesota; 55 credits for graduates of a three-year program of other university schools; and 60 credits for graduates of the University of Minnesota School of Nursing. If, however, an honor point average of 1.0 was not maintained in the basic biological sciences taken in a college, not more than 45 credits will be granted for the total basic professional program.

Applicants for admission to the certificate curriculum in psychiatric nursing must submit evidence of graduation from an accredited high school and an approved school of nursing and one year of successful nursing experience since graduation. Applicants are required to have had a minimum experience of three months in psychiatric nursing either as an undergraduate in a school of nursing or as a graduate nurse. Applicants are required to take a college aptitude test before they can be

considered for admission. Final approval for admission is made by the admissions committee of the School of Nursing on the basis of previous academic record, nursing school record, and scholastic aptitude test scores. Admitted students are registered in the School of Nursing.

Bachelor of science or bachelor of arts credits submitted as part of the admission requirements for professional Master's degrees (for example, master of education or master of nursing administration) will be reviewed, and recommendations regarding the student's program made on the basis of the general and professional education included in the Bachelor's program.

In order to assist the school in evaluating the basic nursing knowledge of students in the advanced professional curricula, all students will be asked to take as a part of their admission procedure the Graduate Nurse Qualifying Examination of the National League for Nursing. This examination may be taken at the University of Minnesota Student Counseling Bureau or through the National League for Nursing, 2 Park Avenue, New York 16, N.Y. The fee for this examination is four dollars (\$4) payable to the National League for Nursing. Students whose scores show inadequate knowledge in the clinical minor they have chosen (e.g., medical nursing, pediatric nursing, etc.), or in the area selected for field experience may be asked to do supplementary work in that area.

Students register in the College of Education or the School of Nursing and conform to the regulations of the college in which they are registered relative to total credits and honor points.

Students registered in the bachelor of science curriculum who plan to continue study after graduation should take into account, in the selection of electives, the specific prerequisites of the graduate programs.

Clinical Experience—All advanced professional curricula projects in such areas as nursing care of patients, supervision, administration, and student teaching are carried out at the University of Minnesota Hospitals and other hospitals in Minnesota. All of the programs make use of additional community health and welfare facilities for providing broader opportunities for study.

1. Bachelor of Science Program in Nursing Education

Major advisers, Katharine J. Densford, Ruth Harrington, Rena Boyle, and Sibyl Norris.

Purpose: This program is designed to prepare professional nurses for head nurse, clinical supervisory, and teaching positions in hospitals, clinics, health services, schools of professional and practical nursing, and for other positions in which an understanding of educational principles and practices is needed.

Advanced standing granted to graduate nurses for basic nursing course usually places the beginning graduate nurse student in the sophomore class. Courses of a general cultural nature, courses prerequisite to education courses and to other Senior College courses should be taken in the sophomore and junior years. Courses in clinical nursing should be taken in the junior year.

General Requirements

Course No.	Title	Credits	
Com. 1-2-3 or Eng. A-B-C or Comp. 4-5-6 or exemption	Communication Freshman English Freshman Composition	} 9-15	
Sociology or Social Science		6-8
Psy. 1-2	General Psychology		6
C.W. 40 or C.W. 80	Child Training Child Psychology	} 3	

Sciences*	A minimum of 4 credits in biological sciences is required, to be selected from the following fields: anatomy, bacteriology, physiology, physiological chemistry, and zoology (other than Zool. 1-2-3 or 14-15). General inorganic chemistry (Inorg. Chem. 1-2, 4-5, or 6-7)** and general zoology (Zool. 1-2-3, or 14-15)** are highly recommended and are prerequisite to many courses in biological sciences	4-6
	Physical Education	5

Course Requirements for the Nursing Education Major—Of the following courses, Ed. 55N, Nurs.Ed. 69, and clinical nursing courses may be taken in the junior year. In the case of students entering the program with senior standing these courses should be taken in the first two quarters of the senior year. All other courses here listed should be taken in the senior year.

Course No.	Title	Credits
Ed. 55N	Introduction to Teaching Nursing	5
Ed.T. 51A,B§	The Teaching of Nursing	10
Nurs.Ad. 160	Ward Administration	5
Nurs.Ed. 69	Survey of Conditions and Trends in Nursing.....	3
Nurs.Ed. 171	The Curriculum of the School of Nursing.....	3
H.Ed. 180	The School and the Social Order.....	3
	Clinical Nursing†‡	12
	Elective in nursing, nursing education, or nursing administration	3
	<hr/>	<hr/>
Total.....		44

The following sequence of courses for the senior year is suggested:

Course	Credits	Course	Credits	Course	Credits
Ed. 55N	5	Ed.T. 51A	4	Ed.T. 51B	6
Nurs.Ed. 69	3	Nurs.Ad. 160	5	Nurs.Ed. 171	3
H.Ed. 180	3	Major elective	3	Electives	6
Electives	4	Electives	3		—
	<hr/>		<hr/>		<hr/>
	15		15		15

For students entering the program with senior standing the following sequence is usually possible:

Course	Credits	Course	Credits	Course	Credits
Ed. 55N	5	Ed.T. 51A	4	Ed.T. 51B	6
Nurs.Ed. 69	3	Nurs.Ad. 160	5	Nurs.Ed. 171	3
Clinical nursing	6	Clinical nursing	6	H.Ed. 180	3
Major elective	3	Major elective	3	Elective	1-3
	<hr/>		<hr/>		<hr/>
	14-17		15-18		13-15

The graduate nurse has usually from 55 to 65 elective credits available in the bachelor of science curriculum. These electives may be chosen from any course offerings in the University for which the student meets the prerequisites. It is appropriate to elect courses in natural sciences, social sciences, humanities, arts, anthropology, philosophy, and other fields of special interest to the student. The

* Students planning to take a clinical minor should note that there are preferred science courses indicated in the course descriptions of the minor.

† Not required of students completing a minor in science teaching in schools of nursing.

§ Requirements for registration in Ed.T. 51A-B are as follows:

1. A passing grade in Ed. 55N.
2. Taking College of Education Test Battery.
3. Attainment of a scholastic average of 1.5 in completed courses in the nursing education major including the field in which practice teaching is to be done. A major portion of the work in the teaching field should be completed.
4. The recommendation of the subject-matter department in the major field.
5. A satisfactory rating on the required speech test.
6. Completion of required clinical experience.

‡ May be taken as part of a clinical minor.

** Prerequisite for science teaching minor.

graduate nurse will also wish to review the elective offerings of the nursing education department and other related professional fields such as education, public health nursing, and child welfare. In addition to elective course offerings which meet her need for general studies and studies in fields related to nursing she may elect a minor in clinical nursing, ward administration, science teaching, or child development. Because graduates from basic professional nursing courses are better prepared for study in some areas of nursing and nursing education than others, a wide variation in range of credits has been planned. For example, science teaching has a much larger number of credits than ward administration. A description of the available minors follows:

Course Requirements for the Science Teaching Minor—Minor adviser, Myrtle H. Coe.

The science teaching minor is designed to provide a broad background in biological sciences for the teaching of basic sciences and clinical subjects in schools of nursing.

Students interested in this program should consult the minor adviser before beginning a program of study. The sequence of courses is such that much time will be wasted unless early and careful planning is done. In addition to general inorganic chemistry (8 cred.) and general zoology (6-10 cred.), usually taken as part of the general requirements of the sophomore year, the following courses are required:

Course No.	Title	Credits
Phys.Chem. 50	Physiological Chemistry	4
Phys. 60	Human Physiology	6
Bact. 53	General Bacteriology	5
Bact. 102	Medical Bacteriology	5
Zool. 21	Histology	5
Zool. 22	Comparative Anatomy	5
Nurs.Ed. 74	Sciences in a School of Nursing Curriculum	5
Total		35

Course Requirements for the Child Development Minor—Minor advisers, Elizabeth Fuller; Beulah T. Gautefald.

The child development minor is designed to provide background for the nurse and the nurse teacher in the normal development and care of children.

Course No.	Title	Credits
C.W. 40	Child Training	3
C.W. 80	Child Psychology	3
C.W. 130	Motor, Linguistic, and Intellectual Development of the Child	9
C.W. 131	Personality, Emotional, and Social Development of the Child	
C.W. 132	Later Childhood and Adolescence	7
or C.W. 140	Behavior Problems in Younger Children	
C.W. 141	Behavior Problems in Older Children and Adolescents	
C.W. 142	The Psychology of Atypical Children	3
Ed.T. 59	Methods and Observation in the Nursery School	
Ed.T. 77	Student Teaching in the Nursery School	5
Art Ed. 17	Pictorial Expression for Elementary Education	3
or Art Ed. 18	Design Activities for Elementary Education	3
or Ed.T. 57	Nursery School-Kindergarten Laboratory in Art, Literature, and Social Studies	5
Total		24-28

Course Requirements for the Ward Administration Minor—Minor adviser, Margaret F. Grainger.

The ward administration minor[¶] is designed to provide the student with theoretical background and supervised ward experience in the activities and responsibilities of the hospital head nurse.

Course No.	Title	Credits
Nurs. 165	Analysis of Nursing Care.....	4
Nurs.Ad. 67	Field Practice in Ward Administration	
or		
Nurs.Ad. 167	Studies and Experience in Ward Administration }.....	6-8
Total.....		10-12

Course Requirements for the Advanced Clinical Minor—Minor adviser, Myrtle H. Coe.

The advanced clinical minor is designed for those students who plan to take positions in a specific clinical area.

All students in the major in nursing education have student teaching related to nursing care of patients in the senior year. The advanced clinical minor affords opportunity for those who wish to include in their curriculum advanced study in one of the clinical fields to gain an enriched clinical background during the year preceding the teaching experience. Whereas the 12 credits of study in clinical nursing required in the nursing education major are designed to provide a core of knowledge fundamental for the student in her student teaching, the clinical minor, with 18 credits in clinical nursing and from 23 to 35 total credits, provides opportunity for (1) more extensive investigation of patient needs in the chosen specialty, (2) more varied experiences in learning measures available for meeting the needs of the patient and the role of the nurse in relation to each, and (3) more adequate opportunity to acquire any new skills which may be included in the clinical courses.

In terms of the customary four-year academic curriculum leading to a bachelor of science degree in the College of Education, the freshman year credits may be considered earned by the advanced standing credits allowed for the School of Nursing basic course previously completed; the second, or sophomore year in these clinical curricula consists of certain required courses and electives chosen with the field of interest in mind; in the junior year the student may choose advanced clinical study in any one of the following services:

Medical Nursing	Operating Room Nursing	Surgical Nursing
Nursing of Children*	Psychiatric Nursing†	Tuberculosis Nursing‡
Obstetric Nursing	Rural Hospital Nursing	

Clinical experience is chosen to meet the needs and major interests of each student. The hourly schedule of experience is planned on an individual basis to provide the best possible clinical opportunities compatible with the schedule of academic classes. Clinical courses include patient care, lectures, conferences, seminars, and tours, as well as observation or participation in work of the out-patient department, nursery schools, settlement houses, community health agencies, special hospitals, parent study groups, and other community organizations. Clinical study is intended to emphasize scientific principles and the art of applying them to the problems of health and illness.

* Applicants for the course in nursing of children are required to have completed a minimum of six weeks in pediatrics and four weeks in communicable disease nursing in their basic nursing curriculum. Students who have not met this requirement must remove the deficiency before the beginning of the junior year.

† Applicants for the course in psychiatric nursing are required to have had a minimum experience of three months or the equivalent in psychiatric nursing either as a student or graduate nurse on an undergraduate level or the equivalent as a graduate nurse. This requirement must be met by the beginning of the junior year.

‡ Applicants for the course in tuberculosis nursing are required to have satisfactorily completed a basic course in tuberculosis nursing including clinical experience. Students who have not met this requirement must remove the deficiency before the beginning of their junior year.

¶ Enrollment limited, permission required.

Although the student's program is modified in consideration of the interests and needs of the individual student, certain required courses are included in the clinical minor unless they have been completed prior to the time of enrolment. Students interested in a clinical minor should consult the minor adviser very early in their program of study. The sequence of required courses is such that early planning is necessary to avoid undue prolongation of the program.

The student should elect a clinical minor as early in her program as possible, preferably no later than the first quarter of the junior year. A minimum of five quarters is needed to arrange the sequence of required courses in the nursing education major and a clinical minor. A student who elects a clinical minor at a point in her program with less than five quarters remaining to complete the total credit requirements for the bachelor of science degree in nursing education should expect to spend one or more additional quarters to complete the course requirements of the major. Students should note that the general requirement of a minimum of 4 credits in biological sciences is usually taken during the sophomore year. The student is advised to select the particular science course in conference with the minor adviser. The choice will vary with the background of the individual student. In general the science of choice for students in medical, surgical, pediatric, and psychiatric nursing is physiology; in obstetric nursing is bacteriology or physiology; in operating room nursing is bacteriology. The following courses are required of all students electing a clinical minor:

Course No.	Title	Credits
Nurs. 150	Foundations of Clinical Nursing Specialties.....	3
P.H. 100	Elements of Preventive Medicine and Public Health.....	5

In addition to the above courses each student is required to select one of the clinical areas listed below and to complete all courses designated in that area:

Clinical Field	Course No.	Title	Credits
Medical Nursing	Nurs. 151A-B-C	Advanced Medical Nursing	15
Nursing of Children	Nurs. 154A-B-C	Advanced Pediatric Nursing	15
	C.W. 40	Child Training	3
	C.W. 80	Child Psychology	3
	or		
	C.W. 140	Behavior Problems of Younger Children	2
	C.W. 132	Later Childhood and Adolescence	3
Obstetric Nursing	Nurs. 152A-B-C	Advanced Obstetric Nursing	15
	P.H. 58	Maternal and Child Health	3
Operating Room	Nurs. 153A-B-C	Advanced Operating Room Nursing	15
Psychiatric Nursing	Psy. 144-145	Abnormal Psychology	6
	Nurs. 155A-B-C	Advanced Psychiatric Nursing	15
Rural Hospital	Soc. 14	Rural Sociology	3
Nursing	Nurs. 156A-B	Advanced Course in Rural Nursing.....	24
Surgical Nursing	Nurs. 157A-B-C	Advanced Surgical Nursing	15
Tuberculosis Nursing	P.H. 60	Tuberculosis and Its Control	2
	Nurs. 158	Advanced Tuberculosis Nursing	15

2. Certificate Curriculum in Psychiatric Nursing

Students are admitted to the certificate program in psychiatric nursing at the beginning of the fall quarter.

Fall Quarter		
Course No.	Title	Credits
Psy. A	Elementary Psychology }	5-6
or		
Psy. 1 and 2	General Psychology }	3
Soc. 1		
Nurs.Ad. 160	Ward Administration	5
Nurs.Ed. 72	Application of Principles of Learning to Clinical Instruction.....	3
Total		16-17

Winter Quarter

(Rochester State Hospital, Rochester, Minnesota)

Course No.	Title	Credits
Nurs. 170	Psychiatric Nursing and the Community.....	4
Nurs. 145A	Principles of Psychiatric Nursing	5
Nurs. 145B	Field Practice in Psychiatric Nursing.....	7
Total		16

Spring Quarter

(Rochester State Hospital, Rochester, Minnesota)

Nurs. 145C	Field Practice in Psychiatric Nursing.....	15
Total		15

Community health and welfare facilities throughout the state provide opportunity for study. The major experience in the clinical area is in the Rochester State Hospital.

Schedule of Hours and Vacations—Students in the certificate curriculum have a weekly class schedule comparable to that of students in other colleges of the University. In those courses which include clinical experience as part of the course, students have approximately two to three hours of clinical experience per week for each credit in the course.

Students have the same vacations and holidays as do other students in the University.

3. Master of Education Program in Nursing Education

Major advisers, Katharine J. Densford, Ruth Harrington, and Rena Boyle.

The purpose of the program is to prepare teachers for basic professional schools of nursing and for advanced clinical programs in nursing through a broad program of study and experience based upon undergraduate study and experience in nursing education.

The candidates for this program will have completed before admission a major in nursing education leading to a Bachelor's degree or will include the equivalent within the master of education program.

The program requires a minimum of 45 quarter credits distributed as follows:

Areas	Credits	
Nursing	5-10 (minimum of 5)	
Nursing Education	12	
Education	9	
Field Experience in Teaching	8	
Electives	6-11	
Total		45

Variation in the distribution of credits requires approval of the major adviser and the School of Nursing Committee on Graduate Students.

The following courses are required of all candidates and are arranged in a three-quarter sequence:

Course No.	Title	Credits
Nurs. 190f	Foundations of Nursing	5
Nurs.Ed. 197Ew, 198Es	Advanced Teaching of Nursing	6
Ed.C.I. 199Es	Internship	8

Other courses are to be selected by the student in consultation with a major adviser from course offerings numbered 100 and above. At least 6 of the elective credits must be selected from fields other than nursing and education.

Candidates who did not complete the following courses or equivalent as part of a program leading to the Bachelor's degree in an accredited college or univer-

sity will be required to include them in the master of education program in addition to the 45 credits described above.

Course No.	Title	Credits
Nurs.Ed. 171	The Curriculum of the School of Nursing	3
Ed. 55N	Introduction to Secondary School Teaching.....	5
Ed.T. 51A-B	The Teaching of Nursing	10
	Introductory Statistics	3

Candidates must meet the general requirements for the master of education degree as described on page 14 of the *Bulletin of the College of Education, 1952-54*, with the exception of a teaching minor in an academic field. Note that final comprehensive examinations in education are required.

4. Master of Nursing Administration Program

This program is being currently supported by a grant from the W. K. Kellogg Foundation.

The purpose of the program is to prepare professional nurses for positions in nursing administration such as directors, assistant directors, and supervisors.

Bachelor of science or bachelor of arts credits submitted as part of the admission requirements for professional Master's degrees will be reviewed, and recommendations regarding the student's program made on the basis of the general and professional education included in the Bachelor's degree program. In general, transfer credit for post-Bachelor's courses carried in other universities will not be granted toward the requirements of this degree. All records of courses taken by the applicant will, however, be considered in evaluating her qualifications for admission to the program. Persons who do not meet the usual requirements for admission to the program may, on special consideration, be admitted to selected course work.

In addition to its own faculty and facilities the school utilizes other divisions of the University as well as hospital and other health agencies in the area.

The course of study is so organized as to provide a central group of courses related to nursing service administration with complementary instruction in such areas as public administration, educational administration, business administration, hospital administration, personnel administration, and public health administration. Emphasis is placed on the development of an understanding of human behavior and skill in handling people which is basic to the science of administration.

The course requires a minimum of 57 quarter credits distributed as follows:

Areas	Credits
Nursing	3
Nursing Administration	16
Field Experience in Nursing Service Administration.....	15
Related Fields	15-17
Electives	6-8
Total	57

Variation in the distribution of credits requires approval of the major adviser and the School of Nursing Committee on Graduate Students.

The following courses are required of all candidates unless specifically exempted and are arranged in a four-quarter sequence:

Course No.	Title	Credits
Nurs. 190f	Foundations of Nursing	3
Nurs.Ad. 191f, 192w, 193su	Principles of Administration Applied to Nursing Service Administration	16
Nurs.Ad. 199Ds or 199Ss	Field Experience in Nursing Service Administration.....	15
P.H. 161f	History and Development of Hospitals	6
Pol.Sci. 131f	Public Administration	3
Econ. 161w	General Manpower Economic and Labor Problems.....	3
	Statistics	3-5
Total	49-51	

Other courses are to be selected by the student in consultation with a major adviser. At least 6 of the elective credits must be selected from fields other than administration. Students who are exempted from certain course requirements will have an increased number of elective credits available. A minimum of 45 quarter credits must be in courses numbered 100 and above.

Satisfactory completion of course work, field experience, projects, and examinations is required before the degree is granted.

5. Graduate Study

Among the fields recommended for graduate study are education, curriculum and instruction, educational administration, educational psychology (including guidance and personnel work), history and philosophy of education, psychology, sociology, and biological sciences including bacteriology, pathology, and physiology.

C. PRACTICAL NURSING CURRICULA

1. Practical Nursing Curriculum

Admission—The four-quarter practical nursing program is given on the Minneapolis Campus of the University of Minnesota.

Applicants must be high school graduates or meet the requirements for admission to the University by examination as provided for in individual cases. (See *Bulletin of General Information*.) Application should be made in writing to the Dean of Admissions and Records, University of Minnesota, Minneapolis 14, Minnesota. Application forms on which high school records should be submitted may be obtained from the Dean of Admissions and Records, University of Minnesota, Minneapolis 14, Minnesota.

Applicants may be either married or single and should be between 18 and 35 years of age. Those over 35 years of age will be considered on an individual basis. Applicants should submit a recommendation from the high school principal or counselor if they have been out of high school less than two years. Those who have been out more than two years may submit recommendation from an employer or other suitable person.

Applicants are admitted at the beginning of the fall quarter only.

Course Requirements—The student is enrolled for 12 to 15 credit hours per quarter, approximately one-half of which is in general education courses. The remaining hours are in practical nursing courses, which include an average of 20 hours per week of laboratory experience in the care of patients. §

Course No.	Title	Credits
G.C. 1A	Individual Orientation	4
or		
G.C. 41	Practical Applications of Psychology	5
G.C. 10A-B-C	Human Biology	9
G.C. 14	Food Selection and Purchase	3
G.C. 42A	Human Development	3
G.C. 42B	Personal Adjustment	3
P.N. 1-2-3	Elements of Nursing Care	12
P.N. 4A	Introduction to Practical Nursing	2
P.N. 4B	Introduction to Child Care	2
P.N. 4C	Introduction to Mother and Infant Care	2
P.N. 5	Nursing Care in Special Situations	9
P.N. 6	Care of the Home	2
P.N. 7	Personal and Vocational Relationships	1

§ The credits in the practical nursing courses are applicable toward an associate in arts degree in the General College.

The student has clinical experience in the care of medical and surgical patients, mothers, babies, and children at the University Hospitals. Field trips and tours of public health facilities are planned to give students opportunity to see and understand complete health care. Additional experience in care of the aged and chronically ill is gained in convalescent homes and homes for the aged.

2. Practical Nursing and Home Management Curriculum

The purpose of the program in Practical Nursing and Home Management is to prepare persons interested in rural health to give needed nonprofessional nursing service in homes and institutions and to assist with management of homes.

This six-quarter program is offered jointly by the School of Nursing and School of Agriculture. *Inquiry for information and application for admission should be made to the School of Agriculture, University of Minnesota, St. Paul 1, Minnesota.*

SECTION III—DESCRIPTION OF COURSES

The following courses are taught by members of the School of Nursing faculty and cooperating faculty from other departments. Class hours, days, and rooms for these courses are posted on the School of Nursing bulletin board, 125 Owre Hall, at the beginning of each quarter. For summer class schedule see *Bulletin of the Summer Session*.

The description of the required courses and electives in the various curricula, which are taught by other departments of the University, will be found in the University of Minnesota *Class Schedule* and in the *Bulletin of the College of Science, Literature, and the Arts*, and the *Bulletin of the College of Education*.

Nursing

- Nurs.17-18f-w,s-su. Introduction to Clinical Nursing. The study of interrelationships of social, economic, medical, emotional, nutritional, and nursing needs of patients and application of the principles involved in the practice of nursing and prevention of illness. (11 cred. ; 7 cred. f,s, 4 cred. w,su)
- Nurs.50-51f-w,s-su. Medical and Surgical Nursing. Lectures, discussions, demonstrations, field trips, and clinical experience giving a knowledge of the causes, symptoms, treatment, and prevention of medical and surgical conditions, including the emotional and socio-economic, nutritional, and rehabilitative aspects of patient care. Application of this knowledge to the care of patients. (24 cred. ; 12 cred. per qtr.)
- Nurs.54w,su. Pathology. Consideration of the general nature and causes of disease, structural and physiological manifestations of general disease processes. (2 cred.)
- Nurs.55w,su. Introduction to Communicable Disease. A course providing basic information concerning the etiology and symptomatology of the acute communicable diseases. Lectures, discussion, slides, and other visual materials. (1 cred.)
- Nurs.56f,w,s,su. Nursing in the Operating Room. Demonstration, discussions, conferences, field trips, observations, and clinical experience selected to develop an appreciation of the scientific principles of aseptic technique, knowledge and skill in performing nursing functions in the operating rooms, and a broad perspective of the social, economic, and emotional factors in the nursing care of the surgical patient. (6 cred.)
- Nurs.58f,w,s,su. Orthopedic Nursing. Conferences, lectures, demonstrations, and clinical experience in the nursing care of orthopedic patients. (2 cred.)
- Nurs.59f,w,s,su. Gynecologic Nursing. Conferences, lectures, demonstrations, and clinical experience in the medical and surgical aspects in the care of the patient with pathological conditions of the female generative system. Emphasis on the normal physiological processes, the preventive aspects of gynecologic conditions, and the nursing care of patients undergoing radiation therapy. (4 cred.)
- Nurs.60-61f-w,s-su. Maternal and Child Nursing. Lectures, clinical experience, classes, clinics, and demonstrations in the principles of care of the mother and her child. Discussion of preparation for parenthood. Special emphasis is given to the emotional, social, mental, and physical aspects of nursing care to the mother and to the development of the child in the family and the community. Emphasis on the normal physiology and development. Discussion of complications which may arise during pregnancy. Care of the sick child. (60, Maternal Nursing, 12 cred. ; 61, Child Nursing, 12 cred.)

- Nurs.66,w,su. Neuropsychiatric Nursing. This course deals with the understanding, prevention, and rehabilitative treatment of neuropsychiatric patients. Lectures, clinics, and demonstrations. (4 cred.)
- Nurs.67f,w,s,su. The Nursing Care of Neuropsychiatric Patients. A course providing for guided study, observation, and experience in the care of neuropsychiatric patients based upon an understanding of the dynamics of human behavior. Clinical nursing classes, demonstrations, field trips, individual patient studies, and conferences. (8 cred.)
- Nurs.68su. Nursing Care of Psychiatric Patients. A course designed to aid the graduate nurse in augmenting her clinical preparation. Classes, observation, and experience in the care of psychiatric patients. (4 cred.; open for credit to graduate nurses who have not had psychiatric nursing experience in their basic professional curriculum, and to other graduate nurses upon approval of the School of Nursing.)
- Nurs.79f,w,s,su. Tuberculosis Nursing. Lectures, classes, clinics, and demonstrations presenting the etiology, symptoms, treatment, and nursing care of the disease with emphasis on the epidemiology and the socio-economic aspects—especially case finding, prevention, and rehabilitation. (3 cred.)
- Nurs.87f,w,s,su. Field Experience in Public Health Nursing. Supervised nursing experience in public health agencies; conferences, demonstrations, observations, and other instruction relating to the services rendered by the public health nurse. (10 cred.)
- Nurs.88f,w,s,su. Rural Nursing. This program is planned to provide educational experiences which assist in developing an understanding of and interest in the health needs of rural communities through nursing experiences in the rural hospital, through seeing health programs in the rural community, and through participation in community activities. (5 cred.)
- Nurs.96f,w,s,su. Out-Patient Nursing. This program is planned to provide instruction and experience in the clinic where sociologic, economic, and preventive aspects of illness are stressed, and where students have opportunity to observe the total care of ambulatory patients. (5 cred.)
- Nurs.97f,w,s,su. Medical and Surgical Nursing. Lectures, discussions, demonstrations, field trips, and clinical experiences in medical and surgical specialties. Social, economic, psychological, and public health aspects are stressed. (7 cred.)
- Nurs.98f,w,s,su. The Nursing Profession. The present-day problems of nursing—legal, socio-economic, professional, and legislative and their historical background. A survey of the health movement. (3 cred.)
- Nurs.101. Nursing in Atomic Warfare. Nursing responsibilities in preparing community for atomic warfare and caring for patients in areas involved in atomic bombing. Registration restricted to graduate professional nurses. (3 cred.)
- Nurs.102. The Role of Nursing in Gerontology. Population statistics with special emphasis upon changing percentage of persons in the older age groups and implications for the health field. Social and economic status of older persons: relationship to health; trends in provision of facilities for improvement of health status of older persons; needs during acute and chronic illness. Role of the nurse in relation to all aspects of preventive, supportive, and therapeutic care. (3 cred.)
- Nurs.103. The Role of Nursing in Cancer Care and Control. Consideration of nursing responsibilities in the prevention and early diagnosis of cancer, and in the treatment and rehabilitation of the cancer patient. Emphasis on the emotional, social, and economic problems of the patient with cancer, and the utilization of community resources in working toward a solution of these problems. (3 cred.)

- Nurs.104. The Nurse's Role in Maintaining Emotional Health. Study of the mental health principles and techniques involved in carrying out complete nursing care. (3 cred.)
- Nurs.145A. Principles of Psychiatric Nursing. Lectures, discussions, conferences, seminars, and clinics related to the nursing care of the mentally ill. (5 cred.)
- Nurs.145Bw,Cs.† Field Practice in Psychiatric Nursing. A course providing for guided study of principles, techniques, and problems of psychiatric nursing. This experience is offered in clinical facilities of a state hospital for the mentally ill and is open to students registered in the certificate program in psychiatric nursing. (B, 7 cred.; C, 15 cred.)
- Nurs.150f,s. Foundations of Clinical Nursing Specialties. The present trends in scientific studies and public health aspects of problems related to health and disease. Consideration of resources available to the patient for maintenance of health and care during illness. Emphasis placed upon the importance of the patient's own resources as well as those within the family. Investigation, study, and discussion of community resources, both public and private. Observation in out-patient department and in community welfare and health agencies. (3 cred.)
- Nurs.151Af,Bw,Cs. Advanced Medical Nursing. A course providing for guided study of principles, techniques, and problems of medical nursing. Doctors' and nurses' lectures, conferences, seminars, demonstrations, clinics, and ward classes supplemented by correlated clinical assignments. Emphasis is given scientific principles, social and economic implications, and community programs for disease control as related to highest quality of complete patient care. Clinical assignments include selected experience in bedside patient care, intensive study of individual patient's resources in relation to his special needs, participation in professional relationships in a nursing team situation, and observation and/or experience in the use of special diagnostic and therapeutic techniques, and investigation of specific resources provided by community agencies. Individual student interests, needs, and abilities are recognized in planning content of the course. (5 cred. per qtr.)
- Nurs.152Af,Bw,Cs. Advanced Obstetric Nursing. A course providing for guided study of principles, techniques, and problems of obstetric nursing. Doctors' and nurses' lectures, conferences, seminars, demonstrations, clinics, and ward classes supplemented by correlated clinical assignments. Emphasis is given scientific principles, social and economic implications, and community programs for disease control as related to highest quality of patient care. Clinical assignments include experience in bedside patient care, in special diagnostic and therapeutic techniques, and in community agency activities. Individual student interests, needs, and abilities are recognized in planning content of the course. (5 cred. per qtr.)
- Nurs.153Af,Bw,Cs. Advanced Operating Room Nursing. A course providing for guided study of principles, techniques, and problems of operating room nursing. Lectures, demonstrations, conferences, classes, readings, and experience. Experience designed to form a background of general knowledge in nursing related to selected types of operative procedures which will meet the needs of the individual student. (5 cred. per qtr.)
- Nurs.154Af,Bw,Cs. Advanced Pediatric Nursing. Lectures, conferences, seminars, demonstrations, and clinics supplemented by correlated clinical assignments. Clinical assignments include experience in infant and child observation and care, in community agency activities, and in care of the sick infant and child. A course providing for guided study of principles, techniques, and problems in the care of normal children including acquaintance with community facilities and programs for better parenthood and child care. Study of the special needs and problems of the sick infant and child. (5 cred. per qtr.)

† To receive credit for any part of course a student must complete parts preceding dagger.

- Nurs.155Af,Bw,Cs. Advanced Psychiatric Nursing. A course providing for guided study of principles, techniques, and problems of psychiatric nursing. Doctors' and nurses' lectures, conferences, seminars, demonstrations, clinics, and ward classes supplemented by correlated clinical assignments. Emphasis is given scientific principles, social and economic implications, and community programs for promotion of mental health and for disease control as related to highest quality of patient care. Clinical assignments include experience in patient care, in special diagnostic and therapeutic techniques, and in community agency activities. Individual student interests, needs, and abilities are recognized in planning content of the course. (5 cred. per qtr.)
- Nurs.156Af,Bw. Advanced Course in Rural Nursing. Organized instruction and clinical experience in rural hospital nursing including: home and hospital deliveries, care of the newborn, obstetric anesthesia, operating room experience, and participation in the local school health program. (A, 15 cred.; B, 9 cred.)
- Nurs.157Af,Bw,Cs. Advanced Surgical Nursing. A course providing for guided study of principles, techniques, and problems of surgical nursing. Doctors' and nurses' lectures, conferences, seminars, demonstrations, clinics, and ward classes supplemented by correlated clinical assignments. Emphasis is given scientific principles, social and economic implications, and community programs for disease control as related to highest quality of patient care. Clinical assignments include experience in bedside patient care, in special diagnostic and therapeutic techniques, and in community agency activities. Individual student interest, needs, and abilities are recognized in planning content of the course. (5 cred. per qtr.)
- Nurs.158. Advanced Tuberculosis Nursing. Nurses' and doctors' lectures, conferences, and ward classes supplemented by correlated clinical assignments. Emphasis is given scientific principles, social and economic implications, and community programs for disease control as related to highest quality of patient care. Clinical assignments include experience in bedside patient care, in special diagnostic and therapeutic techniques, and in community agency activities. Includes study of rehabilitation, occupational therapy, education of patients and family, orientation of personnel to job, collapse therapy, etc. Individual student interests, needs, and abilities are recognized in planning the course content. (15 cred.)
- Nurs.165. Analysis of Nursing Care. Studies in nursing, with emphasis on scientific methods of analyzing and improving present practices. Students may select individual problems or participate in group studies. (4 cred.)
- Nurs.170w. Psychiatric Nursing and the Community. The nurse's role in care of the mentally ill and her contributions in the preventive program. A study of the community resources and the relationship between groups interested in the prevention of mental illness and the care and rehabilitation of the mentally ill. Social and economic implications of mental illness. (4 cred.)
- Nurs.180. Human Relations in the Health Field. A course dealing with patterns and problems of relationships among personnel and between patients and personnel working in hospitals and related fields. (3 cred.)
- Nurs.190f. Foundations of Nursing. The role of nursing as one of the professions concerned with the promotion of health, the prevention of illness, and the care of persons during periods of illness or helplessness. Open to candidates for the master of education and master of nursing administration degrees. (3-5 cred.)
- Nurs.191w. The Field of Psychiatric Nursing. A course planned to provide the nurse with background material from which she may develop an increasing understanding of her role as an expert practitioner in the care of the mentally ill and in the prevention of mental illness. This role will be considered in the light of changing cultural and social influences with particular reference to issues of current urgency in our society. Content will include information per-

tinant to the various schools of psychiatric thought and to the various approaches to treatment which nurses are required to meet in varying psychiatric situations. (5 cred.)

- Nurs.192s. Psychiatric Nursing. Appraising psychiatric nursing needs and planning nursing care for groups of psychiatric patients. Content will include information pertinent to the various schools of psychiatric thought and to the various approaches to treatment which nurses are required to meet in varying psychiatric situations. (3 cred.)
- Nurs.193w,s. Medical Nursing. Study, observation, and practice of medical nursing, arranged on an individual basis for advanced students. Patient care will emphasize evaluation of resources and needs of medical patients, professional team planning of therapy, and elaboration of plans for nursing care. (3 cred.)
- Nurs.194w,s. Surgical Nursing. Study and observation of patients requiring surgery, including preoperative, operative, and postoperative nursing. Readings, observations and projects planned on an individual basis. (3 cred.)

Practical Nursing

- P.N.1f,2w,3s. Elements of Nursing Care. Principles basic to and practice in practical nursing; meaning of health and illness; safety measures; patient care; community resources. (12 cred.)
- P.N.4A,f. Introduction to Practical Nursing. Introduction to care of patient in hospital and home; working with others. (2 cred.)
- P.N.4B,s. Introduction to Child Care. Development of the child from one to six; care of the ill child. (2 cred.)
- P.N.4C,w. Introduction to Mother and Infant Care. Care of mothers and the newborn. (2 cred.)
- P.N.5,su. Nursing Care in Special Situations. Nursing care of patients in nursing homes and in other special situations. (9 cred.)
- P.N.6,su. Care of the Home. Care of the home in which there is illness. (2 cred.)
- P.N.7,su. Personal and Vocational Relationships. Relationships of the individual to others in the patient environment. (1 cred.)
- P.N.A1,w. Elements of Practical Nursing I. An introduction to practical nursing, including historical background of practical nursing, vocational relationships, principles of nursing care and procedure, with selected experience in patient care in hospitals. (7 cred.)
- P.N.A2,s. Elements of Practical Nursing II. Development of practical nursing skills through instruction and experience in care of the less critically ill and convalescent child and adult in the general hospital; care of the chronically ill and aged in selected nursing homes; emphasis on emotional as well as physical needs of all age groups. (15 cred.)
- P.N.A3,su. Practical Nursing III. An orientation to the practical nurse's role in community life and rural health program through instruction and experiences gained in a rural community; includes maternal and newborn care, observation and experience in public health facilities and other facilities for health care. (15 cred.)
- P.N.A4,f. Practical Nursing IV. Practical Nursing in special situations; instruction and selected experiences in care of patients with special conditions and in the team relationship assisting the professional nurse in the care of the acutely ill adult and child. Vocational relationships and ethics for the practical nurse as a member of the health team and of the community. (3 cred.)

Nursing Administration

- Nurs.Ad.50. Nursing Administration. Senior seminar in principles of administration and their application in the care of patients. (1 cred.)

- Nurs.Ad.67f,w,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 students' clinical experience in that division. Participation in the ward teaching program. (6 cred.; prereq. Nurs.Ad.160, Nurs.165, and permission of instructor; hrs. and days ar. during experience)
- Nurs.Ad.86f. Nursing Service Administration in Government Hospitals. A course designed especially to meet the needs of graduate nurses preparing for work in government hospitals. (2 cred.)
- Nurs.Ad.160f,w,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. (5 cred.)
- Nurs.Ad.167f,w,s. Studies and Experience in Ward Administration. Introduction to the application of research techniques to problems in hospital nursing service; study of hospital organization and departmental interrelationships; practice in managing a nursing service unit, planning patient care, maintaining the physical environment, directing activities of personnel; observation and participation in student programs. (8 cred.)
- Nurs.Ad.170f,w,s,su. The Administrative Process in Nursing Service Administration. Study of selected principles of administration and application of these principles to nursing; individual or group projects utilizing some administrative principles; overview of present day concepts of nursing administration. (3 cred.; cannot be taken for credit by students in master of nursing administration program)
- Nurs.Ad.191f. Principles of Administration Applied to Nursing Service Administration. Defining aims, policies, and organization; principles of scientific management; planning and directing nursing care (effective use of personnel and material resources); job analysis; job classification; evaluation of personnel; staff education; personnel policies; methods of recruiting, selecting, appointing, and assigning staff; plant, supplies, and equipment, including setting of standards. (5 cred.)
- Nurs.Ad.192w. Principles of Administration Applied to Nursing Service Administration. Dynamic factors affecting nursing service administration; human relations; communications; research; teaching; personal and professional development. Methods of problem solving. Coordination of other departmental activities in the nursing service department. (5 cred.)
- Nurs.Ad.193su. Principles of Administration Applied to Nursing Service Administration. Budgeting: principles of budget making; formulation; execution; evaluation; appreciation of the meaning of fiscal terms; cost accounting; economy and efficiency in the utilization of manpower and materials; participation in community health programs; legal problems in nursing. Included is a 1-credit seminar on problems in nursing service administration. (6 cred.)
- Nurs.Ad.199Ds. Field Experience in Nursing Service Administration. Students will be assigned to carefully selected health agencies for full-time participation in the activities of nursing service administration which are the specific responsibilities of the director or assistant director. The experiences will be arranged in accordance with the needs of the individual students and will be under the direction and supervision of a well-prepared and experienced nursing service administrator in cooperation with the faculty of the program in Nursing Service Administration. (15 cred.)
- Nurs.Ad.199Ss. Field Experience in Nursing Service Administration. Students will be assigned to an administrative unit in carefully selected health agencies for full-time participation in the activities which are the responsibility of an admin-

istrative supervisor. The experiences will be arranged in accordance with the needs of the individual students and will be under the direction and supervision of a well-prepared and experienced administrative supervisor in cooperation with the faculty of the program in Nursing Service Administration. (15 cred.)

Nursing Education and Education

- Ed.T.51Asu,f,w,Bf,w,s. The Teaching of Nursing. Principles underlying clinical and classroom teaching in schools of nursing. Planning and evaluation of instruction. Observation and study of principles of teaching applied in the nursing school situation. Supervised practice in teaching of nursing subjects. (10 cred.)
- Ed.C.I.199E. Internship. Advanced supervised teaching and practice work at the graduate level for candidates for the master of education degree. (8 cred.)
- Nurs.Ed.62su. Introduction to Personnel Work in Nursing. Introduction to principles, techniques, and application of personnel point of view to nursing. Psychological principles; individual differences; counseling techniques appropriate for the nursing staff and faculty. (3 cred.)
- Nurs.Ed.68w,su. Construction and Use of Examinations and Other Measurement in Basic Nursing Courses. Criteria for judging and improving methods of educational measurement; examinations as aids to student progress; relation of examination scores to grading systems. Practice in making and scoring course examinations. (3 cred.)
- Nurs.Ed.69f,s. Survey of Conditions and Trends in Nursing. A study of conditions existing in nursing as revealed in literature and reports. (3 cred.)
- Nurs.Ed.72f. Application of Principles of Learning to Clinical Instruction. Study of learning situations in the basic professional program in nursing. Sources and selection of materials and organization of instruction. Evaluation of student learning in clinical situations. (3 cred.)
- Nurs.Ed.74w. Sciences in a School of Nursing Curriculum. 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. This course should be carried during the winter quarter of the fifth year, but may not be carried in the same quarter as Ed.T. 51B. (5 cred.; prereq. consent of instructor)
- Nurs.Ed.75. Fundamentals of Administration in Schools of Nursing. Study of principles of administration and their application to the operation of schools of nursing. Organization: administrative relationships; personnel policies, practices, relationships; income and expenditure, budgeting, salary schedule; public relations; records and reports. (3 cred.; prereq. consent of instructor)
- Nurs.Ed.162f. Personnel Work in Nursing. Principles and techniques of personnel work applied to problems in nursing. Individual differences, human behavior, psychological tests, personnel records, orientation periods, remedial programs, counseling interviews, etc. (3 cred.)
- Nurs.Ed.165w. Problems in Nursing Care. An introduction to research in nursing; each student works on a problem of her own selection. (3 cred.; prereq. consent of instructor)
- Nurs.Ed.171f,w,s. The Curriculum of the School of Nursing. Principles of curriculum development applied to educational programs in nursing. (3 cred.; prereq. Nurs.Ed. 69, Ed.T. 51A-B or concurrent registration)
- Nurs.Ed.175w. Educational Administration in Nursing. Organization, administration, and support of educational programs in nursing: in schools of professional and practical nursing; in governmental and other nursing services; in continuing education programs for practicing nurses and nurse educators. (3 cred.; prereq. sr., grad., or consent of instructor)

- Nurs.Ed.190f. The Survey in Nursing Education. Survey techniques in evaluating an educational situation, as related to present programs, expanding programs and new programs. (3 cred. ; prereq. consent of instructor)
- Nurs.Ed.197Ew-198Es. Advanced Teaching of Nursing. Problems related to the teaching of nursing for students registered in the master of education program in nursing education. (2 cred., 197E ; 4 cred., 198E ; prereq. consent of instructor)
- Nurs.Ed.271f. Problems in Curriculum. Special problems related to curricula in basic professional nursing, advanced professional nursing, and practical nursing. Each student works on a problem of her own choice. (3 cred. ; prereq. 171, consent of instructor)

REQUIRED COURSES OFFERED BY OTHER DEPARTMENTS

Basic Professional Nursing Curriculum

Course No.	Title	Credits
Anat. 4	Human Anatomy	5
Bact. 53	General Bacteriology	5
Neuropsych. 171	Principles of Neuropsychiatry	4
Pharm. 9-10	Pharmacology	4
Phys.Chem. 50	Physiological Chemistry	4
Physiol. 60	Human Physiology	6
P.H. 62	Principles of Public Health Nursing I	5
P.H. 63	Principles of Public Health Nursing II	5
P.H. 100	Elements of Preventive Medicine and Public Health.....	5
Soc. 91	Case Method—Study of Human Problems	3

Practical Nursing Curriculum

G.C. 1A	Individual Orientation	4
G.C. 10A	Human Biology	3
G.C. 10B	Human Biology	3
G.C. 10C	Human Biology	3
G.C. 14	Food Selection and Purchase	3
G.C. 41	Practical Applications of Psychology	5
G.C. 42A	Human Development	3
G.C. 42B	Personal Adjustment	3

Nursing Education Major and Minors

Art Ed. 17	Pictorial Expression for Elementary Education	3
Art Ed. 18	Design Activities for Elementary Education	3
Bact. 53	General Bacteriology	5
Bact. 102	Medical Bacteriology	5
C.W. 40	Child Training	3
C.W. 80	Child Psychology	3
C.W. 130	Motor, Linguistic, and Intellectual Development of the Child	3
C.W. 131	Personality, Emotional, and Social Development of the Child	3
C.W. 132	Later Childhood and Adolescence	3
C.W. 140	Behavior Problems in Younger Children	2
C.W. 141	Behavior Problems in Older Children and Adolescents	2
C.W. 142	The Psychology of Atypical Children	3
Ed. 55N	Introduction to Teaching Nursing	5
Ed.T. 57	Nursery School—Kindergarten Laboratory in Art, Literature, and Social Studies	5
Ed.T. 59	Methods and Observation in the Nursery School	3
Ed.T. 77	Student Teaching in the Nursery School	5
H.Ed. 180	The School and Society	3
Phys.Chem. 50	Physiological Chemistry	4
Physiol. 60	Human Physiology	6
Psy. 144-145	Abnormal Psychology	6
P.H. 58	Maternal and Child Health	3
P.H. 60	Tuberculosis and Its Control	2
Soc. 14	Rural Sociology	3
Zool. 21	Histology	5
Zool. 22	Comparative Anatomy	5

Nursing Administration Program

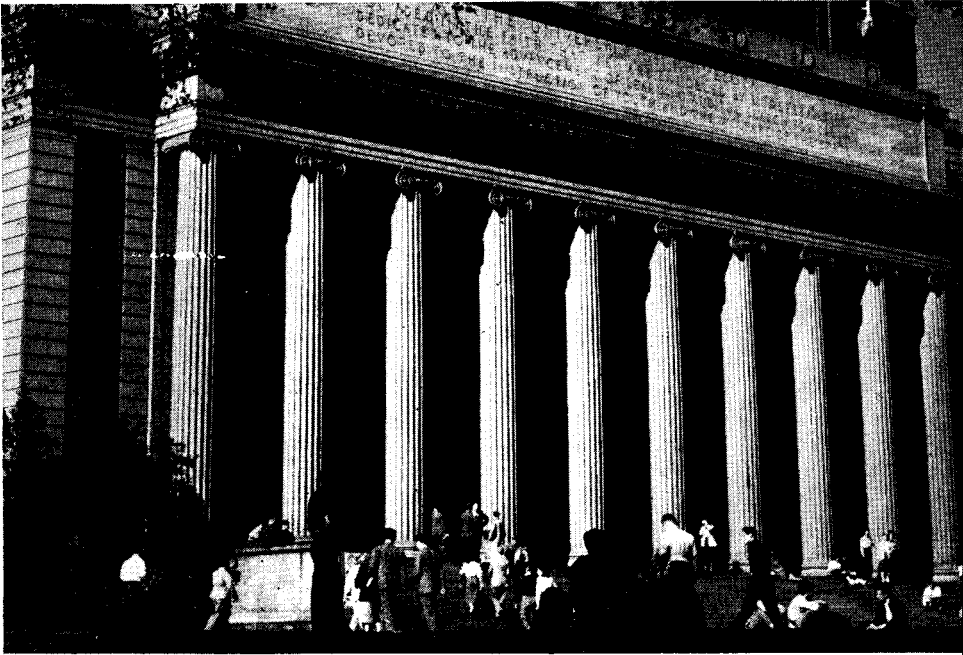
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7/7/53
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Bulletin of the
UNIVERSITY OF MINNESOTA



Course in Medical Technology
1953-1955

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Gerald T. Evans, M.D.C.M., Ph.D., Director of the Course in Medical Technology
Leo G. Rigler, M.D., Professor of Radiology

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Elaine Duerr, B.S., Instructor, Histologic Technique Laboratory
Grace Mary Ederer, B.A., Administrative Laboratory Technologist; Instructor
Gerald T. Evans, M.D.C.M., Ph.D., Professor, Medicine; Director, Hospital Laboratories; Director, Course in Medical Technology
Elizabeth G. Frame, Ph.D., Assistant Professor, Physiological Chemistry; Hospital Chemist
Esther Freier, B.S., Instructor, Chemistry Laboratory
Lorraine Gonyea, B.S., Instructor, Hematology Laboratory
Doris Hansen, B.S., Instructor, Parasitology and Serology Laboratory
Robert Hebbel, M.D., Ph.D., Professor, Pathology
Ruth Hovde, M.S., Assistant Professor, Medical Technology
Elizabeth Johnson, B.A., Instructor, Medical Technology (Veterans Hospital)
Paul H. Lober, M.D., Instructor, Pathology
Dwight E. Minnich, Ph.D., Professor and Chairman, Zoology
Dorothy Ness, B.S., Instructor, Bacteriology Laboratory
Verna Rausch, M.S., Instructor and Student Adviser, Medical Technology
R. Dorothy Sundberg, M.D., Ph.D., Associate Professor, Anatomy; Hospital Hematologist
Jerome T. Syverton, M.D., Professor and Head, Bacteriology and Immunology

Maurice Visscher, M.D., Ph.D., Professor and Head, Physiology
 Franklin G. Wallace, Ph.D., Associate Professor, Zoology; Consultant in Parasitology
 John C. Watson, R.T., Supervisor, X-Ray Services
 Lydia Wetzel, M.S., Instructor, Medical Technology (Veterans Hospital)
 Newell R. Ziegler, M.D., Ph.D., Associate Professor, Bacteriology; Hospital Bacteriologist; Director, Blood Bank

STUDENT TECHNOLOGIST SUPERVISORS

Sally Anderson, B.S., Chemistry Laboratory
 Harriette Broman, B.S., Hematology Laboratory
 Teena Bruich, B.S., Dispensary Laboratory
 Virginia Burris, B.S., Blood Bank Laboratory
 Kathleen Clayson, B.S., Chemistry Laboratory
 Joanne Davey, B.S., Chemistry Laboratory
 Patricia Field, B.S., Basal Metabolism Laboratory
 Marian Gaffey, B.S., Bacteriology Laboratory
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 Harriet Hillerman, B.S., Night Technologist
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 Marlene Johnson, B.S., Chemistry Laboratory
 Virginia Johnston, B.S., Hematology Laboratory
 Genevieve Jorgenson, B.S., Chemistry Laboratory
 Lorraine Lopic, B.S., Chemistry Laboratory
 Greta Lilleberg, B.S., Bacteriology Laboratory
 Loretta Mackey, B.S., Chemistry Laboratory
 Marilyn Nelson, B.S., Chemistry Laboratory
 Charlotte Page, B.S., Heart Hospital Laboratory
 Alice Pierce, B.S., Urinalysis Laboratory
 Marilyn Postier, B.S., Blood Bank Laboratory
 Janet Schultz, B.S., Dispensary Laboratory
 Ella Spanjers, B.S., Hematology Laboratory
 Betty Weisel, B.S., Dispensary Laboratory
 Marilyn Wolcott, B.S., Histologic Technique Laboratory

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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, 1953, there have been 1009 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.

After the retirement of Dr. Beard in 1925, the course was under the supervision of a special committee of representatives of the Graduate School of 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.

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 his registration to Medical Sciences. The entire fourth year of twelve months consists of practical rotating service in the laboratories of the University of Minnesota 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 student planning to enter medicine it is an ideal preliminary training.

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, parasitology, 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.

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, or chemistry. There are opportunities for graduates with sufficient ability to work in research and teaching laboratories associated with larger clinics, foundations, and universities.

Students who have completed all requirements of the Course in Medical Technology may extend their program to include some training in X-Ray Technology by special arrangement with the Department of Radiology, University Hospitals.

NATIONAL REGISTRATION

Graduates from the Course in Medical Technology of the University of Minnesota are eligible to take the national examination for certification as a medical tech-

nologist conducted by the Board of Registry of the American Society of Clinical Pathologists. Many hospitals require this certification for employment.

Successful passing of the examination makes the technologist eligible for membership in the district, state, and national medical technology organizations.

COURSE FOR LABORATORY AIDES

The General Extension Division offers a course of instruction in selected phases of laboratory work designed to prepare high school graduates as technical assistants for clinical laboratories. The course is twelve months in length with classes on the campus and laboratory training in the hospitals in Minneapolis and St. Paul.

Further information about the course is available from the General Extension Division, Nicholson Hall, or from the Medical Technology Office, University of Minnesota Hospitals.

COURSE IN X-RAY TECHNOLOGY

The Department of Radiology, through the General Extension Division, offers a course in X-Ray Technology to students who have completed two years of college or two years of nurses' training. The course consists of fifteen months of study and practical work in x-ray technique. Additional information may be obtained from the Department of Radiology, M535, University of Minnesota Hospitals.

ADMISSION TO FRESHMAN CLASS

The requirements for admission to preprofessional work of this course of study 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*. Qualified applicants, men or women, 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, Summer Session attendance may be necessary to make up the irregularities in the student's program.

It is recommended that prospective students take mathematics, physics, chemistry, and at least two years of a language in high school.

ADMISSION TO THE JUNIOR CLASS

For admission to the Course in Medical Technology the student must have completed 90 credits including the required courses with a total of 90 honor points. For each 5 honor points in excess of 1 honor point per credit the number 90 is diminished by 1.

Those students registered the first two years at the University of Minnesota who expect to complete the requirements for admission to the junior year must file an application for change of college with the Office of Admissions and Records by June 5. Those with sufficient credit but having course deficiencies should consult with the director of the Course in Medical Technology regarding their status.

Students from other accredited colleges and universities may transfer to the University of Minnesota to complete the Course in Medical Technology. Courses which are equivalent to those given at the University of Minnesota are accepted to satisfy the requirements for entrance to the Course in Medical Technology.

Students transferring from other colleges may obtain application for admission with advanced standing from the Office of Admissions and Records. These applications must be filed with the Office of Admissions and Records by July 1.

In some instances, students transferring from other colleges may be able to make up their deficiencies, such as in 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. Transfer students with three or more years of college training elsewhere will be permitted to begin the senior year (twelve months of practical training in the University Hospitals laboratories) as soon as all 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. 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.

REGISTRATION

All prospective students are urged to consult advisers in the Medical Technology office, W225, University Hospitals. This should be done in person if possible. Each new student will be assigned a special adviser in the Medical Technology office to whom he is requested to submit his registration for approval each quarter.

DEGREES

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 1 honor point per credit. The total number of required credits may be reduced in accordance with the quality credit rule of the College of Science, Literature, and the Arts.

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 2 honor points for each credit may graduate "with distinction" and those with an average of $2\frac{1}{2}$ honor points for each credit may graduate "with high distinction."

FEEES

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 \$33 each quarter, that is, \$99 a year; for nonresidents, \$100 each quarter, or \$300 each year.

During the junior and senior years after admittance to the Course in Medical Technology the tuition is \$45 each quarter for residents and \$115 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 \$5 payable with the first registration only, and an incidental fee of \$18.85 a quarter for which the student receives

privileges such as the Health Service, Testing Bureau, Coffman Memorial Union, university post-office service, and the *Minnesota Daily* including the Official Daily Bulletin. 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. Laundry of uniforms is furnished students during the hospital training.

RESIDENCES

Comstock Hall, Sanford Hall, Brewster Hall, and the Winchell Cottages are university owned and operated dormitories. Preferential treatment is given all applicants who are Minnesota residents. In addition to these facilities maintained by the University, there are numerous private rooming houses for women students. All of these are inspected and must meet minimum standards of operation set by the University.

It is inadvisable to make reservations for a room in a private dwelling before seeing the room. Several of the available vacancies should be seen before definite commitments are made.

Further information than that supplied here may be obtained by writing to the Director of the Student Housing Bureau, 209 Eddy Hall.

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 loans, scholarships, prizes and awards, and opportunities for employment.

If you are a direct blood descendant of a veteran of World War I, you are eligible to apply for the LaVerne Noyes Scholarship, which covers the amount of tuition. Recipients of this scholarship are selected on the basis of the criteria given above. You may be eligible for assistance from other general university scholarship funds. Although scholarship assistance is usually not granted until a student has completed at least two quarters of work in the University, it may be to your advantage to inquire about the possibilities of such aid now.

Loans are available to any fully registered student in the University who has completed two quarters of work and is making satisfactory progress toward a degree. Either a loan or a scholarship may be helpful supplements to savings, family aid, and part-time earnings. A grant of either one is considered an honor since their primary purpose is to help promising students who might otherwise have to delay or neglect their studies to earn a living. A student loan in proper proportion to other sources of income available to the student is a sound investment. It has kept many students from having to drop out before completing their educational objectives.

Further information concerning your opportunities for obtaining financial assistance may be obtained from the Bureau of Student Loans and Scholarships, Office of the Dean of Students, 201 Eddy Hall.

In addition to general university loan and scholarship funds, there are two funds especially for students in medical technology, the William A. O'Brien Scholarship Fund and the W. K. Kellogg Foundation Loan Fund. For the special medical technology loan fund, applications for assistance must be made to the Bureau of

Student Loans and Scholarships, but it is recommended that the student requesting such assistance should first have a personal interview with the medical technology adviser, W225, University Hospitals.

The University maintains a Student Employment Bureau, 153 Temporary South of Folwell building, 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 includes 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 must be completed before the student will be admitted to the junior year:

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

Anat. 4, Elementary Anatomy (5 cred.)

Bact. 53, General Bacteriology (5 cred.)

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

or

Com. 1-2-3, Communication (12 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.)

Org.Chem. 61-62, Elementary Organic Chemistry (8 cred.)

Phys. 1-2-3, Introduction to Physical Sciences (9 cred.)

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

Zool. 54, Histology (5 cred.)

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, 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

<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Eng. A, 4, or Com. 1	Eng. B, 5, or Com. 2	Eng. C, 6, or Com. 3
Zool. 1	Zool. 2	Zool. 3
Inorg. Chem. 1 or 4	Inorg. Chem. 2 or 5	Inorg. Chem. 11
Electives	Electives	Electives

Sophomore Year

<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Anal. Chem. 7	Org. Chem. 61	Org. Chem. 62
Phys. 1	Phys. 2	Phys. 3
Zool. 54	Bact. 53	Anat. 4
Electives	Electives	Electives

JUNIOR AND SENIOR YEARS

In order to meet the requirements for graduation, the following courses must be completed in addition to senior year of hospital training:

Anat. 165, Hematology (4 cred.)

Bact. 102, Medical Bacteriology (5 cred.)

Bact. 116, Immunology (4 cred.)

Med.Tech. 51-52, Introduction to Medical Technology, Lectures (Cred. ar.)

Med.Tech. 61, Introduction to Medical Technology, Laboratory (Cred. ar.)

Physiol. 60, Human Physiology (6 cred.)

Physiol.Chem. 102-103, Physiological Chemistry (12 cred.)

Zool. 51, Introductory Animal Parasitology (5 cred.)

Electives to make a total of 180 credits for four years' work.

Suggested program:

<i>Junior Year</i>		
<i>Fall</i>	<i>Winter</i>	<i>Spring</i>
Zool. 51	Physiol. Chem. 102	Physiol. Chem. 103
Anat. 165	Bact. 116	Bact. 102
Med. Tech. 51	Med. Tech. 52	Med. Tech. 61
Physiol. 60		

Senior Year

Clinical laboratory training (twelve months) includes:

- Med.Tech. 70 Laboratory Techniques in Chemistry (6 cred.)
- Med.Tech. 71 Advanced Techniques in Clinical Chemistry (5 cred.)
- Med.Tech. 73 Electrocardiography (2 cred.)
- Med.Tech. 74 Basal Metabolism (2 cred.)
- Med.Tech. 75 Hematology (6 cred.)
- Med.Tech. 76 Applied Hematologic Methods (2 cred.)
- Med.Tech. 78 Urinalysis (3 cred.)
- Med.Tech. 80 Medical Bacteriology (5 cred.)
- Med.Tech. 82 Blood Bank Techniques (3 cred.)
- Med.Tech. 83 Serology (1 cred.)
- Med.Tech. 84 Parasitology (1 cred.)
- Med.Tech. 85 Histologic Techniques (4 cred.)
- Med.Tech. 90 Advanced Laboratory Techniques (4 cred.)
- Med.Tech. 95 Clinical Diagnosis by Laboratory Methods (1 cred.)

Students are eligible to begin the year of clinical training as soon as they have completed all the requirements of the first three years. The scholastic standing in the first three years determines the order in which students are assigned to the hospital laboratory for clinical training.

DESCRIPTION OF COURSES

Other courses which are equivalent or more comprehensive may be substituted for the required courses. The quarterly *Class Schedule* issued at the time of registration should be consulted for class hours and course fees.

ANATOMY (HUMAN)

4s. Elementary Anatomy.

165f,su. Hematology. Normal and pathologic morphology of the blood, with special emphasis on the study of the blood from the standpoint of diagnosis and prognosis.

BACTERIOLOGY

53f,w,s,su. General Bacteriology. Methods of staining and identification; principles of sterilization and disinfection; examination of air, water, milk; relation of bacteriology to the industries and to disease; bacteriology as a science; morphology and physiology.

102s,su. Medical Bacteriology. The pathogenic bacteria, especially in relation to definite diseases.

116w,su. Immunology. Laws of hemolysis; quantitative relationship between antigen and antibody; Wassermann reaction; opsonins, vaccines, toxin, antitoxin, precipitin reactions, blood grouping, atopy, anaphylaxis.

CHEMISTRY

Inorganic Chemistry

1f,w,su-2w,s,su. General Inorganic Chemistry. Study of the general laws of chemistry and of the nonmetals and metals and their compounds.

4f,w,su-5w,s,su. General Inorganic Chemistry. (See Inorg.Chem. 1-2)

11f,w,s,su. Semimicro Qualitative Analysis. Laboratory work in systematic qualitative analysis of the cations with lectures on solutions, ionization; chemical and physical equilibria, oxidation and reduction, etc.

Analytical Chemistry

7f,s,su. Quantitative Analysis. Introductory course covering the general principles and methods of quantitative analysis, both gravimetric and volumetric. Typical problems are assigned and attention is given to proper laboratory practice.

Organic Chemistry

61f,w,su-62w,s,su. Elementary Organic Chemistry. Discussion of important classes of organic compounds, both aliphatic and aromatic together with some heterocyclic compounds. Laboratory work includes the preparation of typical substances.

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.

Af-Bw-Cs. Freshman English.

4f-5w-6s. Freshman Composition.

GENERAL STUDIES

Com. 1f-2w-3s. Communication.

MEDICAL TECHNOLOGY

- 51f-52w. 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)
- 61f,w,s. Introduction to Medical Technology. Laboratory work based on the above. (Open only to students already accepted in the Course in Medical Technology)
- 70f,w,s,su. Laboratory Techniques in Chemistry. Lectures, discussions, and laboratory practice in chemical procedures as used in clinical medicine. (6 cred.)
- 71f,w,s,su. Advanced Techniques in Clinical Chemistry. Lectures, demonstrations, and laboratory practice in special chemical methods, including flame photometry and gas analyses. (5 cred.)
- 73f,w,s,su. Electrocardiography. Lectures, demonstrations, and laboratory practice in taking electrocardiograms. (2 cred.)
- 74f,w,s,su. Basal Metabolism. A course providing for guided study and practice on doing basal metabolism tests. (2 cred.)
- 75f,w,s,su. Hematology. Lectures, demonstrations, and laboratory practice in hematologic methods and morphology as applied to clinical medicine. (6 cred.)
- 76f,w,s,su. Applied Hematologic Methods. A laboratory practice course designed to give the student additional experience in the out-patient laboratory in hematologic methods. (2 cred.)
- 78f,w,s,su. Urinalysis. Lectures and practice in laboratory techniques used in routine and special examinations of body fluids and feces. (3 cred.)
- 80f,w,s,su. Medical Bacteriology. A course designed to give guided supervision and practice in microbiologic techniques in identification of bacteria. (5 cred.)
- 82f,w,s,su. Blood Bank Techniques. Lectures, demonstrations, and laboratory practice in methods of blood grouping and cross matching. (3 cred.)
- 83f,w,s,su. Serology. Lectures and laboratory practice in sero-diagnostic methods. (1 cred.)
- 84f,w,s,su. Parasitology. Lectures and laboratory practice in methods used in identification of parasites infecting man. (1 cred.)
- 85f,w,s,su. Histologic Techniques. Lectures and laboratory practice in the preparation of tissue specimens for diagnosis. (4 cred.)
- 90f,w,s,su. Advanced Laboratory Techniques. Additional experience in all phases of clinical laboratory procedures designed to emphasize independent work including special night duty. (4 cred.)
- 95f,w,s,su. Clinical Diagnosis by Laboratory Methods. Advanced lectures in clinical diagnosis by laboratory methods. Lectures and case presentations illustrating relation and use of laboratory tests in clinical medicine. Term paper required. (1 cred.)

PHYSICS

1f-2w-3s. Introduction to Physical Science. Lectures and experimental demonstration of the principles underlying physical phenomena.

PHYSIOLOGICAL CHEMISTRY

102w-103s. Physiological Chemistry.

PHYSIOLOGY

60f. Human Physiology.

ZOOLOGY

1f,su-2w,su-3s,su. General Zoology. Structure, physiology, embryology, classification, and evolution of animals.

51f. Introductory Animal Parasitology. An elementary course dealing with parasitic protozoa, worms and arthropods and their relation to diseases of men and animals.

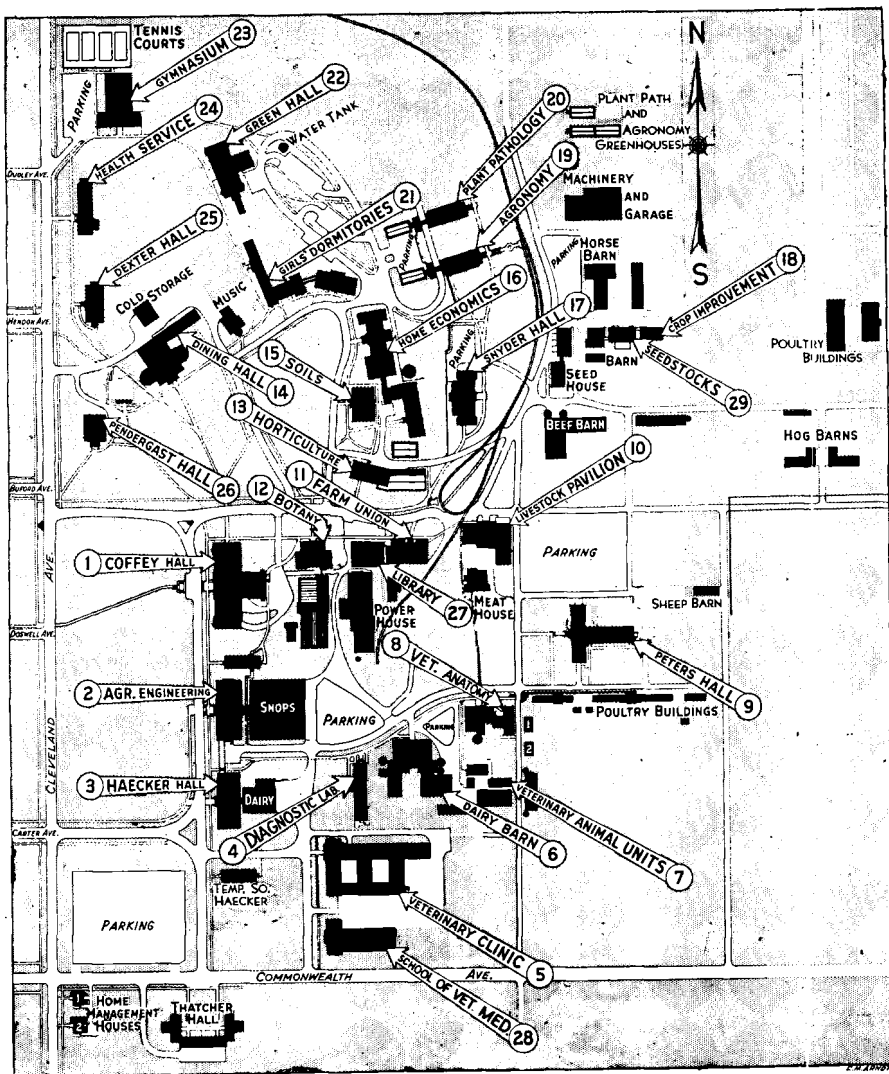
54f,su. Histology. Microscopic structure of the tissues and organs.

7/24/53
7/24/53

Bulletin of the
UNIVERSITY OF MINNESOTA



School of Veterinary Medicine 1953-1955



— FIND YOUR WAY AROUND THE ST. PAUL CAMPUS —

This map for the most part is self explanatory. Some of the buildings which cannot be identified by their names alone are listed below:

Coffey Hall—Administrative Offices, Agricultural Extension, and Department of Entomology and Economic Zoology.

Agricultural Engineering—Departments of Agricultural Engineering and Rhetoric.

Haecker Hall—Departments of Dairy Husbandry and Agricultural Economics.

Peters Hall—Departments of Animal and Poultry Husbandry.

Farm Union—Students' Union, Photographic Laboratory, and Rural Sociology.

Snyder Hall—Department of Agricultural Biochemistry.

Green Hall—School of Forestry.

UNIVERSITY OF MINNESOTA

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The Board of Regents is composed of The Honorable Ray J. Quinlivan, St. Cloud, First Vice President and Chairman; The Honorable George W. Lawson, St. Paul, Second Vice President; The Honorable James F. Bell, Minneapolis; The Honorable Daniel C. Gainey, Owatonna; The Honorable Richard L. Griggs, Duluth; The Honorable Marjorie J. Howard, Excelsior; The Honorable Lester A. Malkerson, Minneapolis; The Honorable Charles W. Mayo, Rochester; The Honorable Karl G. Neumeier, Stillwater; The Honorable E. E. Novak, New Prague; The Honorable A. J. Olson, Renville; and The Honorable Herman F. Skyberg, Fisher.

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ADMISSION AND CURRICULA

For admission into the professional curriculum in veterinary medicine, a candidate must have satisfactorily completed a minimum of 90 quarter credit hours of work at the college level, as indicated below in the section describing the preveterinary curriculum. This work may be completed at the College of Agriculture, Forestry, and Home Economics of the University, or at another college that offers the required courses. He must also present evidence of satisfactory farm experience. Furthermore, he must show interest, character, and personal fitness for the practice of veterinary medicine as disclosed by personal interviews, letters of recommendation, and aptitude tests administered by the University Testing Bureau. Enrollment in the professional curriculum in veterinary medicine is restricted. Satisfactory maintenance of scholarship, as defined below, must be shown in order to continue registration in the professional curriculum.

I. PREVETERINARY CURRICULUM

Farm Experience—Every prospective student in this curriculum is urged to obtain, before entering college, at least six months' practical experience on a farm. Entering students whose farm credentials are not satisfactory will be examined as to their familiarity with farm practices, and farm experience will be required during the college course in accordance with the results of these examinations.

Preveterinary Requirements—A minimum of 90 quarter credit hours of work on the college level is required of all students prior to entrance upon the four years' professional veterinary curriculum. These must include the following:

English or Rhetoric (Communications) and Public Speaking—12 credits

Chemistry—25 credits including general inorganic chemistry, qualitative and quantitative analysis, and organic chemistry

Mathematics—Minimum of 5 credits and a minimum of trigonometry equivalent to high school or college trigonometry

Biology—10 credits

Animal, Poultry, and Dairy Husbandry—15 credits

Physics—8 credits including laboratory

Electives—14-18 credits. Not less than 14 of these credits must be in social science courses from at least three of the following departments:

Agricultural Economics, Anthropology, Economics, Geography, History, Humanities, Philosophy, Political Science, Psychology, Social Science, and Sociology

SUGGESTED PREVETERINARY CURRICULUM

FIRST YEAR

An.Hu. 1, Livestock Production, 4
An.Hu. 8, Breeds of Livestock, 4
In.Ch. 1-2 or 4-5, General Inorganic Chemistry, 8
In.Ch. 11, Semimicro Qualitative Analysis, 4
Ag.En. 11, Applied Mathematics, 5
Dy.Hu. 1, Elements of Dairying, 3
Orie. 1, College Orientation, 1
Rhet. Communications requirement, 9
Electives, 7-9
Total, 45-47 credits

SECOND YEAR

Ag.Bi. 2, Quantitative Methods, 5
Ag.En. 24, 25, Agricultural Physics, 8
Po.Hu. 1, Poultry Production, 4
Or.Ch. 61, 62, Elementary Organic Chemistry, 8
Rhet. 22, Public Speaking, 3
Zool. 1, 2, 3, General Zoology, 10
Electives, 7-10
Total, 45-48 credits

II. PROFESSIONAL CURRICULUM

School of Veterinary Medicine

Training in veterinary medicine includes the two years of college level preveterinary studies just described and four years of professional work, or a total of six years.

The satisfactory completion of the following required courses with not less than a total of 232 credits is required for the degree of doctor of veterinary medicine.

Registration—Application for admission should be filed near completion of the preveterinary studies and not later than February 10. Students who have taken their preveterinary work at schools other than the University of Minnesota must submit to the Office of Admissions and Records, St. Paul Campus, at the time at which application is made, a transcript of all work taken up to that time.

To receive consideration a candidate's record must show a total number of honor points equal to 1.5 times the total number of credits in all subjects taken collectively in veterinary subjects. This is equivalent to midway between a C and a B average in the usual marking systems.

The selection of veterinary students in the professional curriculum is based upon scholastic standing in preveterinary studies, interest, character, and personal fitness for the practice of veterinary medicine as disclosed by personal interviews and letters of recommendation, and upon scores in any preliminary tests prepared by the University Testing Bureau.

Selections for admission will be made as early as possible, and the applicants will be 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 applicant fails to matriculate.

Scholarship Requirements in the Professional Curriculum—1. A student shall obtain an honor point average of 0.50 or higher for any one quarter and an honor point average of 1.0 or higher, accumulative as well as for each one of the four years of work.

2. A student receiving a grade of "failure" shall automatically be dropped

from the professional curriculum in veterinary medicine.

3. Permission for repeating one to three quarters of work will not be given for more than one year in the four-year curriculum. An honor point average of 1.5 or higher is required for one or more quarters of work repeated.

Requirements for Bachelor's Degree—Students in veterinary medicine will be recommended for the bachelor of science degree, without designation, if they complete the following requirements:

1. Admission to the School of Veterinary Medicine.

2. Completion of the first two years of veterinary studies with an honor point average of 1.0 or above and a minimum of 192 credit hours of work.

REQUIRED COURSES

The courses listed below are required in the professional curriculum of the School of Veterinary Medicine:

FIRST YEAR

Agro. 31, Principles of Genetics, 4
 Vet. 101-102-103, Veterinary Gross Anatomy, 15
 Vet. 105, Veterinary Neuroanatomy, 3
 Vet. 111-112-113, Veterinary Microscopic Anatomy and Embryology, 15
 Vet. 121, Veterinary Bacteriology, 5
 Ph.Ch. 102-103, Physiological Chemistry, 12

SECOND YEAR

Vet. 122-123, Veterinary Bacteriology, 10
 Vet. 135-136, Animal Physiology, 15
 Vet. 151-152-153, Veterinary Pathology, 15
 Vet. 161-162, Veterinary Parasitology, 10
 Vet. 170, Veterinary Clinical Diagnosis, 4
 PhCl. 101, Introduction to Pharmacology, 2
 Po.Hu. 153, Poultry Nutrition and Feeding, 3

SCHOOL OF VETERINARY MEDICINE

THIRD YEAR

- Phcl. 105, General Experimental Pharmacology, 6
 Vet. 106, Veterinary Surgical Anatomy, 1
 Vet. 143, Veterinary Clinical Pharmacology, 3
 Vet. 154, Veterinary Clinical Pathology, 2
 Vet. 171a-171b-171c, Clinical Conference, 1
 Vet. 172, Principles of Veterinary Surgery, 5
 Vet. 173-174, Special Veterinary Surgery, 10
 Vet. 177-178-179, Large Animal Medicine, 15
 Vet. 185, Small Animal Medicine, 4
 Vet. 188-189-190, Clinical and Laboratory Practice, 15
 Vet. 194, Veterinary Obstetrics and Problems of Animal Reproduction, 3
 An.Hu. 57, Livestock Feeding, 3

FOURTH YEAR

- Vet. 125, Poultry Diseases, 3
 Vet. 126, Dairy Hygiene, 4
 Vet. 127, Veterinary Public Health, 2
 Vet. 155, Meat Hygiene, 3
 Vet. 168, Diseases of Fur-Bearing Animals, 2
 Vet. 169, Veterinary Jurisprudence and Business Methods, 2
 Vet. 171d, 171e, 171f, Clinical Conference, 1
 Vet. 180-181, Infectious Diseases of Domestic Animals, 10
 Vet. 186, Small Animal Medicine, 4
 Vet. 191-192-193, Clinical and Laboratory Practice, 15
 Vet. 195, Veterinary Obstetrics and Problems of Animal Reproduction, 5
 Vet. 196, Veterinary Radiology, 3
 Vet. 197, Animal Diseases and Poisonous Plants, 3
 Dy.Hu. 118, Milk Production and Secretion, 3

DESCRIPTION OF COURSES

VETERINARY MEDICINE

Courses for Students in the School of Veterinary Medicine

- 101-102-103. **Veterinary Gross Anatomy.** Gross anatomy of domestic animals. (7 cred. for 101, 4 cred. for 102, 4 cred. for 103; open only to first yr. vet. med. and to grad. with permission of instructor; enrolment limited)
104. **Special Studies in Veterinary Anatomy.** Individual problems for further study in gross anatomy, histology, embryology, neurology, hematology, and histological techniques. (1-5 cred. per qtr.; registration for more than one qtr. permitted; prereq. 111 or equivalent and permission of instructor)
105. **Veterinary Neuroanatomy.** A functional study of the gross and microscopic anatomy of the central nervous system and special sense organs of domestic animals. (3 cred.; first yr. vet. med. and grad. with permission of instructor; prereq. 101, 111)
106. **Veterinary Surgical Anatomy.** Topographical anatomy of the domestic animals as applied to surgery and the practice of veterinary medicine. (1 cred.; third yr. vet. med. and grad. with permission of instructor; prereq. 103, 170)
- 111-112-113. **Veterinary Microscopic Anatomy and Embryology.** Microscopic studies of the various tissues and organs, including embryology of domestic animals. (6 cred. for 111, 5 cred. for 112, 4 cred. for 113; first yr. vet. med. and grad. with permission of instructor; enrolment limited)
119. **Seminar in Veterinary Anatomy.** (1 cred.; third and fourth yr. vet. med. and grad.; prereq. 101, or permission of instructor)
- 121-122-123. **Veterinary Bacteriology.** Morphology, classification, and characteristics of pathogenic bacteria. Principles of infection and immunity and studies of bacteria, viruses, yeasts, molds, and actinomycetes associated with animal diseases. (5 cred. for 121, 6 cred. for 122, 4 cred. for 123; first and second yr. vet. med. and grad. with permission of instructor; limited enrolment; prereq. 10 cred. in zoology, 13 cred. in chemistry)
125. **Poultry Diseases.** Lectures dealing with the diseases of poultry. (3 cred.; fourth yr. vet. med. and grad. with permission of instructor; prereq. 123, 153, 162)
126. **Dairy Hygiene.** Study of the effect of bovine diseases and sanitation on the quality and safety of milk and milk products. (4 cred.; fourth yr. vet. med. and grad. with permission of instructor; prereq. 123, 179)
127. **Veterinary Public Health.** Study of the functions of veterinary public agencies and of epidemiologic methods in the study of animal diseases. (2 cred.; fourth yr. vet. med. and grad. with permission of instructor; prereq. 123, 179)
128. **Veterinary Public Health Practices.** Detailed discussion of special veterinary public health problems and practices. (1-2 cred.; grad.; prereq. 126, 127 or equiv. or permission of instructor)
- 135-136. **Animal Physiology.** The physiology of circulation, respiration, digestion, kidney function, endocrine function, reproduction, nervous system, and special senses in the domestic animals. (8 cred. for 135, 7 cred. for 136; second yr. vet. med. and grad. with permission of instructor; limited enrolment; prereq. 103, 113, Ph.Ch. 103, or permission of instructor)
137. **Problems in Animal Physiology.** (Cred. ar.; third and fourth yr. vet. med. and grad.; prereq. 135 and 136 or Phsl. 106, 107)
140. **Seminar in Animal Physiology.** (2 cred.; third and fourth yr. vet. med. and grad.; prereq. 136 or permission of instructor)
143. **Veterinary Clinical Pharmacology.** Continuation of general pharmacology with emphasis on the clinical aspects in domestic animals. (3 cred.; third yr. vet. med. and grad. with permission of instructor; prereq. Phcl. 105)

- 151-152-153. Veterinary Pathology.** Descriptions, discussions, and gross and microscopic demonstrations of tissue reactions, including retrogressive and inflammatory changes, neoplasms, and reparative processes. (4 cred. for 151, 5 cred. for 152, 6 cred. for 153; second and third yr. vet. med. and grad.; prereq. 103, 133, and 135 or equiv. with permission of instructor)
- 154. Veterinary Clinical Pathology.** Application and interpretation of laboratory tests used in clinical diagnosis in domestic animals. (2 cred.; third yr. vet. med. and grad. with permission of instructor; prereq. 152)
- 155. Meat Hygiene.** Lectures and discussions of meat inspection procedures and regulations with consideration given to the various infectious and degenerative disease processes affecting meat. The laboratory work consists of trips to local packing plants to observe details of ante-mortem and post-mortem inspection procedures. (3 cred.; fourth yr. vet. med.; prereq. 153)
- 157. Veterinary Post-Mortem Pathology.** Autopsies, techniques, examinations of tissue sections, preparation of records, and diagnosis. (1-3 cred. per qtr.; third and fourth yr. vet. med. and grad.; prereq. 153 and permission of instructor)
- 158. Veterinary Surgical Pathology.** Study of neoplasms, surgical biopsies, post-mortem material, together with a review of the pertinent literature. (1-3 cred.; third and fourth yr. vet. med. and grad.; prereq. 153 and permission of instructor)
- 161. Veterinary Parasitology.** A systematic and biological study of the protozoan and arthropod parasites of animals. Emphasis is placed on their relationships to disease and the principles of parasite control. (4 cred.; second yr. vet. med. and grad.; prereq. 103, 113 or equiv. with permission of instructor)
- 162. Veterinary Parasitology.** Study of the helminth parasites and parasitic diseases of animals with emphasis on principles of control. (6 cred.; second yr. vet. med. and grad.; prereq. 161)
- 168. Diseases of Fur-Bearing Animals.** Etiology, symptomatology and treatment of diseases of fur-bearing animals. (2 cred.; fourth yr. vet. med. and grad. with permission of instructor; prereq. 123, 186)
- 169. Veterinary Jurisprudence and Business Methods.** Required course designed to acquaint the student with the fundamentals of the legal responsibilities of a veterinarian, public relations, jurisprudence, veterinary ethics, and regulatory procedures. (2 cred.; fourth yr. vet. med.; prereq. successful completion of third yr. of vet. med.)
- 170. Veterinary Clinical Diagnosis.** Procedures of physical diagnosis and restraint of animals. (4 cred.; second yr. vet. med.; prereq. 136, 151)
- 171a-171b-171c* (3rd yr. vet. med.), 171d-171e-171f* (4th yr. vet. med.). Clinical Conference.** Group discussion of clinical cases. (1 cred. per yr.; third and fourth yr. vet. med. and grad. with permission of instructor; prereq. 170)
- 172. Principles of Veterinary Surgery.** (5 cred.; third yr. vet. med. and grad. with permission of instructor; prereq. 170)
- 173-174. Special Veterinary Surgery.** (5 cred. per qtr.; third yr. vet. med. and grad. with permission of instructor; prereq. 172)
- 177-178-179. Large Animal Medicine.** A study of the diseases of large animals. (5 cred. per qtr.; third yr. vet. med. and grad. with permission of instructor; prereq. 170)
- 180-181. Infectious Diseases of Domestic Animals.** Lectures and discussions of the diagnosis, treatment, and control of diseases of domestic animals caused by infectious agents. (5 cred. per qtr.; fourth yr. vet. med. and grad. with permission of instructor; prereq. 179)
- 185. Small Animal Medicine.** Study of the medical and surgical diseases of small animals. (4 cred.; third yr. vet. med. and grad. with permission of instructor; prereq. 178)
- 186. Small Animal Medicine.** Continuation of course 185. (4 cred.; fourth yr. vet. med. and grad. with permission of instructor; prereq. 165)

* To receive credit for any part of each of these two courses the a-b-c sequence must be completed.

- 188-189-190. Clinical and Laboratory Practice.** Medical, obstetrical, surgical, and ambulatory clinics and post-mortem examinations, in diseases of animals. (5 cred. per qtr.; third yr. vet. med.; prereq. 170)
- 191-192-193. Clinical and Laboratory Practice.** Medical, obstetrical, surgical, and ambulatory clinics for diseases of animals. (5 cred. per qtr.; fourth yr. vet. med. and grad. with permission of instructor; prereq. 190)
- 194-195. Veterinary Obstetrics and Problems of Animal Reproduction.** Lectures and laboratory studies covering for the domestic animals the anatomical and physiological factors of reproduction, diseases of the newborn, obstetrical and sterility problems, and artificial insemination. (3 cred. for 194, 5 cred. for 195; third and fourth yr. vet. med. and grad. with permission of instructor; prereq. 190)
- 196. Veterinary Radiology.** Preparation and interpretation of radiographs and fluoroscopic examinations in veterinary medicine, consideration of radiant energy as a therapeutic agent and discussion of protective measures against radiation hazards. (3 cred.; fourth yr. vet. med. and grad. with permission of instructor; prereq. 190)
- 197. Animal Diseases and Poisonous Plants.** Systematic study of important plants poisonous to animals. Special emphasis is placed on identification, toxicology, diagnosis, and treatment. (3 cred.; fourth yr. vet. med. and grad. with permission of instructor; prereq. 143, 170, 179, 188)

Courses Primarily for Students in Agriculture

- 50-51-52. Anatomy, Physiology, and Hygiene of Domestic Animals.** Fundamentals of structure, function, and reproduction of domestic animals. The principles of animal hygiene, including the etiology and means of control of the more important communicable diseases. (9 cred.; jr., sr.)
- 107. Animal Gross and Microscopic Anatomy.** A general systematic presentation of the microscopic and gross anatomy of the animal's body emphasizing in particular the digestive, blood, vascular, and respiratory systems. (5 cred.; jr., sr., grad.; prereq. Zool. 14-15 or permission of instructor)
- 108. Special Animal Gross and Microscopic Anatomy.** Regional anatomy of selected farm animals. (5 cred.; jr, sr., grad.; prereq. 107)
- 109. Anatomy, Physiology, and Hygiene of Poultry.** The general anatomy of the fowl, the physiology of digestion and reproduction, and prevention and control of the more important diseases affecting poultry. (3 cred.; jr., sr., grad.; prereq. Zool. 14-15, Po.Hu. 1, Bact. 53; offered in academic years which begin with odd-numbered year)
- 115. Avian Gross and Microscopic Anatomy.** Gross and microscopic anatomy of the chicken and certain significant anatomical areas of other fowl. (5 cred.; jr., sr., grad.; prereq. 107; offered in academic years which begin with even-numbered year)

GENERAL INFORMATION

The St. Paul Campus of the University, where the School of Veterinary Medicine is located, is conveniently situated with respect to either Minneapolis or St. Paul, with bus and street car service to either city available. Attractions of interest and value to the students, such as art museums, symphony concerts, operatic presentations, historical exhibits, and the like are readily available.

STUDENT GOVERNMENT

Student Council—The council directs and coordinates student activities and encourages student leadership. Half of its members are chosen each year at spring elections conducted by the Board of Elections and Eligibility, a committee of the Student Council. Membership on the council is for a two-year term.

The council cooperates with the All-University Congress and the Senate Committee on Student Affairs. It brings questions from the student body to the administration of the college and discusses and reaches decisions on matters of general interest.

Honor System—Under the provisions of the Student Self-Government Honor System, the students in this school, rather than the faculty, conduct examinations and quizzes. The honor system is operated on the assumption that honesty prevails among a large majority of students. Students place themselves on their honor not to give or receive aid during examinations. The responsibility of honesty is between student and student; the faculty does not place the student on his honor. Under the honor system the faculty permits students to conduct the examinations.

If the student should observe dishonesty during an examination period, he may take some appropriate step at the time to halt the dishonest act, or may report the incident later to the Honor

Case Commission, a committee of the Student Council. The Honor Case Commission, comprised of students from the various departments, considers confidentially the various aspects of the situation reported. If it is clear that scholastic dishonesty has occurred, the commission recommends to the Committee on Student Scholastic Standing of the faculty an appropriate penalty to be levied on the offending student.

The honor system is essentially a preventive, rather than a punitive, system and provides for great freedom of action on the part of students in this school. New students are urged to discuss the honor system with students previously registered in the school. The membership of the Honor Case Commission is posted in the post office, Coffey Hall, together with a notice as to how members may be contacted for information or assistance.

Student-Faculty Intermediary Board—When the student has questions or encounters situations with respect to his class work which in his opinion need attention or clarification, he is urged to bring his problem to the attention of the Student-Faculty Intermediary Board. This is a joint committee of students and faculty who are interested in maintaining helpful relationships between members of the student body and the faculty. The membership of this board is also posted in the St. Paul Campus post office.

STUDENT ACTIVITIES

The St. Paul Campus offers the student a varied program of activities, from which he may choose those that suit his individual interests and needs.

Social life centers largely in the Union, and numerous all-campus events are sponsored by the St. Paul Campus Union Board. This board, composed

chiefly of students, also makes decisions about the use of the facilities of the Union.

Professional clubs and organizations will contribute to the student's knowledge of his special field and acquaint him with other students in his own and closely related fields.

Special interest groups enable the student to improve in a skill or follow a hobby. Punchinello, a dramatics organization, the Toastmasters and Toastmistresses clubs, which give experience in public speaking, and the Camera Club are typical of these organizations.

The churches near the campus have student programs with a part-time counselor or director. The YMCA and YWCA are interdenominational and open to all men and women on the campus. Each organization has a full-time director or secretary who assists students in planning and carrying out their programs. The Student Council of Religions helps to coordinate the efforts of the various religious organizations on the campus.

St. Paul Campus students are entitled to use the facilities of the Coffman Memorial Union on the Minneapolis Campus. They may participate in activities on the Minneapolis Campus,

if they wish, and of course they take part in all-university activities.

The Student Chapter of the American Veterinary Medical Association, comprised of veterinary students only, holds monthly meetings at which well-known speakers give interesting presentations. Through these meetings, students profit from fellowship with all the students of the School of Veterinary Medicine as well as from the presentations of the speakers.

Phi Zeta and Alpha Zeta, honor societies, both have chapters on the St. Paul Campus. Each year students are elected to membership on the basis of scholarship and leadership. These organizations make every effort to stimulate good scholarship in the School of Veterinary Medicine.

Students in the School of Veterinary Medicine are eligible for election into Gamma Sigma Delta, national honorary society. Members are elected on the basis of scholarship.

ESTIMATED EXPENSES

Estimated expenses, including tuition, special fees, laundry, room, board, books, and instruments, are \$1,012 per year for resident students and \$1,213 for nonresident students in the pre-veterinary curriculum. In the profes-

sional curriculum, estimated expenses are \$1,117 for resident students and \$1,378 for nonresident students. (For detailed information, refer to the **Bulletin of General Information.**)

OPPORTUNITIES FOR EMPLOYMENT

Opportunities for employment depend to a large extent upon the general employment level. At the present time employment is easily obtained. The School of Veterinary Medicine employs a number of students on a part-time basis as animal attendants and laboratory assistants. A few students are employed to assist in research projects that are being con-

ducted by staff members. There are other opportunities for employment on the campus in other departments. In addition, there are many off-campus part-time positions available to students in nearby Minneapolis and St. Paul. At the present time, most students are able to find as much employment as their curricular obligations will allow.

SCHOLARSHIPS, AWARDS, AND PRIZES

Scholarships and special awards are made each year to students in the pro-

fessional and the preprofessional curricula.

Supplement to the

Bulletin of the

UNIVERSITY OF MINNESOTA

Army - Navy - Air Force ROTC

1953-1955

Volume LVI

Number 32

July 8, 1953

Military Science and Tactics

ARMY ROTC

(Addition to section on "Army ROTC Branches," page 7)

Effective with the beginning of the academic year 1954-55 the new curriculum known as General Military Science will be adopted in the Army ROTC at this University. With the adoption of this General Military Science program, instruction in the branches formerly offered in this department will be phased out. The new program provides its being followed by sophomores and juniors as well as entering freshmen, with the concession being made that those who will be seniors in 1954-55 will continue their instruction along specialized branch lines.

(Substitute for section on "Curriculum," pages 8 through 15)

First Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science I	None	1	3

Military Science I is designed to give the freshman student an understanding of basic military subjects and to orient him as to his obligations in terms of the responsibilities of citizenship.

The subjects taught during the first year are as follows:

1. Organization of the Army and ROTC
2. American Military History
3. Individual Weapons and Marksmanship
4. School of the Soldier and Exercise of Command

The objective of each of these may be delineated as follows:

1. To provide an understanding of the organization of the Army and an orientation on ROTC.
2. To provide the ROTC student with a sound foundation in the principles of the art of warfare as they are exemplified in American military history, and through this knowledge to aid in motivating the student toward an understanding and acceptance of his future role as an officer of the United States Army.
3. To give the student a practical working knowledge of individual weapons presently used in the Army. In addition this instruction will be aimed at making the student proficient in the conduct of preliminary marksmanship and enable him to coach others correctly.
4. To provide for leadership training, drill experience, and the development of certain essential characteristics of leadership such as initiative and self-confidence, through progressive training in the school of the soldier and exercise of command. To further provide a thorough indoctrination in military courtesy and customs of the service.

Second Year

TITLE	PRE- REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science II	MS I	1	3

The subjects taught during the second year are as follows:

1. Crew-served Weapons and Gunnery
2. Map and Aerial Photograph Reading
3. School of the Soldier and Exercise of Command

The objective of each of these may be delineated as follows:

1. To familiarize the student with all types of infantry crew-served weapons in use by the Army and with the Browning automatic rifle. To provide the student with a knowledge of the firepower potential; to explain the gunnery principles and methods to control this fire; and to explain their employment in the United States Army.
2. To make the student proficient in the use of maps and aerial photographs so that this proficiency may be applied in the study of other subjects in which maps and aerial photographs may be used.
3. A continuation of the same course as found in Military Science I.

Third Year

TITLE	PRE- REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science III	MS II	3	5

The subjects taught during the third year are as follows:

1. Small Unit Tactics and Communications
2. Organization, Function, and Mission of the Arms and Services
3. Military Teaching Methods
4. Leadership
5. School of the Soldier and Exercise of Command

The objective of each of these may be delineated as follows:

1. To provide the students with the principles and fundamentals of small unit tactics, to prepare him for advanced tactical studies and the principles of communications and communication systems used in the infantry division.

2. a. To familiarize the student with the organization, function, and mission of the various arms and services in the over-all mission of the Army.

b. To supply sufficient background information on the various branches of the arms and services so as to assist the student in selecting the branch of service in which he desires to be commissioned.

3. To develop an understanding of the principles, methods, and techniques which are fundamental to military instruction; to engender attitudes which will lead to the improvement of instruction; and to provide opportunities for the student to develop skill in the preparation, presentation, and evaluation of instruction.

4. a. To give the individual an elementary understanding of the psychological, physiological, and sociological factors which affect human behavior.

b. To convince the individual that it is both desirable and possible for him to be an effective leader.

c. To emphasize to him the importance of personnel adjustment and the proven methods of accomplishing maximum motivation, to include the troop information and education media.

d. To show him proven practices and devices which tend to make the leader effective, including character guidance.

e. Practice in the application of sound principles of leadership to commonplace problems appropriate to his grade will be conducted at summer camp.

5. A continuation of the same course as found in Military Science I and II.

Fourth Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science IV	MS III	3	5

The subjects taught during the fourth year are as follows:

1. Logistics
2. Operations
3. Military Administration and Personnel Management
4. Service Orientation
5. School of the Soldier and Exercise of Command

The objective of each of these may be delineated as follows:

1. To afford the student with the fundamental knowledge of supply and movement of small units.

2. To provide an understanding of staff organization, using division staff as a model; staff duties; forms; records; reports; and orders of the staff. To teach the student to arrive at a sound decision and transmit decision into combat order. To teach the value of military intelligence and methods of producing intelligence. To familiarize the student with the military team from the squad up to and including the regimental combat team; coordination with the Air and Navy. To provide an understanding of duties and responsibilities of company and battalion officers toward training.

3. To provide the student with the basic concepts and fundamentals of military administration (less supply). To introduce the student to the fundamental concepts of military justice in the armed forces of the United States, as provided for in the

Uniform Code of Military Justice and the Manual for Courts-Martial, United States, 1951; to teach the basic principles of nonjudicial punishments.

4. To prepare the future officer for active service by an orientation on geographical and economic factors, their influence on the division of people into nations and the courses of war; the responsibilities of a leader; service life.

5. A continuation of the same course as found in Military Science I, II, and III.

Air Science and Tactics

AIR FORCE ROTC

(Add after "Benefits," page 21)

Selection of Students for the Advanced Course

Upon completion of the Basic Course of two years' duration, outstanding cadets are selected for continuation in the Advanced Course. This selection is made by a board of AFROTC staff officers and is based on scholastic standing and qualities of demonstrated leadership. The number of students which can be accepted into the Advanced Course each year is subject to the requirements of the Air Force. The majority of cadets selected for the Advanced Course must be qualified for flight training and volunteer for this type of duty upon completion of their ROTC requirements and graduation from college.

(Substitute for section on "The Reserve Commission," page 21)

Each student who successfully completes the AFROTC course, graduates from the University of Minnesota, and who is recommended by the Professor of Air Science and Tactics, the head of the AFROTC department, will be given a commission as a Second Lieutenant in the United States Air Force Reserve. Under this commission the officer may:

1. Be called to active duty for a period of two years if commissioned in a nonflying category.
2. Be called to active duty for a period of three years if commissioned on the basis of acceptance for pilot training or observer training in commissioned status.
3. Join an active reserve unit and participate in training activities for pay and promotion points.
4. Have his commission transferred to the Air National Guard.

Those students who maintain a top academic standing and demonstrate outstanding leadership qualities in campus activities and the AFROTC may qualify for appointment as Distinguished Military Students. If individuals so honored later apply for a Regular Commission while on active duty, special consideration is given for this achievement.

UNIVERSITY OF MINNESOTA

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The Board of Regents is composed of The Honorable Ray J. Quinlivan, St. Cloud, First Vice President and Chairman; The Honorable George W. Lawson, St. Paul, Second Vice President; The Honorable James F. Bell, Minneapolis; The Honorable Daniel C. Gainey, Owatonna; The Honorable Richard L. Griggs, Duluth; The Honorable Marjorie J. Howard, Excelsior; The Honorable Lester A. Malkerson, Minneapolis; The Honorable Charles W. Mayo, Rochester; The Honorable Karl G. Neumcier, Stillwater; The Honorable E. E. Novak, New Prague; The Honorable A. J. Olson, Renville; and The Honorable Herman F. Skyberg, Fisher.

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Captain John G. Gaddie, U.S.A., Assistant Professor of Military Science and Tactics
Captain Robert E. Lee, U.S.A., Assistant Professor of Military Science and Tactics

Captain James B. Warburton, Jr., U.S.A., Assistant Professor of Military Science and Tactics
 First Lieutenant Harry J. Bryson, U.S.A., Assistant Professor of Military Science and Tactics
 Chief Warrant Officer Thomas D. Williams, U.S.A., Assistant Professor of Military Science and Tactics

NAVAL ROTC STAFF

Captain Doyle M. Coffee, U.S.N., Professor of Naval Science
 Lieutenant Colonel W. W. Worden, U.S.M.C., Associate Professor of Naval Science
 Lieutenant Commander F. S. Bertsch, Jr., U.S.N., Assistant Professor of Naval Science
 Lieutenant Commander H. S. London, SC, U.S.N., Assistant Professor of Naval Science
 Major W. C. James, Jr., U.S.M.C., Assistant Professor of Naval Science
 Lieutenant (jg) Duane D. Borgert, U.S.N., Assistant Professor of Naval Science
 Lieutenant (jg) Richard G. Hannah, U.S.N., Assistant Professor of Naval Science

AIR FORCE ROTC STAFF

Colonel Kermit D. Stevens, U.S.A.F., Professor of Air Science and Tactics
 Lieutenant Colonel Helmer T. Aasheim, U.S.A.F., Assistant Professor of Air Science and Tactics
 Lieutenant Colonel Darral J. Freund, U.S.A.F.R., Assistant Professor of Air Science and Tactics
 Major Henry D. Booher, U.S.A.F.R., Assistant Professor of Air Science and Tactics
 Major Frank D. Covell, U.S.A.F.R., Assistant Professor of Air Science and Tactics
 Major Paul A. Eisman, U.S.A.F.R., Assistant Professor of Air Science and Tactics
 Major Walter H. Grierson, U.S.A.F., Assistant Professor of Air Science and Tactics
 Major Glenn B. Hunt, U.S.A.F.R., Assistant Professor of Air Science and Tactics
 Major Nelson A. Roeller, U.S.A.F.R., Assistant Professor of Air Science and Tactics
 Major Norman L. Widen, U.S.A.F.R., Assistant Professor of Air Science and Tactics
 Captain William P. Brown, U.S.A.F., Assistant Professor of Air Science and Tactics
 Captain Louis C. Jurgensen, Jr., U.S.A.F.R., Assistant Professor of Air Science and Tactics
 Captain Thomas L. Moffatt, U.S.A.F.R., Assistant Professor of Air Science and Tactics
 Captain Kenneth J. Young, U.S.A.F.R., Assistant Professor of Air Science and Tactics
 First Lieutenant William B. Schnase, U.S.A.F.R., Assistant Professor of Air Science and Tactics

Military Science and Tactics

ARMY ROTC

GENERAL INFORMATION

The Reserve Officers Training Corps (ROTC) is the name applied to the program in military science and tactics offered at all the nation's land-grant colleges, including the University of Minnesota. The purpose of this program is to produce reserve officers for the Army Officers Reserve Corps from among qualified university students, and to supplement the United States Military Academy as a source of Regular army officers.

The Reserve Officers Training Corps is not a component of the Army. It does, however, play an important part in the national defense framework of our nation. In its primary role of producing Reserve officers, it is a vital element in fulfilling the traditional American concept of dependence on a large trained reserve rather than a large standing army.

ROTC at the University

At the University of Minnesota, military science and tactics is an elective four-year college course which the student may schedule in the same manner as any other elective course in his curriculum. The program, although laid out by the Army and taught by Army instructors, is administered by the University and academic credits applicable to graduation are given.

Reserve Commission

The completion of the four-year course of instruction qualifies the student for appointment as a second lieutenant in the U.S. Army Reserve. During the current emergency, this appointment carries with it the obligation to serve on active duty for a period of two years, unless this active duty requirement can be waived because of prior service. It carries with it a further obligation for the student so commissioned to serve an additional period of six years in the U.S. Army Reserve on an inactive status, thereby making an eight-year total obligation.

Regular Army Commission

Students who desire a Regular Army career have an excellent opportunity to secure a commission as a second lieutenant in the Regular Army if they meet certain qualifications during their ROTC enrolment. A large number of appointments in the Regular Army are now being made annually from selected ROTC graduates. Further information concerning this opportunity may be obtained from the Department of Military Science and Tactics.

Obligations

Because of the federal subsidy involved, students assume two obligations in ROTC, upon their entrance into the third and fourth years (Military Science III and IV) of military science. They must agree to complete the remaining two years of ROTC if they continue enrolled in the University, and they must agree to accept a commission of second lieutenant (first lieutenant for medical students) in the U.S. Army Reserve, if offered, upon completion of the course.

Allowances

All texts and uniforms are furnished by the department. There is no expense attached to the course. In addition, students who have been accepted for Military Science III and IV receive federal pay of \$27 per month during the two academic years, and \$75 per month during the six-week summer camp. This financial assistance is in addition to any benefits received under the "GI Bill."

Qualifications for Enrolment

The following qualifications for enrolment for commission are required. Students who do not meet this qualifications may enroll in the course and receive university credit, but will not receive financial benefits or a Reserve commission.

1. Enrolled as a regular student at the University.
2. Male citizen of the United States.
3. Not have reached 23 years of age for enrolment in Military Science I (26 years for medical and dental students).
4. Not have reached 27 years of age at the time of initial enrolment in Military Science III (31 years for medical and dental students).
5. Have sufficient time remaining in college curriculum to complete the ROTC course.
6. Physically qualified as determined by physical examination administered at time of enrolment.
7. Not a member of the Air or Naval Reserve.
8. Not previously commissioned in one of the armed services.

Transfer of ROTC Credits

Students who have had ROTC at other institutions on the college level will be given quarter-for-quarter credit for such prior ROTC successfully completed. Students who have completed ROTC at military schools and high schools will be granted such credit for ROTC successfully completed as may be determined by each individual case.

Credit to Veterans

Veterans who have completed twelve months of service in one of the Armed Services, and who are otherwise qualified, may be granted credit for Military Science I and II, and may be accepted for initial enrolment in Military Science III. Veterans who have completed six months and less than twelve months of service may be granted credit for Military Science I.

Registration

Formal registration for military science and tactics is effected in the same manner as registration for other academic courses of the University. Students add military science and tactics to their academic program at the appropriate college registration point. **Due to the monetary allowance in Military Science III and IV, it is necessary that students registering for these courses secure prior acceptance by personal application at the Department of Military Science and Tactics, Room 110, Armory.**

Army ROTC Branches

The Army is organized into a number of specialized branches, and students are trained for and assigned to one of these branches in either the U.S. Army Reserve or the Regular Army. Not all Army branches are represented by military science courses at the University. There is, however, a provision for students to secure a commission in a branch other than one of those offered at the University.

The first year of ROTC (Military Science I) is common to all branches except the Medical, Dental, and Pharmacy Corps. The curriculum of these branches is listed in the Description of Courses section of this bulletin. Prior to enrolment in Military Science II students must elect one of the Army branches offered at the University. Thereafter the greater portion of the military science subjects is studied in the tactics and equipment of the selected branch.

Summer Camp

The "laboratory" for military science and tactics is one six-week summer camp conducted during the summer between Military Science III and IV. The camp is part of the school program and attendance is required for full course credit and commission.

Students attend camp as civilians and participate in a 40-hour week of instruction in the practical application of theoretical subjects studied at the University. Separate camps are conducted by each branch of the Army for ROTC students.

Students are paid traveling expenses to and from camp and in addition receive pay of \$75 per month while at camp. All accommodations and food are furnished.

CURRICULUM

First Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science I (Common to all branches of Army ROTC; 1f, 2w, and 3s)	None	1	3

Military Science I is designed to give the freshman student an understanding of basic military subjects and to orient him as to his obligations in terms of the responsibilities of citizenship.

The subjects presented in Military Science I include a study of basic military organization; the evolution of warfare and the unchanging principles of war; the importance of maps and aerial photographs and a practical working knowledge of their use; first aid and hygiene; individual weapons and marksmanship including the firing of small caliber rifles on the indoor range; the military policy of the United States and the problems of a military nature in our society; as well as a course in leadership, drill, and command designed to instill coordination necessary to the successful functioning of any military unit. Courtesy, leadership, and necessary qualities of a good citizen are emphasized throughout the course.

ANTI-AIRCRAFT ARTILLERY

Second Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science II (AAA)	MS I	1	3
4f	The first quarter of Military Science II in the Antiaircraft Artillery branch is composed of lectures on basic antiaircraft artillery automatic weapons, with the characteristics, capabilities, and limitations of machine guns and 40-mm. cannons.		
5w	The duties of gunners and cannoneers with the emphasis placed on service of the piece, duties of the range section, emplacements and march order are taught in the second quarter of Military Science II in the Antiaircraft Artillery branch.		
6s	The third quarter of Military Science II in the Antiaircraft Artillery branch continues the study of antiaircraft weapons. The emphasis, however, is placed on the study of larger caliber weapons such as the 90-mm. gun. The course will include nomenclature, functioning, and a general description of fire control equipment and types of ammunition.		

Third Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science III (AAA)	MS II	3	5
151f	Basic gunnery, including position finding, exterior ballistics, and orientation and synchronization of the antiaircraft gun battery, takes up the main part of the first quarter in Military Science III in the Antiaircraft Artillery branch. Tactics of antiaircraft units, communications, and automatic weapons problems also are taught during this quarter.		
152w	The second quarter of Military Science III in the Antiaircraft Artillery branch goes into the technical phases of motors and transportation and troop movements. The organization and mission of antiaircraft groups and brigades are taught so that the student has at least a basic understanding and knowledge of the job done by an antiaircraft unit.		

- 153s Branch immaterial subjects take up most of the time in the third quarter of Military Science III in the Antiaircraft Artillery branch. Individual weapons and marksmanship are taught so that the student will have some understanding of how to protect himself in case of close enemy contact. Leadership, drill, and the exercise of command are stressed in the latter part of the quarter.

Fourth Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science IV (AAA)	MS III	3	5
154f	Further instruction of a more complicated nature on the capabilities, limitations and employment of antiaircraft weapons is taught in the first quarter of Military Science IV in the Antiaircraft Artillery branch. Command and staff functions with the relationship between commanders and their staff are also taught.		
155w	Combat intelligence, its importance to the antiaircraft artillery unit and its influence on decisions, is taught in the second quarter of Military Science IV in the Antiaircraft Artillery branch, to familiarize the student with intelligence problems. The importance of teamwork in military operations, with the accent placed on the Army-Navy-Air Force team is taught in this quarter also.		
156s	Consolidated subjects. See "Branch Immaterial," pages 13 and 14.		

CORPS OF ENGINEERS

Second Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science II (CE)	MS I	1	3
4f	History and traditions of the Corps of Engineers: origin and history of the corps from the Revolutionary period to the present time. Characteristics of weapons and tactics of small units: engineer weapons and the role of engineers in small unit operations.		
5w	Hand tools and rigging: use and care of engineer hand tools; use of ropes, knots, lashing, and loadings. Mines, booby traps, and explosives: nomenclature, characteristics, and functioning of mines, traps, fuses, explosives, and demolition equipment; mine field installation. Camouflage basic principles and application.		
6s	Defense against chemical attack: chemical agents; defensive measures for personnel and material. Field fortifications: construction principles of intrenchments, emplacements, shelter, and obstacles.		

Third Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science III (CE)	MS II	3	5
151f	Organization of engineer units—a general picture. Tactics of engineer units: methods of employment emphasizing the smaller units such as the squad, platoon, and company. Organization of combat divisions: a survey of the infantry, armored, and airborne divisions. Engineer signal communication: techniques of communication and description of signal equipment. Supply procedure for engineer units. Vehicle operation and maintenance for engineer units.		
152w	Bridge design and classification: nomenclature, fundamentals of design, Bailey bridges, and standard floating bridges; tactical bridging, fixed and floating.		
153s	Military roads and runways: nomenclature, design standards, surveys, drainage, grading, surfacing, repairing, and rehabilitation of roads and runways.		

Fourth Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science IV (CE)	MS III	3	5
154f Motor movements: an introduction to the technique and procedure involved in moving an engineer unit by automotive transportation. River crossing operations: includes principles of tactical operations and technical considerations such as site selection, equipment needed, and planning details.			
155w Engineer support for the Air Force: organization, mission, equipment and capabilities of aviation engineer units. Engineer support of the communication zone and for the field type army. Construction utilities and job management: principles of the Department of the Army construction policy and standard plans, construction planning and scheduling, and the operation and maintenance of utilities.			
156s Consolidated subjects. See "Branch Immaterial," pages 13 and 14.			

ORDNANCE DEPARTMENT**Second Year**

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science II (ORD)	MS I	1	3
4f The role and place of the Ordnance Department in the Armed Forces. Survey of special requirements, classification, identification, and maintenance of military vehicles.			
5w Small arms materiel: the historical and technical development of small arms. Artillery materiel: description, characteristics, principles of operation, and tactical employment. Ammunition materiel: classes, types, explosives, ammunition, and bombs.			
6s The nomenclature, functioning, and tactical employment of representative fire control instruments.			

Third Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science III (ORD)	MS II	3	5
151f History, mission, organization, and operation of the Ordnance Department. Automotive materiel: characteristics, functions, construction and principles of operation, tests and measurements, current trends.			
152w Advanced small arms materiel: advanced artillery materiel. Antiaircraft fire control systems: historical survey and introduction to standard symbols, mathematical methods, principles of operation and interrelation of the major components of control systems.			
153s Advanced ammunition materiel: qualitative fundamentals. Ammunition supply: storage and distribution; accounting procedures and records; fundamentals of surveillance, maintenance, and destruction of ammunition.			

Fourth Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science IV (ORD)	MS III	3	5
154f Maintenance and supply: principles of ordnance general supply, to include receipt, storage, packaging, crating, and issue of materiel.			

- 155w Materiel specialty: individual research and study which coordinates a selected ordnance topic with an appropriate engineering or scientific subject; the individual project to be expressed in the form of an extended term paper. Combat intelligence: general principles and technique with emphasis on ordnance intelligence.
- 156s Consolidated subjects. See "Branch Immaterial," pages 13 and 14.

QUARTERMASTER CORPS

Second Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science II (QM)	MS I	1	3
4f	Organization for supply in the Army: a general survey of the supply organization in the Army, organization and functions of the Quartermaster Corps: organization, mission, functions, installation, and activities. Classification of supplies; use of supply catalogs, and basis of allowances.		
5w	Property accountability and responsibility: definition of terms, details of application. Research and development of supplies in Quartermaster Corps: the functions of the Quartermaster Service Board; laboratories; tests and measurements; current research and development. Organization, functions, and operations of quartermaster units: mission, capacity, major equipment, and employment of quartermaster units.		
6s	Supply procedures followed in units and organizations.		

Third Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science III (QM)	MS II	3	5
151f	This course presents the supply procedures used at an Army station; the types, missions, and procedure employed in Army supply depots; the organization and functions of sales commissaries.		
152w	Storage, warehousing, and materials handling at depots, camps, and stations: technique of storage, preservation and protection of supplies. Procurement, storage, and distribution of petroleum products.		
153s	A study of the quartermaster activities at a post and in the field, including bakery, laundry, salvage, graves registration, and food service.		

Fourth Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science IV (QM)	MS III	3	5
154f	Survey of the operations of the Quartermaster Corps in the zone of interior and in a theater of operations.		
155w	Fiscal procedures: organization, functions including definitions and terms, distribution of funds, records and codes. Procurement procedures: purchasing and contracting procedures and technique; mission, type, and organization for quartermaster inspection service. The organization and functions of combat arms and technical services, combat and technical intelligence.		
156s	Consolidated subjects. See "Branch Immaterial," pages 13 and 14.		

SIGNAL CORPS**Second Year**

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science II (SIG)	MS I	1	3
4f	The first quarter of Military Science II in the Signal Corps branch is composed of lectures on the evolution of communications and communication equipment with the duties of communication personnel in installing, operating, and maintaining wire, radio, sound, pigeon, and visual means of communication.		
5w	Organization and mission of the Signal Corps with the emphasis placed on organization for national defense and the Department of Army is taught in the second quarter of Military Science II in the Signal Corps branch.		
6s	The third quarter of Military Science II in the Signal Corps branch continues the study of organization and signal communication practices. The emphasis, however, is placed on the organization, capabilities, and functions of the infantry, armored, and airborne divisions.		

Third Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science III (SIG)	MS III	3	5
151f	Basic information concerning security and its importance in Army communications along with explanation of responsibility for the various types of signal orders issued, takes up the main part of the first quarter in Military Science III in the Signal Corps branch. Field wire and radio communications fundamentals plus message center and communication center procedure take up the latter part of this quarter.		
152w	The second quarter of Military Science III in the Signal Corps branch goes into the technical phases of signal supply and repair, with emphasis placed on the teaching of joint Army-Navy-Air Force nomenclature systems. The disposition of unserviceable property and the action taken on lost, destroyed, and damaged property also is taught.		
153s	Career guidance plan for Signal Corps officers and courses of instruction available to Signal Corps officers at Army service schools, civilian universities, and industrial institutions. Individual weapons and marksmanship also are taught during this quarter. Leadership, drill, and the exercise of command are stressed in the latter part of the quarter.		

Fourth Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science IV (SIG)	MS III	3	5
154f	Further instruction on the functions, capabilities, and practical application of various types of wire communication materiel is taught in the first quarter of Military Science IV in the Signal Corps branch. Further material of a more complicated nature also is taught on radio communication.		
155w	Higher echelon signal communication, post-signal operations, and administrative procedure are taught in the second quarter of Military Science IV in the Signal Corps branch. The administrative procedure will familiarize the student with the responsibilities, duties, and problems of a post-signal officer.		
156s	The last quarter of Military Science IV in the Signal Corps branch continues the study of signal communication. Combat intelligence, with a short while spent on the career guidance plan for Signal Corps officers also is taught during this quarter.		

TRANSPORTATION CORPS

Second Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science II (TC)	MS I	1	3
4f	Introduction to transportation corps: history, organization, and mission; relation to other mediums of transportation.		
5w	Military highway transport: classes, characteristics, and employment of military motor vehicles, including various types of transportation truck units. Highway organization and operation: technique and procedure in moving military units by automotive transportation.		
6s	Economics of military transportation: general economic problems associated with transportation, military and civilian.		

Third Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science III (TC)	MS II	3	5
151f	Organization and operation of railroads in the zone of the interior: terms and definitions; duties of various officials; operating procedure; equipment. Military railway service: organization, missions, and functions of military railway transportation units.		
152w	Control of military movements: the control techniques employed in railway freight and passenger movements; security of supplies, terminals, trucks, railroads, and ships. Operation of ports of embarkation and debarkation: normal operating procedures associated with overseas movements of men and materiel.		
153s	Stevedore operations: functions and duties of port units; types and nomenclature of vessels; loading and unloading ships. Harbor craft and marine maintenance: maintenance and operation of vessels utilized by the Transportation Corps.		

Fourth Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science IV (TC)	MS III	3	5
154f	Military railway service in a theater of operations and problems associated with the operation of foreign railroads. The principles and procedures of movements control in a theater of operations. Supply problems of the Transportation Corps in a theater of operations.		
155w	Highway transport operations, traffic regulations and control, in a theater of operations.		
156s	Consolidated subjects. See "Branch Immaterial," below.		

BRANCH IMMATERIAL

(Advanced Consolidated Subjects)

Although an attempt is made to present instructional material common to all branches and services in *Military Science I*, certain consolidated subjects find a logical place in the progressive stages of training in each of the services and branches. The following units are presented as integrated elements in the courses identified by quarter, number, and title.

Second Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Branch Immaterial MS I			
4f	Elementary principles of leadership and exercise of command; application in close order drill.		
6s	Practical exercises in the technique of troop leadership and exercise of command as applied to military formations: squad, platoon, company, and battalion drill and ceremonies.		

Third Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Branch Immaterial MS II			
151f	Advanced principles of leadership and exercise of command.		
152w	Individual weapons and marksmanship: description, characteristics, disassembly and assembly of basic weapons; marksmanship to include range firing with calibre .22 rifle.		

Fourth Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Branch Immaterial MS III			
154f	Military administration: correspondence, reports, records, and property accounts. Military teaching methods: technique of teaching methods employed in the Army; practical exercises.		
156s	An introduction to psychological warfare utilizing historical examples. Command and staff organization, principles, and procedures: definitions, duties, and mission of the various staff sections. Advanced leadership, drill and exercise of command: functions, duties, and responsibilities of commissioned officers.		

MEDICAL SERVICE CORPS**Third Year**

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science III (MSC) (Pharmacy students only)			
151f	The mission of ROTC in relation to the national defense program and world situation. Accomplishment of Medical Department in the field of preventive medicine. Environmental and other physical forces affecting control of diseases of the respiratory and intestinal groups. Actual control measures employed by the Medical Department for prevention of disease.	1	1
152w	Purpose, preparation, and disposition of records used by the Army Medical Department. History of development of pharmaceutical service in the Army. Development of depot system of supply, including distribution methods, special handling, and control of drugs and chemicals.		

- 153s Duties of the pharmacy officer, including maintenance of adequate stocks of pharmaceuticals; storage of drugs, biologicals and chemicals; control of alcohol, alcoholic preparations, and narcotics. Compounding of pharmaceutical preparations.

Fourth Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Military Science IV (MSC) (Pharmacy students only)	MS III	1	1
154f Events of current international interest discussed in relation to the national defense program and ROTC. History and development of military personnel management. Current procedures for assignment and classification of military personnel. Elimination from the service of noneffective and undesirable personnel.			
155w Casualties resulting from blast, heat, and radiation effects of atomic explosions. Study of preventive treatment for atomic casualties as known at present. Food service in the Army. Storage, issue, and preparation of food for large groups of personnel. Special procedures governing the feeding of Army hospital patients.			
156s Medical aspects of chemical warfare. Effects of, and treatment for, different types of chemical agents. Administration of military hospitals. Duties and responsibilities of hospital commander. Functions of the administrative and professional services of the hospital.			

Naval Science

NAVAL ROTC

GENERAL INFORMATION

The United States Navy and the United States Marine Corps obtain most of their officers from two sources: the Naval Academy at Annapolis, Maryland, and the Naval ROTC. These Naval ROTC units are established in fifty-two of the leading colleges and universities of the United States to provide, by a permanent system of training and instruction in essential naval subjects, a source from which qualified officers may be obtained for the Navy, the Marine Corps, the Naval Reserve, and the Marine Corps Reserve.

The Naval Reserve Officers' Training Corps was established in 1926 for the purpose of offering to selected college students the necessary naval science courses required to qualify them for commissions in the Naval Reserve upon graduation. The mission of the Naval ROTC was greatly expanded in 1946 to include the training of career officers for the Regular Navy. These two training programs now go hand-in-hand, and students enrolled therein are known as "Contract" and "Regular" students, respectively. Both classes of students take the same naval science courses and drills and are subject to the same privileges and discipline. They vary widely, however, in the method of selection, the benefits received, the obligations entailed, and the summer cruises required.

Students enrolled in the Naval ROTC lead approximately the same life as their civilian contemporaries. In the same manner they make their own arrangements for board and lodging. Likewise, they may pursue any of the college extracurricular activities which do not interfere with their naval science requirements. They may obtain outside employment on the same basis, provided they are able concurrently to maintain the high scholastic requirements. They wear the uniform when attending drills and other ceremonies and while engaged in summer training cruises.

Under the provisions of the Selective Service Act of 1948, all Naval ROTC students who are subject to induction under the provisions of that act are required to agree in writing to accept a commission upon completion of their training and to serve, subject to call by the Secretary of the Navy, not less than two years on active duty after receipt of their commission. Having signed this agreement, they will then be deferred from induction until the completion or termination of the course of instruction but shall not be exempt from registration.

For Regular Naval ROTC students, this is only a minor change from Public Law 729, which requires three years' active duty service. In the case of Contract students who are commissioned in the Reserve, this does not necessarily mean that they will be permitted or required to serve for three years on active duty. To be deferred from induction, however, they must agree to accept a commission and serve on active duty if called to do so.

Naval Science Courses

The Naval ROTC program constitutes a four-year naval science course which a student schedules in the same manner as any other course in his academic program. Naval science courses are under the supervision of the Department of the Navy and are taught by naval instructors. These courses carry full university academic credit as electives and are applicable toward the requirements for a university degree and graduation.

Contract Naval ROTC Students

For those college students who desire neither financial assistance from the Navy nor a naval career, but who do wish to be available to serve their country in time of emergency as a Reserve officer, the Navy offers the Contract student status. Contract students are selected for enrolment in the Naval ROTC by the professor of naval science from among those students already in attendance at, or selected for admission by, the University who plan to complete at least four years of academic work. Contract students are civilians who enter into a mutual contract with the Department of the Navy, in which they obligate themselves to take certain naval science courses and drills and one summer training cruise. In return, the Navy provides the required uniforms, gives them a subsistence allowance of about \$27 per month during their junior and senior years, and offers a Reserve commission upon graduation. Contract students must meet the same standards for enrolment, including the same physical qualifications, as Regular students. They are also eligible to compete for regular student status.

Regular Naval ROTC Students

For those applicants who desire financial assistance from the Navy, with the possibility of a career in the Regular Navy or Marine Corps, the Navy offers the Regular student status. Complete information on this program is available at the Naval ROTC Office, 203 Armory Building, Minneapolis Campus.

Commission in the Naval Service

Both Regular and Contract Naval ROTC programs lead to a commission as an Ensign in the Navy or a Second Lieutenant in the Marine Corps upon the successful completion of the four-year naval science course and the fulfilling of requirements for a degree and graduation from the University.

Eligibility Requirements

To be eligible for consideration for Regular or Contract Naval ROTC student status, a candidate must:

Be a male citizen of the United States.

Have reached his 17th birthday (16th for Contract students) and not have passed his 21st birthday on July 1 of the year in which he enters, unless

contemplating undertaking a college course which takes five years to complete, in which case he shall not have passed his 20th birthday on July 1 of that year.

Be unmarried.

Be physically qualified in accordance with the standards for midshipmen as set forth in the *Manual of the Medical Department, U. S. Navy*.

Be prepared to enter into an appropriate contract with the Secretary of the Navy, providing for the obligations set forth in the preceding paragraphs. Minors must obtain a signed agreement to the contract from their parent or guardian.

Be a high school graduate or possess an equivalent certificate.

Shall not be a member or former member of organizations which have been designated by the Attorney General to be totalitarian, fascist, communist, or subversive.

Physical Requirements

The physical requirements for the Naval ROTC are exactly the same as those required of candidates for entry in the United States Naval Academy. These standards are necessarily exacting and have been established in the light of many years of experience by naval personnel on duty in all parts of the world under changing and extreme conditions of service.

The general requirements are that the candidate be physically sound, well-formed, and of robust constitution. Vision must be 20/20 uncorrected in each eye. Good color perception is required. Heart, lungs, and hearing must be normal. He must have at least 20 vital serviceable teeth with good occlusion and no caries. Weight must be in proportion to height and general build. The limits of height are 66 to 74 inches for persons under eighteen years of age and 66 to 76 inches for those over eighteen.

All naval science courses are available to any student not in the Naval ROTC who desires to take the course for academic credit only.

CURRICULUM

Junior College Courses (First and Second Years)

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK	LAB. HOURS PER WEEK
Naval Science 11, 12, 13	None	3	3	2
11f Naval Orientation. Naval history and sea power				
12w Naval Orientation. Functions of the Navy within the national military establishment.				
13s Naval Orientation. Duties and responsibilities of a naval officer				
TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK	LAB. HOURS PER WEEK
Naval Science 21, 22, 23	NS 11, 12, 13	3	3	2
21f Naval Weapons				
22w Principles of Fire Control				
23s Applied Naval Electronics				

Senior College Courses (Third and Fourth Years)

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK	LAB. HOURS PER WEEK
Naval Science 51, 52, 53	NS 21, 22, 23	3	3	2
51f Aerology and Navigational Piloting				
52w Celestial Navigation				
53s Navigational Rules of the Road and Maneuvering Board				

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK	LAB. HOURS PER WEEK
Naval Science 61, 62, 63	NS 51, 52, 53	3	3	2
61f Marine Power Plants				
62w Diesel Engines; Damage Control				
63s Military Justice and Leadership				

Supply Corps Courses

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK	LAB. HOURS PER WEEK
Naval Science 57, 58, 59, 66, 67	NS 51, 52, 53	3	3	2
57f Introduction to Supply, Naval Finance, and Naval Accounting				
58w Supply Ashore				
59s Supply Afloat				
66f Advanced Supply Afloat and Ship's Store				
67w Naval Clothing and Small Stores and Commissary				

Marine Corps Courses

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK	LAB. HOURS PER WEEK
Naval Science 54, 55, 56, 64, 65	NS 21, 22, 23	3	3	2
54f Evolution of the Art of War I				
55w Evolution of the Art of War II				
56s Modern Basic Strategy and Tactics				
64f Amphibious Warfare I				
65w Amphibious Warfare II				

Air Science and Tactics

AIR FORCE ROTC

GENERAL INFORMATION

Air science and tactics is a four-year elective course open to all regularly enrolled male students who meet physical, moral, age, and citizenship requirements. The course is designed to meet university educational standards and to train the student in military subjects so that he may qualify for a Reserve commission in the United States Air Force.

The student will not specialize in any one military career field but instead will take subjects aimed at giving a well-rounded course of study which provides a complete background of officer training. He will be given an Air Force specialty classification that corresponds to his college academic major. Every effort is made by the Air Force classification and assignment system to utilize this specialty training.

The Air Force ROTC student is not in the military service and is therefore not subject to the uniform code of military justice.

Admission

The following qualifications for enrolment are required:

1. Enrolled as a regular student in the University of Minnesota.
2. Male citizen of the United States.
3. Not have reached 23 years of age for nonveterans or 25 years of age for veterans.
4. Have sufficient time remaining as an undergraduate in college curriculum to complete the ROTC course.
5. Physically qualified as determined by a physical examination administered at the time of enrolment or at time of entrance into the advanced course.
6. May be required to achieve a passing score on officer aptitude tests.

The Air ROTC is a department in the University of Minnesota and is a university course. The student enrolls in ROTC at the time of registration in his college as he does for any other university course. Registration is accomplished at the campus Armory.

Benefits

Air Force ROTC is a four-year program composed of the Basic course (first two years) and the Advanced course (last two years) plus a six-week summer camp at an Air Force base during the summer after the third year.

Students enrolled in the Basic course will receive all textbooks and a uniform free of charge. Students enrolled in the Advanced course will receive all

textbooks free of charge and a subsistence allowance of \$27 per month. Advanced students will also receive an Air Force officer's blue uniform which becomes his property upon graduation.

During the summer encampment he will receive food, housing, medical care, clothing, transportation, and pay at the rate of \$78 per month. These benefits are all exclusive of any others that he may be receiving from the Veterans Administration or under the GI Bill.

Credits

Air Force ROTC credits may be substituted for humanities credits in the Institute of Technology; for elective credits in the colleges of Education; Science, Literature, and the Arts; Agriculture, Forestry, and Home Economics; Pharmacy; and Medical Sciences. Air science is accepted as a minor in the College of Science, Literature, and the Arts.

The Reserve Commission

Each student who successfully completes the Air Force ROTC course and graduates from the University of Minnesota will be given a commission as a second lieutenant in the United States Air Force Reserve. Under this commission the officer may:

1. Be called to active duty for a period of twenty-one months.
2. If not called, apply for active duty for an indefinite period.
3. Apply for pilot or air crew training as an officer.
4. Join an active reserve unit and participate in training activities for pay and promotion points.
5. Have his commission transferred to the Air National Guard.
6. Elect not to participate in any military duty until called.

Those students who maintain a top academic standing and participate in campus activities may qualify for appointment as distinguished military students. If these individuals later apply for a direct commission while on active duty, special consideration is given for this achievement.

Field of Specialization

There is no specialty training in the Air Force ROTC program. Students get their specialty training in the college academic major. The Air Force supplies the general officer training.

Students will be assigned an Air Force specialty classification that most closely parallels their college major. Upon entrance into active duty, it is the policy to assign newly commissioned personnel to specialty schools for further training.

CURRICULUM

First Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Air Science I	None	1	3
31f Introduction to Air Force ROTC Instruments of National Military Security Command and Leadership Laboratory			
32w Fundamentals of Global Geography International Tensions and Security Organizations			
33s Introduction to Aviation Command and Leadership Laboratory			

Second Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Air Science II	AS I	1	3
34f Elements of Aerial Warfare Introduction to Targets and Weapons			
35w Introduction to Aircraft Air Ocean, Bases, and Forces Air Force Careers			
36s Psychology of Leadership Command and Leadership Laboratory			

Third Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Air Science III	AS II	3	5
131f Applied Air Science Aircraft Engineering Navigation, Weather			
132w Military Correspondence, Communication Processes Military Law Psychology of Leadership Laboratory			
133s Air Force Base Functions Problem Solving and Staff Work Command and Leadership Laboratory			

Fourth Year

TITLE	PRE-REQUISITES	CREDITS PER QUARTER	LECTURES PER WEEK
Air Science IV	AS III	3	5
134f Principles of Leadership and Military Instruction Principles of Management Military Instruction Laboratory			
135w Military Aspects of World Political Geography Career Guidance			

136s Military Aviation and the Art of War
Command and Leadership Laboratory
Briefing for Commissioned Service

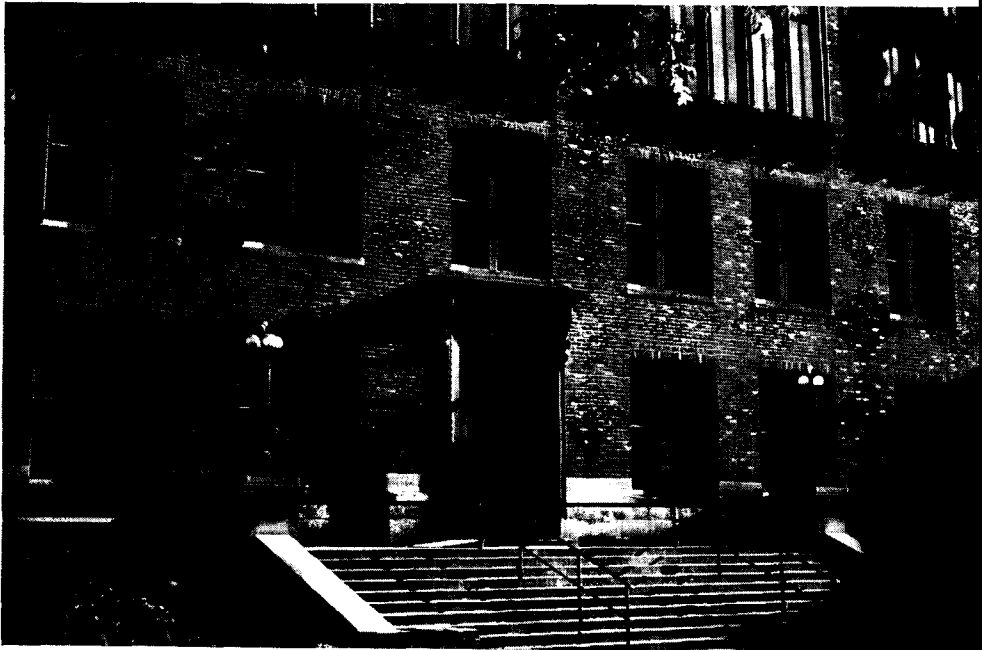
Summer Camp

Familiarization Flying
Air Base Operation Problems
United States Air Force Base Activities and Equipment
Field Exercises
Individual Weapons
Physical Training
Command and Leadership Laboratory

For further information contact the department of Air Science and Tactics
on the first floor of the campus Armory.

7/10/53
27/100

Bulletin of the
UNIVERSITY OF MINNESOTA



Applied Mortuary Science 1953-1955

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APPLIED MORTUARY SCIENCE

The University of Minnesota, through the cooperation of the Medical School and other departments of the University and the Minnesota State Department of Health, announces its course in Applied Mortuary Science. This bulletin gives an overview of the curriculum and indicates the activities of the course. The General Extension Division is charged with the administrative responsibilities of this semiprofessional program, but the course of study involves many university departments and agencies. It is an all-university course, completed in two academic years. It is coeducational and open to qualified high school graduates.

A review of the progress of this department reveals that 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. The first session under the auspices of the Medical School began January 5, 1914, and lasted six weeks. In 1916 the course was extended to eight weeks. Since then the length of the course has been successively extended to twelve weeks, twenty-four weeks, thirty-six weeks, and in 1951 a concentrated two-year curriculum. The latter change brings this program into professional stature with the awarding of the degree, associate in mortuary science.

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 Departments 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.

The two-year program is specifically planned to assist those who must qualify for licensure in states requiring college experience as a condition to practice. This curriculum will fulfill the requirements of one year of college and one year of mortuary science that is mandatory in Minnesota and other states with similar regulations. The course of study is arranged to give preparation in those academic areas that seem essential for the technical subject-matter content of the basic sciences. The six-quarter sequence is integrated to bring the maximum of professional success and to contribute most to the general welfare.

APPLICATION—ADMISSION—REGISTRATION

How To Apply—All inquiries, credentials, and applications for admission to the course in Applied Mortuary Science should be addressed to the Office of Admissions and Records, University of Minnesota, Minneapolis 14.

Application blanks may be obtained at any Minnesota high school or from the Office of Admissions and Records of the University of Minnesota.

An admission certificate will be mailed to each student who has met the requirements. Students entering from other colleges or universities will also receive a statement of advanced standing. Instructions for regis-

tration will either be enclosed with the admission certificate or be mailed later—about one month before the opening of the fall quarter. Students must present their admission certificates when they report for registration.

How To Register—With the admission certificate mailed to qualified applicants, you will be notified of either a special registration appointment or the specified days set aside for registration. When you report for registration you will be given a set of detailed instructions which will make the process of registration relatively simple. Your registration will be completed with the help of either the director of the course or his assistant. See the *Bulletin of General Information* for more specific details and directions.

For Further Information—Because of the specialized nature of the work in funeral service all applicants are urged to consult with the assistant director of the course before registration. Advisers for the course in Applied Mortuary Science are available for consultation in person or by letter with prospective students. Their offices are located in 155 Nicholson Hall. A pamphlet entitled *Funeral Service as a Profession* is available upon request.

CANDIDATES FOR LICENSURE

Embalmer

Candidates for a license in Minnesota as embalmer must pass satisfactorily the state examination given by the Minnesota State Board of Health. The examination is conducted annually at the close of the school year in June and is open to all applicants who have complied fully with the requirements of the licensing law (see Minnesota Statutes 1945, Section 149.01, et seq.) and the Regulations of the State Board of Health. The board is responsible for its examination and collects from each applicant the sum of \$10 as an examination and original license fee. Students in Applied Mortuary Science should distinguish carefully between the various state requirements for licensure and the requirements for the degree (see table on page 16).

Necessary Qualifications—The Minnesota State Board of Health requirements for license as embalmer are set out in Regulation No. 29, as amended January 20, 1949, as follows:

QUALIFICATIONS FOR LICENSE AS AN EMBALMER

Regulation 29. Every person who wishes to qualify as competent to embalm a body for burial or transportation, as required by the laws of the State of Minnesota, 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 accompanied by affidavits from at least two reputable residents of the county in which the applicant resides or proposes to carry on the practice of embalming or funeral directing certifying that the applicant is of good moral character.

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 following such academic work 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 accredited by the Conference of Funeral Service Examining Boards of U.S., Inc.

After the educational qualifications in the order herein specified have been acquired, the applicant shall have served at least one year of apprenticeship under an embalmer licensed in Minnesota. During this full period of practical experience or apprenticeship the

applicant shall have been registered as an apprentice embalmer with the State Board of Health and shall have helped to embalm or have embalmed under supervision at least twenty-five bodies. The applicant must attain a satisfactory level of achievement in a written examination given by the State Board of Health in each of the subjects of anatomy, bacteriology, business methods, elementary chemistry, pathology, public health laws and regulations, and the practice of embalming.

An applicant who fails to attain a satisfactory level of achievement in not more than two of the required subjects shall be re-examined on application at the next annual examination in only those subjects in which he failed. An applicant who fails in three or more subjects shall be re-examined on application at the next annual examination in all subjects necessary for licensure.

Apprentice Embalmer

The candidate for license, after receipt of the university certificate of graduation, shall register with the State Board of Health as an apprentice embalmer. A renewal of the registration is required in December of each year during the period necessary to satisfy the apprenticeship requirement. A fee of \$1 is required for registration and for the annual renewal. The apprentice embalmer must secure his experience under the supervision of an embalmer licensed in Minnesota. Regulation No. 47, dealing with the embalmer's apprenticeship, reads as follows:

QUALIFICATIONS FOR LICENSE AS APPRENTICE EMBALMER

Reg. 47. Registration with the State Board of Health as embalmer apprentice, as provided for by Chapter 417, Laws of 1937, will be accepted on condition that such registrant is so registered with the purpose of learning to be an embalmer, of complying with all necessary educational requirements, and then taking examination for the State's license.

An embalmer's apprentice may be registered and work as such for a period of not more than five years prior to obtaining a license as an embalmer; not more than three years of such apprenticeship being served prior to enrolling in an embalming school accredited by the State Board of Health, and not more than two years being served after successfully completing a course of study in such accredited embalming school.

No person who is less than 18 years of age shall be permitted to serve as an apprentice embalmer, nor shall apprenticeship registration by such persons be accepted by the Board.

No service in embalming may be performed by an apprentice except under the personal direction and in the presence of the licensed person to whom he is apprenticed or under another licensed embalmer who is a regular operator in the same establishment.

No one may at one and the same time be apprenticed to more than one licensed embalmer.

Apprenticeship registration with the Board must show the date on which such apprenticeship service began; the name and address of the licensed embalmer to whom he is apprenticed, and the name and address of the company, corporation or firm of which such licensed embalmer is the owner, partner or employee. Discontinuance of such apprenticeship service or change to some other licensed embalmer for apprenticeship service must be immediately reported to the State Board of Health. Apprentices must file with the State Board of Health not less than 25 acceptable case reports upon the forms provided by said Board for this purpose. If the embalmer to whom one is apprenticed is not the owner or manager of the establishment in which such embalmer and his apprentice are working, then in such case all apprentice case reports and all statements concerning the period of apprenticeship, in addition to being signed by the embalmer to whom apprenticed, must also be approved and signed by the employer of such embalmer and apprentice.

ASSOCIATE IN MORTUARY SCIENCE DEGREE

The requirements for graduation are the completion of all the required courses or their equivalent, the completion of the practical work, with a total of 99 credits and 99 honor points—an average of 1 honor point per credit. Upon satisfactory completion of the prescribed except course of study, the degree, associate in mortuary science, will be conferred by the Board of Regents.

PLAN OF INSTRUCTION

		Fall Quarter Credits	Winter Quarter Credits	Spring Quarter Credits
FIRST YEAR				
Comp. 4, 5, 6	Composition	3	3	3
Inorg.Chem. 1, 2	Inorganic Chemistry .....	.....	4	4
Mort. 13, 14	Funeral Law	3	3	.....
Mort. 8, 9, 10	Orientation	0	0	0
Phys.Ed. 1A-B-C	Physical Education	1	1	1
G.C. 41	Psychology .....	.....	.....	5
P.H. 3	Public Health	2	.....	.....
Zool. 1, 2, 3	Zoology	3	3	4
	Elective	3	.....	.....
		15	14	17
SECOND YEAR				
Mort. 1, 2	Anatomy .....	.....	3	3
Mort. 3	Business Methods .....	.....	2	.....
Mort. 4, 5, 6	Restorative Art	1	1	1
Mort. 7	Bacteriology .....	.....	.....	4
Mort. 11, 12	Chemistry	3	3	.....
Mort. 15, 16, 17	Funeral Management	2	2	2
Mort. 18, 19	Pathology	2	2	.....
Mort. 20, 21, 22	Embalming	3	3	3
Mort. 23	Psychology of Funeral Service	2	.....	.....
Mort. 24	Public Health .....	.....	3	.....
Mort. 25	Medical Science Survey .....	.....	.....	2
	Elective .....	.....	.....	3
Econ. 24	Accounting	3	.....	.....
		16	19	18

FEES

All university fees are subject to modification without notice.

Tuition fee (per quarter)	
Residents of Minnesota	\$ 60.00
Nonresidents	100.00
Credit-hour tuition fee (adult special students, auditors, and others carrying less than full work)	
Residents of Minnesota	5.00
Nonresidents	8.50
Incidental fee (per quarter)	18.85
Matriculation deposit (first quarter only, the balance being refunded upon graduation or termination of registration)	5.00
Graduation fee	10.00

Note: Certain courses because of departmental regulation or for laboratory facilities charge a small course fee. These are noted in the *Class Schedule* issued at time of registration.

GRADES AND CREDIT EVALUATION

Credits—The amount of work a student takes or has completed is expressed in terms of credits. Each credit demands, on the average, three hours a week of student's time; that is, one recitation with two hours of preparation, or three hours of laboratory work.

Grades—Four passing grades, A (highest), B, C, and D (lowest), are given. They are all acceptable for the completion of a single course. Work completed with the grade D is counted toward graduation when combined with work of A or B grade in other courses. The grade C indicates work

of the quality required for graduation in most curricula; the grades of B and A are given for work of higher degrees of excellence. The grade of I (incomplete) is a temporary grade indicating that a student has a satisfactory record in work completed but for reasons satisfactory to the instructor in charge was unable to complete the work of the course. A student receiving this grade is required to complete the work of the course within the first thirty days of his next quarter in residence or it will be marked cancelled without grade.

The grade of F (failure) is given for work which in the opinion of the instructor does not deserve college credit. An F is usually given also when there is an unexplained delinquency such as absence from the final examination, though in this case it may be changed to an incomplete upon presentation of an acceptable excuse.

The grades of W, Y, and Z are also used to indicate cancellation with or without approval during the various phases of the quarter and regular withdrawals from a course without grade.

Honor Point Ratio—Quality of work is indicated by honor points. Honor points are assigned to the various grades on the assumption that in most curricula a C average is required for graduation. Each credit with the grade C carries one honor point; each credit with the grade of B, two honor points; each credit with the grade of A, three honor points. The grades of D and F carry no honor points. A student's scholarship average is defined as the number of earned honor points divided by the total number of credits earned and failed. Scholarship averages of 1, 2, and 3, are called C, B, and A averages, respectively.

Satisfactory Progress—A student in this course is expected to make satisfactory progress in the curriculum he has selected. For those who are candidates for the degree, associate in mortuary science, this is interpreted to mean a C average and the completion of each required course. The cases of students who are not reaching this standard are considered by the Committee on Student Scholastic Standing.

During the quarter, instructors report to the committee the names of students who are likely to fail. These students are referred to a special counselor to discuss their situation and to see what may be done to help them. It is always best for a student to see his class instructor or his faculty counselor as soon as he feels himself in difficulty rather than to wait until he has already received a poor grade.

Probation—When the grades at the end of a quarter indicate that a student is in serious scholastic difficulty, he is placed on probation. While on this status he is afforded special aid in discovering the reasons for his difficulty and in finding ways of overcoming it. He is usually given at least one quarter to show improvement. In any case the probation period will not be extended beyond two quarters unless the Committee on Student Scholastic Standing is convinced that the causes of the student's poor work are beyond his control and will soon disappear.

If a student is placed on "strict probation," he may expect to be dropped at the end of the current quarter unless he fully achieves a specified quality of work.

The probationary status indicates serious doubt whether the student will succeed in college. While poor grades are a primary factor in determining this status, a record of continuous cancellations and incompletes likewise indicates scholastic weakness.

A student will always be placed on probation if the following conditions arise:

1. Failing grades in over half of his work for any quarter.
2. An honor point ratio under .50 at the end of two quarters.
3. An honor point ratio under .60 at the end of three quarters.
4. An honor point ratio under .75 at the end of four quarters.
5. An honor point ratio under .85 at the end of five quarters.
6. An honor point ratio under 1.0 at the end of six quarters.

When the student's work improves to a point where he is again making normal progress toward a degree, he will be notified of his removal from probationary status.

Exclusion from College—Students excluded from college shall be recorded with the Office of Admissions and Records as (1) transferred, (2) discontinued, (3) dropped.

1. Transferred—If a student's attitude toward his work is satisfactory but he evidently is not following the curriculum appropriate for him, he may be transferred to another college at the end of any quarter with the approval of the two colleges concerned.
2. Discontinued—If a student is pursuing this as an appropriate course but is handicapped by conditions he cannot control (ill health, necessary outside work, etc.) he may be required to discontinue his registration until these conditions have improved. When discontinuance takes place at any time other than the end of the quarter, the courses for which he is registered are recorded as canceled without grade (W).
3. Dropped—A student who has failed to meet the terms of his probation will be dropped.

Readmission to the Course—Students excluded from the course are allowed to return only with the permission of the Committee on Student Scholastic Standing. Students classified as discontinued must present evidence that the conditions which hindered their work have been remedied. A student who has been dropped may petition for readmission after an interval of one year. The petition must present specific evidence that he is now likely to succeed with the work of the course. Students who return under the provision of the preceding statements will be registered on strict probation. They may be dropped at any time that their work is unsatisfactory.

Class Attendance—Every student in this course has a responsibility for class attendance. Only absences with good reason (such as illness for which a Health Service excuse is obtained) are legitimate. The faculty delegates the handling of absences to the various departments, to be dealt with under the assumption that every student is expected to do the full work of the class. Since the departments have different ways of treating absences, the student must familiarize himself with the method of each department in which he is taking work. To obtain an official excuse he should go to the office of the assistant director, 155 Nicholson Hall.

Final Examinations—The all-university final examination schedule is published each quarter in the Official Daily Bulletin well in advance of the examination period. Students are required to take examinations at the scheduled time. However, if the student has a conflict in examinations

or if he has three examinations in one day, he should report that fact to the Committee on Student Scholastic Standing in 155 Nicholson Hall for possible adjustment.

If a student misses a final examination without excuse, an F grade is normally recorded. If he can show good reason for the absence, he may petition the Committee on Student Scholastic Standing for substitution of a grade of I (Incomplete) that can be made up.

Committee on Student Scholastic Standing

This is a committee of the faculty charged with the interpretation and enforcement of faculty regulations. It is empowered also to make exceptions to faculty regulations when those regulations work to the educational disadvantage of a particular student, provided the basic spirit of the regulation is maintained.

Often a student is in doubt about his obligations or some rule seems to stand in the way of his objective. The committee is designed to help with such problems. It has special counselors available for consultation, and often an adjustment can be worked out. The committee and its representatives are eager to help the student whenever possible.

To initiate committee action, a student should go to the office of the assistant director and discuss his case with him. To be exempted from a regulation, you must prepare a written petition which can be obtained at the time of your consultation with the assistant director. The process of committee action takes time and you should allow a few days for the committee's decision. Your copy will be returned to your post-office box with the action indicated.

The committee is made up of the director and assistant director plus one other faculty member appointed annually by the dean of University Extension. The assistant director serves as student counselor and secretary for the committee.

GENERAL INFORMATION

Awards

Award of Merit—Each year the Minnesota Funeral Directors' Association will award at the commencement exercises a certificate of merit to the outstanding student in Applied Mortuary Science. The student will be selected by a committee from the association, the Minnesota State Department of Health Committee of Examiners, and the faculty. The award is made on the basis of scholarship, citizenship, professional attitude, and personality.

DIF Award—*Diligentissime Incubuit Fortiterque* (he has applied himself with the greatest diligence and vigorously). This award was established by Mr. Hansen and Mr. Slater in 1951 and is given annually to a member of the graduating class in mortuary science. The student selected for this award will be the one who best exemplifies the qualities of perseverance, diligence, and cooperation, and who manifests the greatest rate of academic improvement, regardless of final honor point ratio. The award is a gold key appropriately inscribed and will be presented either at the commencement exercises or at class day festivities.

Loan Funds

The University of Minnesota has numerous loan funds. They are restricted in their distribution to individuals meeting certain requirements. A loan usually cannot be obtained before two quarters of attendance at the University, during which time the student will have the opportunity to demonstrate his ability and integrity. The only security for the loans made to students is the character of the applicant and his ability to do college work. Application for loans may be made to the Bureau of Student Loans and Scholarships, 201 Eddy Hall, a department under the Office of the Dean of Students.

Self-Support

The University Employment Bureau, Room 153, TSF building, efficiently assists students who find it necessary to earn part or all of their expenses. However, the regular course in mortuary science is a full program and students find it difficult to devote many hours a week to outside employment. Several of the Twin Cities funeral homes have part-time vacancies for students in mortuary science. If a student is interested in this type of employment he should contact the assistant director in 155 Nicholson Hall.

Students' Health Service

Through the Students' Health Service the University makes available to students medical care, medical examinations, and health consultations. General service is provided free of charge, but for services which are specialized and individual in character, such as dentistry, X ray, board and laundry in the student hospital, outpatient calls, minor surgery, etc., special fees are charged. No student, however, will be denied service be-

cause of inability to pay these fees. Major surgical operations or prolonged medical care ordinarily is secured through private physicians selected by the students or their families, but if necessary, operations may be arranged through the Students' Health Service upon the established basis.

Library

The University of Minnesota Library is one of the finest libraries in existence today. It includes about 1,600,000 volumes and many periodicals and pamphlets, and in scope takes in every subject in the university curriculum. Its large, airy reading rooms provide an excellent place to study.

The Biological-Medical Room occupies the north end of the second floor of the library and will accommodate 216 readers. Reference books, texts, and other treatises of interest to students in this course are kept on open shelves in this room and are available to the students at any time during regular university library hours. Also, in the office of the assistant director, current pamphlets, texts, and other periodicals are available to the students for loan. The supply includes bound volumes of the four leading trade journals for the period of the last decade.

Coffman Memorial Union

The Coffman Memorial Union places Minnesota in the forefront of American universities as to the recreational facilities which it offers to students. The student post office, cafeterias and lunchrooms, committee dining rooms, lounges for men and women, game rooms, bowling alleys, pool and billiard rooms, offices for student organizations, barber shop, beauty parlor, library, art room, and spacious ballrooms are among the features that make the building the popular center of campus life.

Residences

University owned and operated dormitories are available to students in this course. Preferential treatment is given all applicants who are Minnesota residents. In addition to these facilities maintained by the University, there are numerous private rooming houses for men and women students. All of these are inspected and must meet minimum standards of operation set by the University. For further information, students may contact the director of the Student Housing Bureau, Room 209, Eddy Hall. Dormitory facilities are described in detail in the *Bulletin of General Information*.

Note: For those prospective students who desire more information regarding the University, a *Bulletin of General Information* may be obtained by writing the Office of Admissions and Records, University of Minnesota, Minneapolis 14.

DESCRIPTION OF REQUIRED COURSES

A "dagger" (†) indicates that all quarters of the course must be completed before credit is received for any quarter.

MORTUARY SCIENCE

- 1w-2s.† Anatomy for Embalmers. Lectures, recitations, and laboratory work. This includes both microscopic anatomy and gross dissection, and covers the principal systems of the body. Each student will obtain experience personally with gross dissection, raising different arteries, and will familiarize himself with the anatomy relating to practical embalming. Two lecture hours and four laboratory hours per week for two quarters. (6 cred.; soph.; prereq. Zool. 1-2-3 or Zool. 14-15 and Phsl. 4) Boyden and staff
3. Business Methods. 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 and income tax forms are examined and explained. Two hours per week for one quarter. (2 cred.; soph.; prereq. Econ. 24) Lund
- 4f-5w-6s.† Restorative Art. Lectures, demonstrations, and practical work. The following subjects of study are included: Sculpture—anatomical modeling, with emphasis on muscles of expression, familiarization with tools, materials, and techniques of rebuilding human face and body; Color—practical color schemes for general applications, as in cosmetics and interior decoration, physical effect of colors upon forms, psychological effects of colors upon people; Design—developing good taste, sensitivity of proportion, colors, and their relationship with environment. Two laboratory hours per week for three quarters. (3 cred.; soph.) Roman
7. Bacteriology. Lectures, laboratory procedures, and demonstrations. Subjects of study included: distribution of bacteria, nutrition of bacteria, bacterial physiology, disinfection and sterilization, transmission of infection, post-mortem bacteriology, immunity, pathogenic bacteria, viruses, pathogenic fungi and protozoa. Three lecture hours and four laboratory hours per week for one quarter. (4 cred.; soph.; prereq. Zool. 1-2-3 or Zool. 14-15 and Phsl. 4) Syverton and staff
- 8f-9w-10s. Orientation in Funeral Service. A series of lectures designed to acquaint the student with a better understanding of funeral service. Aptitudes, skills, and personal qualifications will be discussed. Field trips to local cemeteries and funeral homes will be arranged. One hour per week for three quarters. (No cred.; no prereq.) Slater
- 11f-12w.† Chemistry for Embalmers. 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 morticians will be presented. Subjects of study include: physiological chemistry, toxicology, chemical changes in cadavers, disinfection and embalming fluids. Two lecture hours and three laboratory hours per week for two quarters. (6 cred.; soph.; prereq. In.Ch. 1-2) Pervier
- 13f-14w. Funeral Law. Lectures on basic funeral law, mortuary jurisprudence, probate of estates, special and general administratorships, social security, life insurance forms, public and personal liability, and other subjects of law pertinent to conducting a funeral service establishment, as well as a general coverage of business law. Three hours per week for two quarters. (6 cred.; no prereq.) Carney
- 15f-16w-17s.† Funeral Management. These lectures are intended to acquaint the student with the best current practice in funeral management. They offer an opportunity to meet local directors of long experience and high standing, and to acquire practical dependable information about the im-

portant aspects of operating a funeral establishment—an opportunity the value of which students will readily appreciate. The class is also given an opportunity to make field trips to local mortuaries, cemeteries, casket and vault manufacturing plants. Clinical experience is also provided. Two lecture hours per week for three quarters and field trips. (6 cred.; soph.; prereq. 10) Slater

- 18f-19w.† Pathology. Lectures on gross pathology, with demonstrations. A detailed study of the causes of disease and etiological factors. Attendance at autopsies when arrangements are made. Two lecture hours and one laboratory hour per week for two quarters. (4 cred.; soph.; prereq. Zool. 1-2-3 or Zool. 14-15 and Phsl. 4) Dawson and staff
- 20f-21w-22s.† Embalming Theory and Practice. Lectures, demonstrations, and other visual presentations, laboratory practice, and clinical work. Class participation in actual embalming will be emphasized. Throughout the year all students will be subject to call to attend clinical calls made available through the courtesy of Twin Cities funeral directors. These clinics are under the direction of licensed embalmers on the full-time staff. Every possible opportunity will be given students to assist in the preparations; and attendance at and participation in a prescribed number of such clinical calls is a necessary qualification for the successful completion of the requirements for a degree. Three lecture hours per week, arranged quiz sections, and clinical calls per quarter for three quarters. (9 cred.; prereq. 10, Zool. 1-2-3 or Zool. 14-15 and Phsl. 4) Slater
23. Psychology of Funeral Service. This course will present those principles of psychology most helpful to a prospective funeral director in dealing tactfully with the people with whom he comes in contact, especially those under severe emotional stress. Two hours per week for one quarter. (2 cred.; soph.; prereq. G.C. 41) White
24. Public Health, Minnesota Laws and Regulations. The Minnesota State Department of Health staff gives a series of public health lectures arranged by the executive officer, A. J. Chesley, M.D. These lectures are designed to acquaint the student with the basic principles and practices of public health administration and to survey the organization and functions of the various agencies at the federal, state, and local levels of government which are engaged in carrying on activities and programs in the preservation and protection of public health. The role of the mortician with reference to these activities is considered, and the regulatory procedures as applied to the removal, preparation, and disposal of dead human bodies are examined, illustrated, and explained. The course offers the future embalmer and funeral director valuable orientation in his responsibilities for the health of the community in which he will practice and in his relationships with the local boards of health and with the State Department of Health. Three lecture hours per week for one quarter. (3 cred.; soph.) Brower
25. Medical Science Survey. A comprehensive survey of anatomy, bacteriology, and pathology and their relation to the embalmer as a technician. Two hours per week for one quarter. (2 cred.; soph.; prereq. 2, 7, and 19) Ar.

COMPOSITION

- 4f-5w-6s. Freshman Composition. The study of the fundamental principles of composition and training in the art of writing. Three hours per week for three quarters. (9 cred.; prereq. assignment to category 1, 2, or 3 on English Classification Card, Part II) Ar.

Note: With permission of adviser, the student may meet this requirement by substituting G.C. 31A, B, and D in the General College.

ECONOMICS

24. Principles of Accounting. The balance sheet, profit and loss statement, the recording process, special journals and ledgers, adjustments, work sheets, and closing entries. Three hours per week for one quarter. (3 cred.; soph.) Ar.

INORGANIC CHEMISTRY

1f-2w. General Inorganic Chemistry. Study of the general laws of chemistry and of the nonmetals and their compounds. Three lecture hours, one quiz hour, and four laboratory hours per week for two quarters. (4 cred. per qtr.; no prereq.) Ar.

PHYSICAL EDUCATION

1Af-Bw-Cs. Sports Education. This is an orientation course in a variety of recreational sports in which the student has had little or no experience. The objective is to provide instruction and competition in those sports in which men may participate now and in future years as a means of obtaining recreation, regular exercise, and social intercourse. Three hours per week for three quarters. (1 cred. per qtr.; no prereq.) Ar.

Note: With permission of adviser, the student may meet this requirement by substituting 2Af-2Bw-2Cs (or any combination of the two sequences).

Note: A towel and locker fee of \$2.50 per quarter is charged all students using physical education facilities for activity. Uniforms for class work or recreational activity are \$2 per quarter.

Note to women students: Arrangements for meeting this requirement for women students are made in cooperation with the Department of Physical Education for Women.

PSYCHOLOGY

G.C. 41s. Practical Applications of Psychology. Psychology is concerned with human activity. Because every person is influenced by the behavior of other people, this behavior is studied for its practical significance. The aim of this course, then, is to present a picture of the ways in which the human being meets the problems of his environment and develops the many traits which are called personality. It seeks to answer the question, "Why do we behave as we do?" Five hours per week for one quarter. (5 cred.; no prereq.) Longstaff, MacCorquodale

Note: With permission of adviser, the student may meet this requirement by substituting Psy. 1-2.

PUBLIC HEALTH

3. Personal Health. Elementary principles of normal body function; predisposing and actual causes of disease; ways in which disease may be avoided. Two hours per week for one quarter. (2 cred.; fr., soph.; no prereq.; not open to students who have taken G.C. 10C) Thomson

Note: A student, with the permission of adviser, may elect to take G.C. 10C as a substitute for P.H. 3.

ZOOLOGY

1f-2w-3s.† General Zoology. This course is designed to acquaint the student with the fundamental principles of general zoology. It deals especially with the structure, physiology, embryology, classification, reproduction, and evolution of animals. Textbook, lectures, quizzes, and laboratory. Students should arrange their programs so as to remain in the same lecture and laboratory sections throughout the entire year. Two lecture hours and four laboratory hours per week for three quarters. (10 cred.; no prereq.) Minnich and staff

Note: A student, with permission of adviser, may elect to satisfy this requirement by taking Zool. 14-15 (6 cred.) and Phsl. 4 (4 cred.)

ELECTIVES

Each student is required to take a 3-credit elective course during the first and second years of the curriculum. These courses should be selected in keeping with the student's aptitudes and interests. Each student should try to choose his electives from a single area of concentration. All elective courses, whether selected during the freshman or sophomore year, must have the approval of the student's adviser. During the quarter immediately preceding his graduation, the student by petition must designate which of the completed elective credits he desires to have listed as his 6 elective credits. The following subjects are recommended electives. For a full course description the student should consult the appropriate college bulletin.

In the College of Science, Literature, and the Arts

Economics

- 3. Elements of Money and Banking, 5 cred.
- 5. Elements of Statistics, 5 cred.
- 32. Beginning Typewriting, 1 cred.

Family Life

- 1. Preparation for Marriage, 3 cred.
- 15. The Home and Its Furnishing, 3 cred.

Humanities

- 1. Humanities in the Modern World I, 5 cred.
- 23. American Life III, 3 cred.

Art

- 1. Principles of Art, 4 cred.

Music

- 10. Introduction to Music, 4 cred.

Personal Orientation

- 1. How to Study, 2 cred.

History

- 3. Civilization of the Modern World, 3 cred.

Military Science and Tactics (ROTC)

- 1-2-3. First Year Basic Course, 3 qtr., 1 cred. per qtr.

Philosophy

- 1. Problems of Philosophy, 5 cred.
- 2. Logic, 5 cred.
- 3. Ethics, 5 cred.

Physiology

- 4. Human Physiology, 4 cred.

Political Science

- 25. World Politics, 3 cred.

Public Health

- 4. Health Problems of the Community, 2 cred.

Sociology

- 1. Introduction to Sociology, 3 cred.

Speech

- 1. Fundamentals of Speech, 3 cred.
Note: Must be followed by Spch. 2 (3 cred.) to receive credit.

In the General College

G.C. 1A. Individual Orientation, 4 cred.

G.C. 3. Home Life Orientation, 5 cred.

G.C. 4. Problems of Contemporary Society, 5 cred.

G.C. 7EX. Sound in Music and Speech, 3 cred.

G.C. 8. Applied Mathematics, 5 cred.

G.C. 22X. Art in Business, 3 cred.

G.C. 26A. Photography, 3 cred.

G.C. 30A,B,C,D,E. Literature Today, 3 cred. each section

G.C. 31D. Business Writing, 3 cred.

G.C. 32A. Basic Principles of Oral Communication, 3 cred.

G.C. 37. Social Trends and Problems, 5 cred.

G.C. 40A. Introduction to Philosophy, 3 cred.

G.C. 40CX. Religions in Minnesota, 3 cred.

G.C. 43A. Background of the Modern World, 5 cred.

G.C. 43B. Historical Biography, 3 cred.

G.C. 44B. Current History, 2 cred.

G.C. 45A. The Growth of American Democracy, 5 cred.

G.C. 45B. American Economic and Social Development, 3 cred.

G.C. 45C. Minnesota and the Upper Midwest, 5 cred.

G.C. 45D. Community Problems, 3 cred.

G.C. 46B. The Functions and Problems of Government, 3 cred.

G.C. 47A. Fundamentals of Typewriting, 1 cred.

Funeral Director's and Embalmers' Licensing Rules and Regulations

As compiled by the Staff of the Southern Funeral Director, September 3, 1952 - O. J. Willoughby, Publisher

State	Minimum Age For Embalmers	Is Accredited School Diploma Required?	Length of Embalming Course Required	Pre-Embalming School Education Required	Required Years of Apprenticeship	Apprenticeship Served Before or After School	Must Apprenticeship Precede Examination?	Must Apprentice Be Served in This State?	Must Appointee Register With State Board?	Booles To Be Embalmed Before License Issued	When Are Embalmers Examinations Held?	Fee For Embalming License Examination	Embalmers License Renewal Fee	Must Appointee Be State Resident?	F. D. Tech. Prof. License Required	Fee To Take Funeral Director's Examination	Funeral Directors License Renewal Fee	Minimum Age Funeral Directors License	Must F. D. Also Hold Embalmers License?	Must F. D. Appointee Be Resident of State?
Ala.	21	Yes	9 Mo.	H.S.	2	Before	Yes	Yes	Yes	50	Apr.	\$25	\$ 5	Yes	No	\$	\$			
Ark.	21	Yes	9 Mo.	H.S.	2	Op	Yes	Yes	Yes	50	Sept.	25	5	Yes	Yes	25	25	21	Yes	Yes
Ariz.	21	Yes	9 Mo.	H.S.	1	Op	No	No ¹¹	Yes	50	Jan-Jul	10	5	No	No					
Calif.	21	No	9 Mo.	H.S.	2	Op	No	Yes	Yes	100	Jan-Dec	25	5	Yes	Yes	None	15	21	No	Yes
Colo.	21	No	1 Yr.	2yr.C	1		Yes	Yes	Yes	25	Aug-Jan	10	3	Yes	Yes	10	3	21	No	Yes
Conn.	21	Yes	9 Mo.	H.S.	2	After	No	Yes	Yes ²	100	Jan-Jul	10	10	Yes	Yes	10	10	21	No	Yes
Del.	21	Yes	9 Mo.	H.S.	2		Yes	Yes	Yes	25	Jan-Jul	25	5	Yes	No					
D.C.	21	Yes	9 Mo.	H.S.	2	Op ³	Yes	Yes ³⁰	Yes ³	25	Spring	None	20 ⁴	No	Yes	None	20 ⁴	21	Yes	No
Fla.	21 ⁴	Yes	9 Mo.	H.S.	3	Op ⁵	Yes	Yes	Yes	50	Jul	25	10	Yes	Yes	25	15	21	Yes	Yes
Ga.	21	Yes	12 Mo.	H.S.	2	Op	Yes	Yes	Yes	50	Feb-Jul	50	3	Yes	Yes	50	5	21	No	Yes
Id.	21	Yes	8 Mo.	H.S.	2	Op ⁶	Yes	Yes	Yes	25	Jan-Jul	25	10	Yes	Yes	25	10	21	No	Yes
Ill.	21	No ⁸	9 Mo.	H.S. ⁶⁰	1	After	Yes	Yes	Yes	25	Feb-Aug-Dec ⁶	5	2	No	Yes	5	2	21	Yes	Yes
Ind.	21	Yes	1 Yr.	H.S.	1	Before	Yes	Yes	Yes	Annually	10	5	2	Yes	Yes	10	5	21	Yes	Yes
Ia.	21	Yes	9 Mo.	H.S.	2	Before ¹	Yes	Yes ²²	Yes ²²	25	Jan-Jul	10	5	Yes	No					
Kan.	21	No	9 Mo.	2yr.C	1	After	Yes	Yes	Yes	25	Apr-Oct	10	4	Yes	Yes	10	5	21	No	Yes
Ky.	21	No	9 Mo.	H.S.	3	Op	Yes	Yes	Yes	25	Jun-Dec	25	5	No	Yes	25	5	21	No	No
La.	21	Yes	9 Mo.	H.S.	1	Op	Yes	Yes	Yes	Jan-Jul	50	5	No	Yes	50	5	21	No	No	
Me.	21	Yes	12 Mo.	H.S.	2	Op	No	No	Yes	25	May-Nov	5	2 ¹⁰	No	Yes	5	2 ¹⁰	21	No	No
Md.	21	Yes	1 Yr.	H.S.	2	Op	Yes	Yes	Yes	20	Mar	25	2	No	Yes ³³	25	5	21	No	No
Mass.	21	No	9 Mo.	H.S.	2	Op	Yes	Yes	Yes	25	Mar-Oct	10	13	No	Yes	10	10	21	No	Yes
Mich.	21	Yes	9 Mo.	2yr.C	1	Op	No	Yes	Yes	25	Semi-Ann	13	5	Yes	Yes ¹²	10	10	21	See ¹³	Yes
Minn.	21	Yes	9 Mo.	1yr.C	1	After	No	No ²⁷	Yes	25	Jun	10	1	No	Yes	10	4	21	No	No
Miss.	21	Yes	9 Mo.	H.S.	1	Before	Yes	Yes	Yes	25	Jul-Dec	25	2	No	No					
Mo.	21	Yes	9 Mo.	2yr.C	1	After	No ²¹	Yes ²⁶	Yes	25	Feb-Aug	10	5	Yes	No					
Mont.	21	Yes	9 Mo.	H.S.	1	After	No	Yes	Yes	25	Jan-Jul ¹⁴	25	5	No	Yes	25	2	21	No	No
Neb.	21	Yes	9 Mo.	2yr.C ¹⁸	1	After	Yes	Yes	Yes	25	Jan-Jul	25	1	Yes	Yes	25	20	21	No	Yes
Nev.	21	Yes	9 Mo.	2yr.C ¹⁵	2	Op	No	Yes	Yes	25	Jul-Aug	25	5	Yes	No					
N.H.	21	Yes	9 Mo.	H.S.	2	Op	Yes	Yes	Yes	25	Mar-Sept	5	5	No	Yes ¹²	5	5 ¹⁶	21	Yes	No
N.J.	21	No	9 Mo.	H.S.	3	Op	No	Yes	Yes	150	Apr-Oct	25	5	Yes	Yes	25	5	21	No	No
N.Mex.	19	Yes	9 Mo.	2yr.C	2	Op	Yes	Yes	Yes	50	Aug	25	5	Yes	Yes	25	25	21	Yes ¹⁷	Yes
N.Y.	21	No	24 Mo. ²⁸	H.S.	2 ²⁹	Op	Yes	Yes	Yes	50	Spr-Fall	5 ³⁰	4 (Bienn.)	No	Yes	30	8	21	Yes ¹⁷	No
N.C.	21	Yes	9 Mo.	H.S.	2	Before	Yes	Yes	Yes	60	Jan-Jul	10	10	Yes	Yes	10	10	21	No	Yes
N.D.	21	Yes	9 Mo.	1yr.C	2	Before ³⁰	Yes ³¹	No ¹¹	Yes	25	Semi-Ann	15	5	Yes ⁴¹	No					
Ohio	21	No ¹⁰	1 Yr.	2yr.C	1	After	No	Yes	Yes	25	Fall	9	5	Yes	Yes	9	5	21	No	Yes
Okla.	21	Yes	9 Mo.	H.S.	2	Op ²⁴	No	Yes	Yes	50	Jan-Jul	10	3	Yes	Yes	15 ²²	10 ²³	21	No	Yes
Ore.	21	Yes	9 Mo.	H.S.	2	Op	Yes	Yes	Yes	60	Jan-Jul	25	10	Yes	Yes	25	10	21	No	Yes
Pa.	21	No	1 Yr.	H.S.	2	After	Yes	Yes	Yes	25	May-Dec	10	5	No	Yes ²⁵	10	5	21	See ²⁵	No
R.I.	21	No	9 Mo.	H.S.	2	Op	Yes	Yes	Yes	50	3 per yr	25	5	No	Yes	25	10	21	Yes	No
S.C.	21	Yes	9 Mo.	H.S.	2	Op	Yes	Yes	Yes	Annually	15	2	No	No						
S.D.	21	Yes	9 Mo.	1yr.C	1	Op	No	Yes	Yes	25	Mid-Sum	10	3	Yes	Yes	10	3	21	No	Yes
Tenn.	21	Yes	1 Yr.	H.S.	2 ¹³	Op	Yes	Yes	Yes	100	Jan-Dec	25 ²⁸	2	No	Yes	25 ²⁸	2	21	No	No
Tex.	21	Yes	9 Mo.	H.S.	2	After	No	Yes	Yes	100	Jan-Jul	10	5	Yes	Yes	5	5	21	No	Yes
Utah	21	Yes	9 Mo.	H.S.	2		Yes	Yes	Yes	50	Jan-Jul	25	2	Yes	Yes	5	2	21	No	Yes
Vt.	21	No	9 Mo.	H.S.	2 ²⁴	Op ²³	Yes	Yes	Yes	12	Annually	10	2	No	Yes ³⁵	10	2	21	Yes	No
Va.	21	No	9 Mo.	H.S.	2	Op	Yes	Yes	Yes	25	May-Nov	25	5	Yes	Yes	25	5	21	No	Yes
Wash.	21	Yes	9 Mo.	2yr.C	2	Op	Yes	Yes	Yes	25	Spr.-Fall	25	5	Yes	Yes	25	5	21	No	Yes
W.Va.	21	Yes	1 Yr.	2yr.C	1	Before	Yes	Yes	Yes	25	Apr.-Nov.	50	5	Yes	Yes	50	5	21	Yes	Yes
Wis.	21	No	9 Mo.	1yr.C	1	Op	Yes	Yes	Yes	25	Annually	15	4	Yes	Yes	15	4	21	No	Yes
Wyo.	21	Yes	9 Mo.	H.S.	2 ²⁷	Op	Yes	Yes ²⁰	Yes	25	Jul-Jan	25	5	Yes	Yes	25	5	21	Yes	Yes

- ¹ Applicant must have held license in reciprocating state for two years.
- ² Must register before attending school.
- ³ Must secure apprentices' license (\$10 per year).
- ⁴ Renewal fee for license covers both embalmers and funeral directors.
- ⁵ May register as embalmer apprentice at age of 17.
- ⁶ Apprenticeship must be served continuously. Only break allowed is for purpose of attending embalming school.
- ⁷ One year of apprenticeship must be served in this state.
- ⁸ School must be accredited by Illinois Department of Registration and Education.
- ⁹ Extra examinations will be held when necessary.
- ¹⁰ Not required but only conference accredited schools are presently approved.
- ¹¹ Must serve one year apprenticeship before and one year after embalming school.
- ¹² Must also be interviewed by board member when registering.
- ¹³ Under a new law effective Sept. 23, 1949 no more single embalmer's and funeral director's licenses will be issued. A license to practice mortuary science will be issued to applicants who meet requirements for present embalmer's and funeral director's licenses.
- ¹⁴ January examination is optional with Board. July examination is required by law.
- ¹⁵ Must have completed specified courses in English, Chemistry and Biological Sciences.
- ¹⁶ Renewal fee is \$5.00 for both embalmer's and funeral director's licenses.
- ¹⁷ Combination license is issued covering both embalmer and funeral director.
- ¹⁸ One year apprenticeship required for embalmers plus the nine months' course and two years' apprenticeship for funeral directors, or nine months' college work and one year apprenticeship.
- ¹⁹ Apprenticeship must be served in state under licensed person.
- ²⁰ One year apprenticeship before school and one year after or two years before embalming school.
- ²¹ \$10.00 fee required for Assistant Funeral Director's examination. Renewal fee for Assistant Funeral Director \$5.00 annually.
- ²² Pennsylvania issues only one license to cover both embalming and funeral directing.
- ²³ At least one year apprenticeship must be served before embalming school.
- ²⁴ Each application for reciprocity considered individually by Board at stated meetings.
- ²⁵ One year funeral director school may be substituted for one year apprenticeship.
- ²⁶ The Director of Licenses may at his discretion recognize registrants from states with equal requirements.
- ²⁷ Examination fees are \$25.00 each for residents of Tennessee and \$50.00 for out of state residents.
- ²⁸ Apprenticeship must be served under D. C. licensee, but only one year must be served in D. C.
- ²⁹ After completing 9 months emb. school and passing exam. applicant must serve 1 year apprenticeship.
- ³⁰ Funeral director's license required only if individual is owner or has financial interest in business.
- ³¹ Must serve two years as registered apprentice for F. D. license.
- ³² Or states with higher requirements on an individual basis by written examination.
- ³³ License establishment instead of individual, but manager must be licensed embalmer.
- ³⁴ Must serve six months' apprenticeship before entering embalming school.
- ³⁵ Must be served under a sponsor licensed by State of Minnesota.
- ³⁶ And any other state willing to reciprocate.
- ³⁷ N. Y. state law has been amended to provide that no original undertaker or embalmer examination may be taken after July 1, 1951. However, persons who have failed these exams may take repeat exam.
- ³⁸ As of July 1, 1952, one year approved college education as prerequisite for matriculation in an approved school of embalming.
- ³⁹ Apprenticeship may be served out of state under the direct supervision of N. D. licensed embalmer.