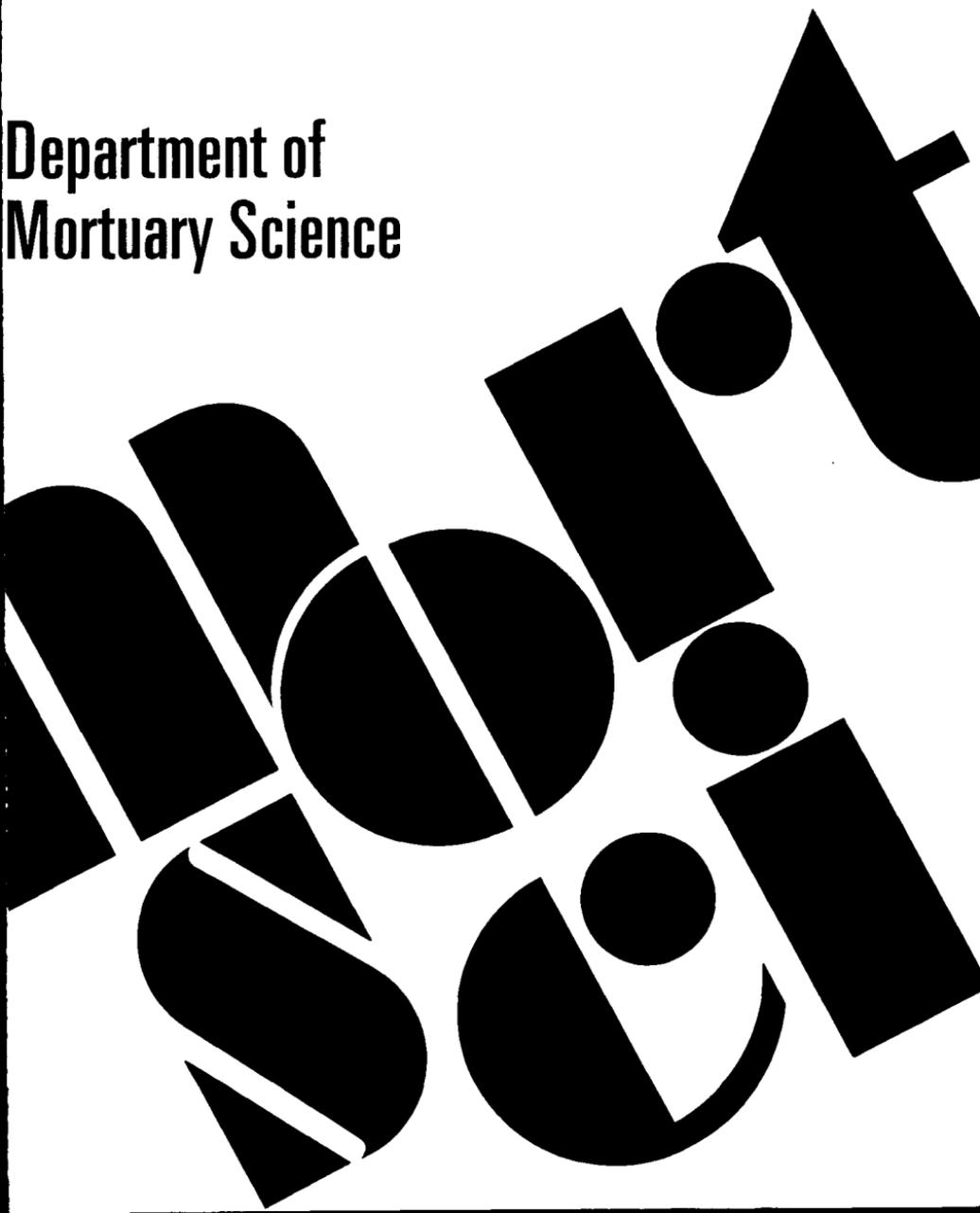


UNIVERSITY OF MINNESOTA BULLETIN

MARCH 30, 1970

Department of  
Mortuary Science



## How to Use This Bulletin

This bulletin gives information about the Department of Mortuary Science. *The student is held responsible for the information contained in this bulletin.* You should become familiar with all the materials presented in it and keep the bulletin available for easy reference.

While this bulletin gives information necessary for program planning, it will be necessary to consult the *Class Schedule* published just prior to each quarter to ascertain room numbers, hours, and days of class sessions, and any last-minute changes in offerings. For any changes in regulations that become effective after publication of this bulletin, consult the department office.

Do not attempt to register from the *Class Schedule* alone. The *Mortuary Science Bulletin* is essential for securing course descriptions and prerequisites, rules and requirements, and other information necessary for sound program planning. Since the fall quarter *Class Schedule* gives the hours and days of courses throughout the year, it should be retained for long-range program planning.

You should also read the *General Information Bulletin* telling about the University as a whole. New students will be interested in *The Moccasin*, a handbook describing student personnel services and campus activities.

Copies of all bulletins of the University can be obtained at the Information Window in Morrill Hall.

**The Department of Mortuary Science office is  
located in room 114 Vincent Hall**

### UNIVERSITY OF MINNESOTA BULLETIN

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The contents of this bulletin and other University bulletins, publications, or announcements are subject to change without notice.

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## INTRODUCTION

The profession of funeral service is unique in its demands upon those who choose it for a life's vocation. After personal qualifications have been evaluated and found satisfactory, the choosing of a college to fulfill the academic requirements becomes of prime importance. The University of Minnesota since 1908 has maintained as a part of its curriculum offerings a program in mortuary science. Throughout its more than half century of service to the nation it has graduated students from each of the 50 states and several foreign countries.

The program of the department has always maintained a curriculum whose academic integrity is consistent with that of a large state-supported institution of higher learning. Its faculty has been selected from professionally qualified people, well educated in their respective fields of teaching. The profession within the state of Minnesota and the Minnesota State Board of Health each contribute to the status of the department through their cooperation and assistance.

The University demands an acceptable level of scholarship and professional sensitivity of each of its graduates and therefore offers the ultimate in academic training and professional growth in order to develop individual potential to its fullest.

The department accepts fully the obligation entrusted to it by funeral service to strive for the continual advancement of the profession through higher education and the careful selection and preparation of those who seek entrance into the profession. The department also accepts the obligation assigned to it by each matriculated student to offer him the finest in scholastic preparation to enter his chosen profession. The department believes that funeral service is a profession which finds its greatest fulfillment in serving the living, while caring for the dead and giving dignity to man.

To insure each student that the curriculum meets the criteria set forth by the profession the department is accredited by the American Board of Funeral Service Education and the Conference of Funeral Service Examining Boards of the United States, Inc.

Based on these purposes and obligations the Department of Mortuary Science presents this bulletin which, together with the *General Information Bulletin*, will furnish the prospective student insight and information regarding the curricular offerings and the facilities of the Department of Mortuary Science.

# Department of Mortuary Science

## GENERAL INFORMATION

The Department of Mortuary Science is located in Vincent Hall on the Minneapolis Campus of the University of Minnesota. Its students enjoy all the advantages which come from participation in the activities of a university composed of academic, scientific, and professional schools and colleges.

The program, established in 1908, was the first such program to be organized as a part of a state university. On July 1, 1968, the department became an integral part of the College of Medical Sciences for its administrative supervision.

The first session in 1903 was of 6 weeks' duration. In 1916 the curriculum was extended to 8 weeks and in succeeding years made increases to 12 weeks, 24 weeks, and 36 weeks. In 1951 the Board of Regents authorized a 2-year curriculum and the granting of an associate in mortuary science degree. This curriculum was expanded to a 3-year program in 1955. On March 8, 1968, the Board of Regents approved the awarding of a bachelor of science degree upon the satisfactory completion of a 4-year (12-quarter) specified curriculum.

The curriculum in mortuary science combines the instruction in the basic sciences, training in the mortuary arts and sciences, instruction in the liberal arts and cultural subjects deemed necessary and desirable for proficiency in funeral service.

The primary objective of the department is to offer such academic training to the student which will best prepare him to accept his obligation in the community, both as a professional person and as a citizen. It is the desire of the department and its faculty to train for the profession persons whose ethical conduct and practices, professional relationship with the bereaved, desire for research and professional growth, and respect for the public health laws and regulations will be such as to foster and promote the fuller acceptance and recognition of funeral service and its contribution to the American way of life.

**Human Rights** — The University of Minnesota is guided by the principle that there shall be no differences in the treatment of persons because of race, creed, color, sex, or national origin and that equal opportunity and access to facilities shall be available to all. This principle is particularly applicable in the admission of students in all colleges, and in their academic pursuits. It is also applicable in University-owned or University-approved housing, in food services, student unions, extracurricular activities, and all other student services. It is a guiding policy in the employment of students either by the University or by outsiders through the University and in the employment of faculty and civil service staff.

## Program Leading to Bachelor of Science Degree With a Major in Mortuary Science

The department faculty believes that professional funeral service provides a direct service to individuals. In baccalaureate study the goal of this service is to enhance adaptation of the individual along the health continuum. This service involves a relationship between funeral director and clientele in which

## *Department of Mortuary Science*

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the funeral director endeavors to approach the individual as a total being who operates in an integrated manner. It is believed that the achievement of the goal of enhanced adaptation contributes to the person's adequate adjustment to grief.

The purpose of baccalaureate preparation in the Department of Mortuary Science is to provide opportunities for students to gain a body of knowledge, skills, and understanding appropriate to the practice of funeral service. With the use of a systematic problem-solving approach the student learns to identify funeral service problems, select and develop appropriate intervention, and evaluate funeral service. The scope of these learnings and the degree of skill in their application are such that individuals are enabled upon completion of the program to function adequately in meeting the needs of the bereaved.

Throughout his preparation, the student has ample opportunity to develop individual interests and potentialities through elective study in other disciplines.

In accord with the philosophy underlying the program, learnings of progressive complexity are planned to help students attain the following objectives:

1. The ability to communicate effectively.
2. An understanding of human behavior and a sensitivity to the needs of others.
3. An ability to work effectively with others.
4. An ability to understand and appreciate the scientific method and to use it in the solution of problems.
5. An appreciation of the value of research in the practice of funeral service.
6. Competence in selected technical skills in funeral service.
7. An ability to plan, initiate, perform, coordinate, and evaluate funeral service procedures.
8. A continuing development of abilities in accordance with the individual's interest and potentialities.
9. A continuing development of self-awareness and personal satisfaction.
10. A sense of responsibility characteristic of a member of a profession devoted to the improvement of the health and welfare of individuals, families, and communities.

To assure the student's attainment of these objectives, the following requirements have been established. Note that the requirements contribute to general as well as professional education. It is the student's responsibility, in consultation with a faculty adviser, to determine which specific courses within the liberal arts distribution requirements will most effectively complement his interests and abilities. The total credit requirement maintains a balance between credits in general education and credits in the mortuary science major and courses related thereto.

The curriculum in mortuary science is specifically planned to assist those who desire college preparation in addition to professional educational requirements. Many states now require such a combination plus resident training or internship for licensure.

Consistent with the high standards established by the Board of Regents, the department's highly qualified teaching staff, together with modern classrooms and laboratories of this leading University, enables the student to study mortuary science under the most favorable conditions.

Instruction is given by lectures, laboratory courses, demonstrations, and clinical practice. Throughout the entire program the teaching is integrated closely with the basic science laboratories and the clinical facilities offered in Minneapolis and St. Paul.

## **Admission Requirements**

### *General*

At the undergraduate level, the Department of Mortuary Science serves primarily as an Upper Division unit, that is, students will normally enter the Department of Mortuary Science at the beginning of their junior year. Freshman and sophomore students with an interest in a mortuary science major are urged to contact the department offices at 114 Vincent Hall at once in order to receive appropriate advice. Course work in mortuary science will be based on a sound preparation in the liberal arts. Students may register in the College of Liberal Arts or the General College during their freshman and sophomore years and are subject to the regulations of that college. Members of the department faculty will advise and counsel students for the courses that will provide the most adequate preparation for their Upper Division registration in the Department of Mortuary Science. Students should refer to the *College of Liberal Arts Bulletin* and the *General College Bulletin* for information regarding admission criteria, etc.

Students may transfer into the Department of Mortuary Science from any accredited liberal arts college of their choice.

Satisfactory completion of the curriculum for the junior and senior year will lead to the awarding of the bachelor of science degree with a major in mortuary science.

A student may elect not to complete all of the requirements for the Bachelor's degree but may choose to complete only those professional courses required by the state in which he intends to license. In such instances the department will verify his attendance and course completion with the issuance of an official transcript, provided he has complied with all other department requirements and the minimum requirement of the American Board of Funeral Service Education.

The minimum 90 quarter-credit requirement for admission to the Department of Mortuary Science must include the following courses or equivalents:

1. **Communications, Language, Symbolic Systems** — 17 credits
  - A. **Freshman Composition**  
Engl 1-2-3 (9)
  - B. **Speech**  
Spch 5 (5)
  - C. **Electives**  
Foreign language, philosophy, mathematics, statistics, journalism
  
2. **Physical and Biological Sciences** — 27 credits
  - A. **General Biology**  
Biol 1-2 (10)
  - B. **Inorganic Chemistry**  
GeCh 4 (5) or GC 7C (5)
  - C. **Human Anatomy**  
Anat 4 (4)

## Department of Mortuary Science

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- D. Microbiology  
MicB 1 (4)
  - E. Public Health  
PubH 3-4 (4)
  - F. Electives  
Physics, physiology, astronomy, geology
3. **Man and Society** — 20-21 credits
- A. Psychology  
Psy 1-2 (5-6)
  - B. Accounting  
Acct 24 (3) or GC 16 AB (4)
  - C. Sociology, Social Science or Anthropology (9)
  - D. Electives  
History, political science, economics, geography
4. **Artistic Expression** — 9 credits
- A. Electives  
Art, music, humanities, theatre arts, literature

### Admission Procedure

**Requirements for Admission** — Students will normally enter the Department of Mortuary Science at the beginning of their junior year. Students having a total of 90 quarter credits, including the required and elective courses as outlined, may make application for entrance into the Department of Mortuary Science, College of Medical Sciences. (*Special note:* Certain deficiencies, at the discretion of the Admissions Committee, may be made up after admission to the department if such a procedure is advantageous to the program scheduling of the individual student.)

**Transfers from Other Colleges Within the University** — Obtain a "Transfer of College Within the University" form from the Office of Admissions and Records. Transfer application deadlines of September 1, December 1, March 1, and June 1 have been set for the fall, winter, spring quarters, and Summer Session respectively.

**Admission from Outside the University with Advanced Standing** — Apply to the Minneapolis Campus, Office of Admissions and Records. Official transcripts from each college outside the University must be a part of the application submitted.

Students planning to enter fall quarter should make application at the earliest possible date. Ordinarily applications can be acted on before the transcript with the *current* quarter's grades has been submitted. The student will be admitted, subject to the satisfactory completion of his current registration.

A student may find it to his advantage to enter in the first and/or second term of Summer Session preceding the fall quarter of his junior year. Flexibility of the curriculum and the completion of certain other requirements before admission to the department may enable some students to satisfy the graduation requirements in less than 6 academic quarters.

Selection of students, to be made by an Admissions Committee composed of department staff, will be based on scholastic standing (at least a C average) and upon character and personal fitness as disclosed by the application and/or personal interview. Those accepted will matriculate in the Department of Mortuary Science, College of Medical Sciences.

Following favorable action by the committee on admissions, an admission certificate will be mailed to each student accepted for matriculation. Students entering from other colleges or universities will also receive a statement of advanced standing. Instructions for registration will either be enclosed with the admission certificate or be mailed later — about 1 month before the opening of the next quarter. Students must present this admission certificate when reporting for registration.

Students attending colleges other than the University of Minnesota during their freshman and sophomore years should communicate with the director of mortuary science for assistance in program planning.

Each student must pass a physical examination at the time of first admission to the University and also as a part of the graduation requirement. Any student who is not physically or emotionally able to perform the services of a funeral director will not be accepted.

Further information relating to requirements and training may be obtained from the Mortuary Science Office, 114 Vincent Hall, University of Minnesota, Minneapolis, Minnesota 55455. Telephone appointments may be made by calling 373-3870 (Area Code 612).

### Graduation Requirements

Students recommended for the bachelor of science degree with a major in mortuary science must satisfy the following requirements:

1. Minimum credits — 180.
2. Completion of the freshman and sophomore Liberal Education requirements in the categories of Communications, Language, and Symbolic Systems; Physical and Biological Sciences; Man and Society; and Artistic Expression for a total of 90 quarter credits. Refer to the specific requirements in each area as listed in the Admission section.
3. Completion of the basic core curriculum in mortuary science.
4. Completion of a minimum of 15 quarter credits in Upper Division courses other than department courses.
5. A grade point average of at least 2.00 (C average) computed in each of the following ways: (a) in all work presented from the University and *in toto*, (b) in all work done while in the Department of Mortuary Science, and (c) in all courses in mortuary science.

### Department Regulations

In this section will be found the answers to the most common questions of students. It is imperative that the following paragraphs be read carefully. Students who know the details of department procedure, the rules and regulations of the department, registration procedure, the degree requirements, and other information can more easily plan their own education; it will save trouble in the future; and it will be possible to get problems settled more quickly and satisfactorily. The director and his staff are available for conference at the convenience of the student.

**Registration** — Along with the admission certificate mailed to qualified applicants, students will be notified of either a special registration appointment or the specified days set aside for registration. When a student reports for registration he will be given a set of detailed instructions and a suggested program plan for the completion of all degree requirements. These will make the process of registration relatively simple. Registration will be completed with the help of the director of the department and his staff,

## Department of Mortuary Science

**Counseling** — Because of the specialized nature of the work in funeral service, all applicants are urged to consult with the director or his staff before registration. Advisers for mortuary science are available for consultation, in person or by letter, with prospective students. Their offices are located in 114 Vincent Hall. A pamphlet, *Funeral Service — A Heritage, A Challenge, A Future*, is available upon request.

**Faculty Advisers** — As a student goes through college he may need help with such matters as getting registered, selecting courses, choosing a vocation, arranging finances, entering student activities, or solving other personal problems. Much of this assistance is provided by the department, though for some problems a student may wish to take advantage also of the all-University personnel services. At the time of first registration, the services of a faculty adviser will be assigned.

Freshman and sophomore students in the College of Liberal Arts at the University of Minnesota will be assigned an adviser from the Department of Mortuary Science who will assist them with course selection, registration, and academic advisement. Registration must be approved by a mortuary science adviser each quarter.

**Credit Load per Quarter** — Most students take about 15 credits of work each quarter. To take less than 12, permission from the Scholastic Committee must be secured. Registration in excess of 18 quarter credits must be approved by the Scholastic Committee.

**Credits** — There are four permanent passing grades, A (highest), B, C, and D (lowest), showing the quality of work in a course. Though D is a passing grade, any D must be balanced by a grade of B or better in order to maintain the C average required for graduation. A grade of F (failure) indicates that the student did not successfully complete the course.

A temporary grade of I (incomplete) is assigned when the instructor has insufficient information to permit a permanent grade. It indicates that some required work is unfinished or that the student, though officially registered, did not appear or left without officially canceling. (If the students drops out or cancels after the sixth week while failing, an F is assigned.) A student receiving an instructor's permission to make up an I must do so by the end of the sixth week in the next quarter of his residence. An I may be made up while a student is not in residence.

A registration symbol W (withdrawal) indicates that a student has been permitted to cancel officially without a grade. It is assigned during the first 6 weeks irrespective of the student's class standing. After that time W is recorded only if he is doing passing work; if failing, he receives an F.

There is a symbol X which may be reported in continuation courses for which a grade cannot be determined until the sequence is completed. When the sequence is completed the X is changed to a permanent grade.

A registration symbol V (visitor) indicates registration as an auditor or visitor.

**P-N Grading System** — Some courses may be taken P (pass) or N (no credit). Neither counts in the grade point average but credits of P count toward graduation. The dividing line between P and N is similar to that between D and F. When a course is to be taken P-N, this must be indicated on the registration blank. For specific information on courses that may be taken P-N, students should see their advisers.

**Grade Points** — Quality of work is indicated by *grade points*. Grade points are assigned to course grades as follows: to each credit with a grade of A,

## Department Regulations

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4 grade points; to each credit with a grade of B, 3 grade points; to each credit with a grade of C, 2 grade points; to each credit with a grade of D, 1 grade point. An F carries no grade points. Thus for a 3-credit course with a grade of B a student would be assigned 9 grade points.

**Grade Point Average** — Grade point average is defined as the number of grade points earned divided by the total number of credits for which grades (A, B, C, D, F) have been recorded. A grade point ratio of 2.00 (C average) is the minimum standard required for satisfactory progress toward a degree.

**Honors** — Students whose record at the University of Minnesota indicates a grade point average of 3.00 (B) or better will be graduated *with distinction*. Those with a grade point average of 3.50 or higher will be graduated *with high distinction*.

**National Certification** — Graduates of the Department of Mortuary Science of the University of Minnesota are eligible to write the National Board Examination for Proficiency in Mortuary Science. The National Board is given as requested on the campus by the Conference of Funeral Service Examining Boards of the United States, Inc.

**Scholastic 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 given 1 quarter to show improvement. Usually the probation period will not be extended beyond 2 quarters unless the Scholastic Committee is convinced that the causes of the student's poor work are beyond his control and will soon disappear.

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 may also be placed on probation if:

1. He is admitted from another institution with an average of less than 2 grade points per credit.
2. At the discretion of the department his initial admittance is based on qualifications below those ordinarily required.

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 may be excluded from the department under one of the following headings:

1. *Dropped for Low Scholarship* — A student who fails to meet the terms of his probation may expect to be dropped.
2. *Hold for Committee Clearance* — Sometimes a student's scholastic difficulty indicates that he should not continue for the time being even though the record hardly requires official drop action. In such case his later return must be approved by the Scholastic Committee.

**Orientation Programs** — The Department of Mortuary Science joins with other divisions of the University in helping new students to get acquainted with one another and with the department program. Usually this involves 2 days of testing, counseling, and group activities. You will profit from group discussions of the requirements and opportunities available. For questions that arise later, you may always consult your department office.

## Department of Mortuary Science

**Department Placement Service** — The department maintains a continuing placement service for its students, graduates, and former students. Each graduate must complete certain prescribed forms which become a part of his permanent file. Licensed professional services are often requested and the department endeavors to provide these requests from its files of former students. Graduates are given detailed information about the use of the placement service following graduation.

**Self-Support** — The Student Employment Service assists students who find it necessary to earn part or all of their expenses. The Department of Mortuary Science also arranges for part-time work in the funeral homes in Minneapolis and St. Paul. However, the program in mortuary science is a full one and some students may find it difficult to devote many hours a week to outside employment.

**All-University Personnel Services** — Several specialized personnel services are provided by the University for all students. Some of these are:

- For professional help on a personal problem or vocational choice, go to the Student Counseling Bureau, 101 Eddy Hall.
- To learn about student activities, visit the Student Activities Bureau at 110 TNM; the Coffman Union Program Office in 229 Coffman Memorial Union; or the St. Paul Student Center on the St. Paul Campus.
- For financial help, apply at the Office of Student Financial Aid, 107 Armory Building.
- For a part-time job on or off campus, apply at the Student Employment Service, 30 Wulling Hall.
- For help in improving reading or other study skills, use the Reading and Study Skills Center, 101 Eddy Hall.
- For aid with speech difficulties, consult the Speech and Hearing Clinic, 110 Shevlin Hall.
- For questions concerning veterans' benefits, go to 105 Morrill Hall.
- For help in finding a room or apartment, see the Student Housing Bureau, 209 Eddy Hall; for married students, 180 Wesbrook Hall.
- For assistance and advice as a foreign student, contact the Office of the Foreign Student Adviser, 717 East River Road.
- For assistance with health problems, go to the University Health Service or the St. Paul Campus Health Service.
- For assistance with legal problems, consult the Legal Aid Clinic, 133 Fraser Hall.
- For information concerning residence halls, write to the Director of Housing, 180 Wesbrook Hall, University of Minnesota, Minneapolis, Minnesota 55455, or directly to the hall of your choice.

## Financial Aids

### *Awards*

**Award of Merit** — Each year the Minnesota Funeral Directors Association will award at the Class Day festivities a certificate of merit to the outstanding student in mortuary science. The student will be selected by a committee from the association, the Minnesota State Department of Health Committee of Examiners in Mortuary Science, 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 in 1951 and is given annually to a member of the graduating class in mortuary science.

The student selected for this award will be one who best exemplifies the qualities of perseverance, diligence, and cooperation, and who manifests the greatest rate of academic improvement, regardless of final grade point average. The award is a gold key appropriately inscribed and will be presented at Class Day festivities.

**Director's Service Award**—The director of the department each year presents a service award to the student who has contributed the most to his class and the department. The award, in addition to personal service, takes into consideration attitude, leadership ability, and consciousness of citizenship responsibility. It is a gold key appropriately inscribed and is presented at Class Day festivities.

**Frigid Fluid Award**—The Frigid Fluid Company of Chicago, Illinois, annually presents a gold engraved plaque and a \$100 United States Savings Bond to the student who excels in the proficiency in the mortuary arts and sciences and is likewise proficient in the other areas of the curriculum. Nominations for the award are screened by a faculty committee and the presentation is made at Class Day festivities.

### *Scholarships*

**MFDA Scholarship**—The Minnesota Funeral Directors Association sponsors a full-tuition scholarship each year. This distinctive scholarship shall be open to residents of Minnesota who are pursuing or intend to pursue advanced training in the Department of Mortuary Science, and who at the effective date of the scholarship are within 9 months of graduation. Selection criteria include the following: academic aptitude, professional promise, personal attributes, leadership potential, and financial need. Interested students may request an application from the Office of Student Financial Aid or the Department of Mortuary Science office.

**Silver Anniversary Fund**—This fund is established by the classes of the department that celebrate the 25th anniversary of their graduation with their reunion. Its resources are used for a variety of purposes, one of which is student aid. Each year several students are given quarterly tuition grants. Recipients are nominated by the faculty on the basis of need and scholarship.

**A. A. Hodroff Scholarship**—This scholarship is a \$500-a-year stipend given to a student selected by the faculty on the basis of need, scholarship, and professional promise. The grant is to cover tuition, books, and other fees incidental to matriculation. The donors are the L. H. Kellogg Chemical Company and the Kelco Supply Company.

**The American Board of Funeral Service Education** administers a nationwide scholarship fund. All students interested in determining their eligibility should contact: The American Board of Funeral Service Education, William H. Ford, Administrator, 201 Columbia Street, Fairmont, West Virginia.

**Fred C. Olson III Memorial Scholarship** is available, by application, to any regularly matriculated student in mortuary science. It consists of awards in varying amounts from \$100 to \$500 made by the family of a former department student who was accidentally killed during his senior year of matriculation.

**Mortuary Science Service Fund** is a fund established and maintained by former students and friends of the department. The resources of this fund are available for special services and programs of benefit to students.

## *Department of Mortuary Science*

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**Mortuary Science Emergency Loan Fund** was established to assist those students who, due to extenuating circumstances, need small amounts of cash for a short (30-60 days) period of time. Application for this type of assistance is made through the director.

**Past Presidents Fund** is established by former presidents of the Minnesota Funeral Directors Association. Annually, scholarship grants are made from this fund in varying amounts.

### **Student Organizations**

**The Student Association of the Department of Mortuary Science** is a recognized University student organization and each student matriculated in the Department of Mortuary Science is a member.

The purpose of the association is to establish a government to serve as a sounding group for student opinion regarding matters of mortuary education, to create a liaison between the students and faculty, to formulate and implement student policy, and to serve as a public relations agency for mortuary education.

**Alpha Mu Sigma** is the professional fraternity for students in mortuary science. It is a recognized University student organization. Its program is both social and educational. Membership is recommended as a "first step" in professional organizational involvement.

**University-Approved Organizations** — These groups are open to membership for all department students if they meet the specified qualifications. A wide variety of experience is available in such areas as vocational, social, political, social service, and recreational interests.

## DESCRIPTION OF COURSES

**Course Symbols** — The following symbols used in course descriptions have been adopted for all University bulletins. Footnotes will not be used.

† To receive credit, all courses listed before the single dagger must be completed.

‡ Students may enter sequence course in any quarter which precedes the double dagger.

§ No credit is granted if credit was received for equivalent course listed after section mark.

¶ Concurrent registration is allowed with the course listed after paragraph mark.

# Consent of instructor is required.

△ Consent of department or school offering course is required.

**Note** — The University will change to a new numbering system in the fall of 1970. In the following course descriptions, the *present* numbering system is used, with the *new* course numbers listed in parentheses.

### Mortuary Science (Mort)

- 50 (3-001). **HISTORY AND ORIENTATION.** (2 cr)  
Overview of funeral service; history, customs, development; personal qualifications, aptitudes. Field trips.
- 51 (3-010). **MORTUARY LAW.** (5 cr)  
Licensing; restrictions on mortuary sites; business organization; duties, rights, and liability for final disposition; tort liability; cemetery law; wills and administration of estates; business law.
- 55 (3-020). **PUBLIC HEALTH, LAWS AND REGULATIONS.** (2 cr; prereq PubH 3 or 50, regis in Mort Sci)  
Principles and practices of public health administration; organization and functions of health agencies in local, state, and federal government. Role of the funeral licensee; regulatory procedures.
- 56 (3-030). **EMBALMING CHEMISTRY.** (4 cr; prereq introductory course in general chemistry, regis in Mort Sci)  
Fundamentals of organic and biochemistry. Chemical changes in the human body during life, after death, and during chemical preservation, including disinfection, solutions, toxicology, and embalming fluids.
- 62 (3-040). **PSYCHOLOGY OF FUNERAL SERVICE.** (2 cr; prereq Psy 1-2)  
Applied psychological principles helpful in dealing with clientele, especially those in an emotional crisis.
- 63 (3-050). **RESTORATIVE ART.** (4 cr; prereq regis in Mort Sci)  
Basic drawing, design, and color theory. Anatomical drawing and modeling. Color in cosmetics and interior decoration; physical effect of colors upon forms; psychological effect of colors upon people. Special laboratory skills.
- 64 (3-070). **FUNERAL MANAGEMENT.** (5 cr; prereq regis in Mort Sci)  
Professional overview and image; current practices and procedures; funeral direction; professional regulations; field trips.
- 65 (3-060). **EMBALMING.** (5 cr; prereq Biol 2, introductory course in anatomy or #, regis in Mort Sci)  
Theory and procedures of embalming.
- 74 (3-071). **FUNERAL MANAGEMENT.** (3 cr; prereq 3-070)  
Funeral home operations; records and forms.
- 75 (3-061). **EMBALMING.** (3 cr; prereq 3-060)  
Consideration of special treatments.
- 76 (3-066). **CLINICAL TRAINING.** (2 cr; prereq 3-060)  
Practical experience in embalming; evaluations of theory.

## ***Department of Mortuary Science***

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- 77 (3-067). **CLINICAL TRAINING.** (2 cr; prereq 3-066)  
Practical experience in embalming; evaluations of theory.
- 90 (3-080). **PRACTICUM IN FUNERAL SERVICE.** (12 cr; prereq sr)  
Practical experience during 1 quarter in an off-campus funeral home as assigned by the department.
- 92 (3-081). **SEMINAR.** (3 cr; prereq ¶3-080)  
Funeral service survey based on practicum experience. Assigned readings of funeral service literature.
- 99 (3-090). **INDEPENDENT STUDY.** (Prereq sr)  
A report based on study and research in an area of student's interest in funeral service.
- 81 (3-210). **SEMINAR: FUNERAL LAW.** (Cr ar; prereq #)
- 82 (3-240). **SEMINAR: PSYCHOLOGY.** (Cr ar; prereq #)
- 83 (3-250). **SEMINAR: RESTORATIVE ART.** (Cr ar; prereq #)
- 84 (3-270). **SEMINAR: FUNERAL MANAGEMENT.** (Cr ar; prereq #)
- 85 (3-260). **SEMINAR: EMBALMING.** (Cr ar; prereq #)
- 86 (3-275). **SEMINAR: FUNERAL SERVICE.** (Cr ar; prereq #)

*Note* — Completion of courses 3-001 through 3-067 are minimum requirements for verification.

## **Accounting**

### **PRINCIPLES OF ACCOUNTING.** (3 cr)

Methods of recording, reporting, and interpreting business events. Use of accounting as a tool of business management.

## **Biology**

### **GENERAL BIOLOGY.** (10 cr)

Introduction to living things, both plants and animals, and to the major biological concepts. Structure, function, classifications, and evolution of organisms.

## **Chemistry**

### **GENERAL PRINCIPLES OF CHEMISTRY.** (5 cr)

Introduction to chemistry from standpoint of atomic structure; periodic properties of elements and compounds derivable from structural considerations; laws governing behavior of matter, theories of solutions, acids, bases, equilibrium.

## **English**

### **FRESHMAN ENGLISH.** (9 cr)

A course in composition in which literature serves both as reading material and as the subject matter for writing. Not a course in the history of literature or in literary criticism.

## **Psychology**

### **GENERAL OR INTRODUCTORY PSYCHOLOGY.** (5 cr)

Science of human behavior with emphasis on development of the individual.

## Public Health

### **PERSONAL AND COMMUNITY HEALTH. (3 cr)**

Fundamental principles of health conservation and disease prevention.

## Reserve Officers' Training Corps

The ROTC, through its three services — Army, Navy, and Air Force — gives college men students an opportunity to combine military or naval training with their academic work. Students are eligible for ROTC enrollment if they are registered in academic courses leading toward degrees, if they are United States citizens, and if they meet physical and other qualifications. The general requirements of the three services and their special characteristics are described in the *Army-Navy-Air Force ROTC Bulletin*. Also you may make inquiries personally or by letter at the following offices in the University Armory: Military Science, room 108; Naval Science, room 203; Aerospace Studies, room 3.

## Speech

### **FUNDAMENTALS OF SPEECH. (5 cr)**

Development of basic skills in meeting a variety of speech situations; extemporaneous speaking, oral reading, discussion. Development of basic understanding of speech processes and forms.

## ELECTIVES

Each student is permitted to take elective courses and is required to take enough elective credits to meet the graduation requirements. Most students need approximately 57 elective credits, 15 of which must be in Upper Division, to meet the graduation requirement of the bachelor of science degree. The elective courses should be selected in keeping with the student's aptitudes and interests. Each student should try to choose his electives from specified areas of concentrations. For those students who plan to go on working toward an advanced degree, it is important that they make a careful selection of elective courses in order to facilitate the planning of their program for advanced degrees. All elective courses must be approved by the student's adviser at the time of registration. The following courses are suggested for electives:

### *Suggested Courses to Meet Elective Requirements*

<b>Communications, Language, Symbolic Systems</b>	<b>Man and Society</b>
Comp 27, 28, 101-103	Psy 4-6, 10, 55, 70, 75
Spch 6, 51, 55, 56	Acct 24-26
Foreign language — all beginning courses	Soc 1, 3, 53, 90, 91, 120, 140, 141, 142, 152
Phil 1-3, 10, 50-53	SSci 1-3, 51-53, 71-73
Math 1-3, 10, 15, 20	Anth 1A, 2A, 68, 100, 150, 161, 165
Stat 41	Hist 1-3, 23, 24, 50-52, 79-81
Jour 1, 11	Pol A, B, 1, 2, 25, 26, 30, 60, 61, 80, 81
Rhet 47	Econ B, C, 1, 2, 20, 50A, 50B, 80
Soc 45	Geog 1, 4, 61, 63, 67, 101, 102
Clas 48T, 68	PO 1
<b>Physical and Biological Sciences</b>	<b>Artistic Expression</b>
Biol 50, 51	ArtS 10, 11, 20, 23, 24, 25, 40-42, 51, 54, 55
GeCh 4-6	ArtH 1-4, 50, 56-58
OrCh 61-63	Mus 1, 4, 31-36, 50, 51-53
Public health	Hum 1-4, 1A-3A, 11-13, 21-23, 51-54, 61-63, 71-73
Phys 1-3	Th 11, 12, 21-23, 24
Phsl 2, 51	Engl 21-23, 37-39, 52-56, 66, 67, 72-74, and foreign language literature courses
Ast 11, 51	
Bot 10-12	
Geol 1, 2	

**Special Notice** — Any individual contemplating licensure in the field of funeral service should determine the qualifications for such licensure by writing either to the State Board of Health or to the State Board of Embalmers and Funeral Directors in the capital city of the state in question. Inasmuch as these regulations are in a constant state of flux, the most current information available should be obtained. If an individual is in doubt as to the procedure to be followed in determining qualifications for licensure, he may seek additional assistance from the office of the Director of Mortuary Science, 114 Vincent Hall, University of Minnesota, Minneapolis, Minnesota 55455.

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### UNIVERSITY OF MINNESOTA BULLETIN

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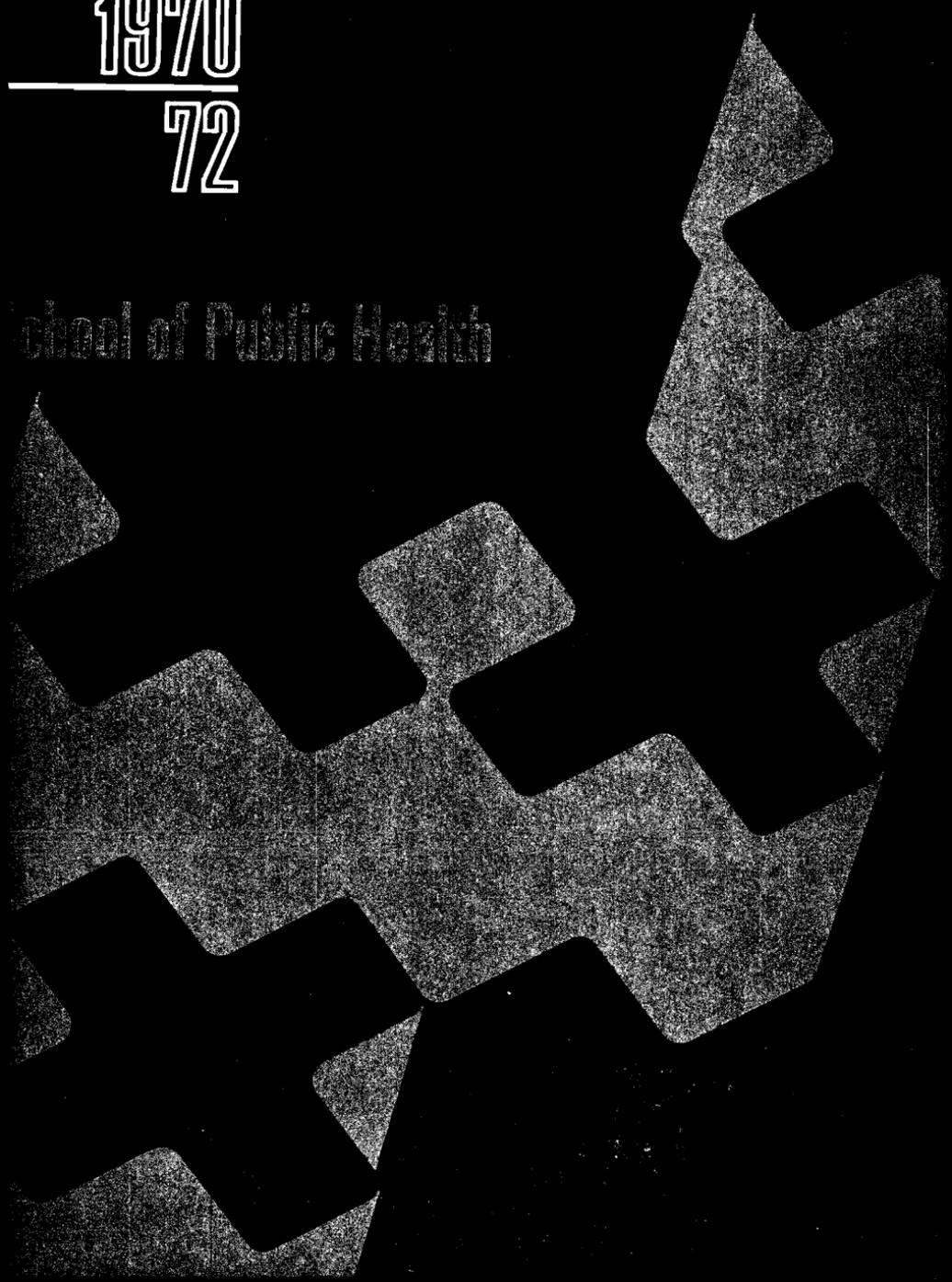
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School of Public Health



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Patricia Catanzaro, M.S., Instructor

Barbara J. Leonard, M.S., Instructor

Elaine C. Sime, M.S., Instructor

Sonya Smith, M.P.H., Instructor

Hilda Boyle, M.P.H., Lecturer; Director, Suburban Public Health Nursing Service, Minneapolis

Isabell T. McGarry, M.S., Lecturer; Director, Public Health Nursing, Minneapolis Combined Nursing Service, Minneapolis

Beverly Schei, M.P.H., Lecturer; Supervisor, Public Health Nursing, Minneapolis Combined Nursing Service, Minneapolis

Alberta Wilson, M.S., Lecturer; Chief, Section of Public Health Nursing, Minnesota Department of Health, Minneapolis

## Special Lecturers, 1968-70

E. Russell Alexander, Associate Professor of Preventive Medicine, School of Medicine, University of Washington, Seattle, Washington

Jack Allard, Director of Pesticide Studies, Washington State Department of Health, Wenatchee, Washington

William L. Anderson, Jr., Field Representative, Johnson Division, Universal Oil Products Company, St. Paul

W. Emmett Barkley, National Cancer Institute, National Institutes of Health, Bethesda, Maryland

Michael A. Barton, Watershed Scientist, U.S. Forest Service Laboratory, Ely, Minnesota

Philip Beckjord, Professor of Public Health Administration, School of Public Health, Tulane University, New Orleans, Louisiana

Jogesh C. Bhuyan, Assistant Director of Census, Assam, India

Jack A. Borchardt, Professor, Department of Civil Engineering, University of Michigan, Ann Arbor, Michigan

John H. Brewer, Director of Biological Safety and Control, Becton, Dickinson and Company, Baltimore, Maryland

Philip S. Broughton, Program Advisor, Consumer Protection and Environmental Health Services, Environmental Control Administration, Public Health Service, Rockville, Maryland

Byron W. Brown, Professor of Biostatistics, Stanford Medical Center, Palo Alto, California

Dale S. Bryson, Director, Upper Mississippi River Basin Project, Federal Water Pollution Control Administration, Minneapolis

Charles E. Carl, Director, Division of Sanitary Engineering, South Dakota State Department of Health, Pierre, South Dakota

John Chapman, Professor of Epidemiology, School of Public Health, University of California, Los Angeles, California

Daniel Cohen, Professor of Epidemiology and Veterinary Medicine, University of Pennsylvania, Philadelphia, Pennsylvania

William C. Cribbs, Executive Engineer, St. Marys Hospital, Rochester, Minnesota

Sherwood Davies, Assistant to Deputy Commissioner, New York State Department of Health, Albany, New York

Robert N. Davis, Staff Associate, Division of Administrative Services, American Hospital Association, Chicago, Illinois

Merle G. Decker, Field Representative, Acme Fishing Tool Company, Parkersburg, West Virginia

Viron L. Diefenbach, Director, Division of Dental Health, Public Health Service, Silver Springs, Maryland

Lila Elveback, Consultant, Division of Medical Statistics, Epidemiology, and Population Genetics, Mayo Clinic, Rochester, Minnesota

Kenneth M. Endicott, Director, National Cancer Institute, Public Health Service, Bethesda, Maryland

Frederick K. Erickson, Division of Allied Health Manpower, Bureau of Health Manpower, Public Health Service, Arlington, Virginia

Gary Erickson, Field Engineer, Johnson Division, Universal Oil Products Company, St. Paul

Alvan Feinstein, Professor of Epidemiology, School of Medicine, Yale University, New Haven, Connecticut

Ellen Fifer, Health Planning Director, Comprehensive Health Planning, St. Paul

John P. Fox, Professor of Preventive Medicine, School of Medicine, University of Washington, Seattle, Washington

Axel M. Fritz, President, Bison Instruments Incorporated, Minneapolis

Steve J. Gadler, Member, Minnesota Pollution Control Commission, St. Paul

Richard P. Gaulin, Mechanical Engineer, Architectural and Engineering Branch, Division of Hospital and Medical Facilities, Public Health Service, Silver Springs, Maryland

Sam E. Geffen, Sales Representative, Baroid Division, National Lead Company, Denver, Colorado

J. Thomas Grayston, Professor and Chairman, Department of Preventive Medicine, School of Medicine, University of Washington, Seattle, Washington

John Gurland, Professor, Department of Statistics, University of Wisconsin, Madison, Wisconsin

William Haenszel, Chief, Biometry Branch, National Cancer Institute, Public Health Service, Bethesda, Maryland

Lawrence B. Hall, Chief, Planetary Quarantine, National Aeronautics and Space Administration, Washington, D.C.

Eugene E. Halverson, Sales Representative, Fairbanks Morse Pump Division, Colt Industries, Minneapolis

Chris Hansen, Commissioner, Environmental Control Administration, Public Health Service, Rockville, Maryland

John L. Harper, Field Engineer, Johnson Division, Universal Oil Products Company, St. Paul

Maureen Henderson, Professor of Preventive Medicine, Medical School, University of Maryland, Baltimore, Maryland

Harold Herman, Chief, Health Planning Branch, Comprehensive Health Planning, Bethesda, Maryland

Edwin H. Hoeltke, Mechanical Director, The Christ Hospital, Cincinnati, Ohio

John Hogan, Electrical Engineer, Ellerbe Architects, St. Paul

Donald Hogg, Assistant Planning Director, Community Health and Welfare Planning Council, St. Paul

Abraham Horwitz, Director General, Pan American Health Organization, Washington, D.C.

Michel A. Ibrahim, Deputy Commissioner, Erie County Health Department, and Associate Professor of Preventive Medicine, School of Medicine, State University of New York, Buffalo, New York

Otto M. Jahnke, Executive Director, St. Paul-Ramsey Hospital and Medical Center, St. Paul

Joanne Jensen, Health Educator, St. Paul Bureau of Health, St. Paul

Donald Johnson, Director of Engineering and Maintenance, Fairview-Southdale Hospital, Edina, Minnesota

Robert Jorvig, Executive Director, Metropolitan Council, St. Paul

Eugene J. Jungmann, Field Representative, Bucyrus-Erie Company, Evansville, Indiana

William J. Jungmann, Geologist, Johnson Division, Universal Oil Products Company, St. Paul

Leon Katz, Katz Plumbing and Heating Company, Inc., St. Paul

Robert H. Kerr, Hospital Architectural Consultant, St. Paul

Lafayette W. Knapp, Jr., Associate Professor, Institute of Agricultural Medicine, University of Iowa, Iowa City, Iowa

Vern A. Knutson, Director of Buildings and Grounds, Harper Hospital, Detroit, Michigan

Alfred Kogon, Associate Professor of Preventive Medicine, New York Medical College, New York, New York

Shri Lal Krishan, Assistant Director of Census, United Provinces, India

Lewis Kuller, Assistant Professor of Chronic Diseases, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Maryland

Rema Lapouse, Professor of Preventive Medicine and Psychiatry, New York Medical College, New York, New York

- Richard K. C. Lee, Director, Occupational Medicine, Straub Clinic, Honolulu, Hawaii
- Abraham M. Lilienfeld, Professor and Chairman, Department of Chronic Diseases, School of Hygiene and Public Health, Johns Hopkins University, Baltimore, Maryland
- Donald S. Madole, Sales Engineer, McCarthy Well Company, Minneapolis
- Leland J. Mamer, Director, Plant and Maintenance, New York University Medical Center, New York, New York
- Charles P. McCreary, Health Planner, Division of Administration, Minneapolis Health Department, Minneapolis
- Michael P. McGrath, Engineer, Johnson Division, Universal Oil Products Company, St. Paul
- James Michaels, Field Engineer, Johnson Division, Universal Oil Products Company, St. Paul
- Edmund A. Murphy, Associate Professor of Medicine, School of Medicine, Johns Hopkins University, Baltimore, Maryland
- Robert J. Nast, Director, Division of Plant Operation, American Hospital Association, Chicago, Illinois
- Russell S. Nyquist, Executive, KMS Industries, Ann Arbor, Michigan
- Gerald W. Orr, Executive Director, Respiratory Disease Association of Hennepin County, Minneapolis
- Vinson R. Oviatt, Chief, Environmental Services Branch, Division of Research Services, National Institutes of Health, Bethesda, Maryland
- Richard Parker, Deputy Director of Veterinary Public Health Services, National Communicable Disease Center, Atlanta, Georgia
- Robert C. Paul, Director of Engineering, Baylor University Medical Center, Dallas, Texas
- Carl Paulson, Group Supervisor, Lighting Services, Northern States Power Company, Minneapolis
- Peter B. Peacock, Professor of Public Health and Epidemiology, Medical Center, University of Alabama, Birmingham, Alabama
- Einar Pedersen, Director, Norwegian Cancer Registry, Radium Hospital, Oslo, Norway
- Ralph C. Pickard, Director, Division of Environmental Health, Kentucky State Department of Health, Frankfort, Kentucky
- David C. Poskanzer, Associate Neurologist, Massachusetts General Hospital and Assistant Professor of Preventive Medicine, Harvard University, Boston, Massachusetts
- H. W. Poston, Director, Great Lakes Region, Federal Water Pollution Control Administration, Chicago, Illinois
- Hugh D. Putnam, Associate Professor, Department of Environmental Engineering, University of Florida, Gainesville, Florida
- John Redmond, Jr., Chief, Environmental Hygiene Branch, Medical Service Corps, Department of the Army, Washington, D.C.
- Clarence Reed, Field Representative, Speedstar Division, Koehring Company, Akron, Ohio
- Eva Reese, Executive Director, Visiting Nurse Service of New York, New York, New York
- John W. Reinke, Field Engineer, Johnson Division, Universal Oil Products Company, St. Paul
- Phillip E. Richards, Emergency Medical Services Coordinator, Minnesota Department of Health, Minneapolis

William J. Robinson, Field Engineer, Johnson Division, Universal Oil Products Company, St. Paul

Bichat Rodrigues, Regional Advisor on Smallpox, Pan-American Health Organization, Washington, D.C.

Geoffrey Rose, University of London and St. Mary's Hospital, London, England

Donald Schilling, Field Representative, Bucyrus-Erie Company, Evansville, Indiana

David Schottenfeld, Director of Clinical Statistics and Associate Attending Physician, Memorial Hospital for Cancer and Allied Diseases, New York, New York

John C. Schwarzwalder, Executive Vice President, KTCA-KTCI-TV, Twin City Area Educational Television Corporation, St. Paul

Levand Severson, Associate Director, St. Paul-Ramsey Hospital and Medical Center, St. Paul

Mindel Sheps, Professor of Biostatistics, School of Public Health and Administrative Medicine, Columbia University, New York, New York

Harold R. Shipman, International Bank for Reconstruction and Development, Washington, D.C.

Delanne A. Simmons, Executive Director, Public Health Nursing Service, Omaha-Douglas County Health Department, Omaha, Nebraska

Joseph Sizer, Acting Director, Environmental Development Center, Natural Resources Division, State Planning Agency, St. Paul

Elmer C. Slagle, Assistant Director, Division of Hospital Services, Minnesota Department of Health, Minneapolis

Larry Smith, Honeywell Commercial Sales Office, Minneapolis

Q. T. Smith, Director of Communications, St. Paul-Ramsey Hospital and Medical Center, St. Paul

F. W. Spiers, Professor and Head, Department of Medical Physics, The University of Leeds, Leeds, England

James H. Steele, Chief, Veterinary Public Health, Communicable Disease Center, Public Health Service, Atlanta, Georgia

William Stewart, Surgeon General, Public Health Service, Washington, D.C.

Jon Swanson, Industrial Hygienist, Occupational Safety and Health Branch, International Labor Organization, Geneva, Switzerland

S. Leonard Syme, Professor of Epidemiology, School of Public Health, University of California, Berkeley, California

William F. Taylor, Consultant in Charge, Division of Medical Statistics, Epidemiology and Population Genetics, Mayo Clinic, Rochester, Minnesota

James Terrill, Special Assistant to Administrator, Consumer Protection and Environmental Health Service, Public Health Service, Washington, D.C.

Milton Terris, Professor, Department of Preventive Medicine, New York Medical College, New York, New York

Fred Thielman, Utilities Superintendent, St. Cloud, Minnesota

Meredith H. Thompson, Assistant Commissioner, Division of Environmental Health Services, New York State Department of Health, Albany, New York

George Tokuhata, Director, Division of Research, Pennsylvania State Health Department, Harrisburg, Pennsylvania

Andre Varma, Assistant Professor, Division of Biostatistics, Columbia University, New York, New York

Howard H. Vincent, Demonstration Coordinator, Region VI, Communicable Disease Center, Atlanta, Georgia

William M. Wallace, Administrator, Charles T. Miller Hospital, St. Paul

Jack Weldon, Superintendent of Plant, Hospital of the Women's Medical College of Pennsylvania, Philadelphia, Pennsylvania

- Colin White, Professor of Biometry, School of Medicine, Yale University, New Haven, Connecticut
- John Williams, Comprehensive Health Planning, Kansas City Regional Office, Kansas City, Missouri
- Warren Winkelstein, Jr., Professor and Head, Division of Epidemiology, School of Public Health, University of California, Berkeley, California
- John Wiskerchen, Chemist, Federal Food and Drug Administration, Public Health Service, Minneapolis District, Minneapolis
- Douglas Wolfangle, Electrical Engineer, Ellerbe Architects, St. Paul
- Jack Womack, Field Sanitarian, Division of Indian Health, Public Health Service, Bemidji, Minnesota

### Special Lecturers 1968-70 in Hospital and Health Care Administration

- Paul Batalden, Medical Director, Job Corps, U.S. Department of Labor, Washington, D.C.
- Harry Becker, Professor of Community Health, Albert Einstein Medical College, New York, New York
- John J. Boardman, Jr., Hospital Administrator, Kaiser Foundation, Los Angeles, California
- Theodore E. Chester, Professor, University of Manchester, Manchester, England
- Edward J. Connors, Director, University of Michigan Hospitals, Ann Arbor, Michigan
- Richard T. Crist, President, Minnesota Hospital Service Association, St. Paul
- Edwin L. Crosby, Executive Director, American Hospital Association, Chicago, Illinois
- Lloyd F. Detwiler, Administrator-Consultant, University of British Columbia Health Sciences Centre, Vancouver, B.C.
- C. Wesley Eisele, Director, Post-graduate Medical Education, University of Colorado, Denver, Colorado
- Paul M. Ellwood, Jr., Executive Director, American Rehabilitation Foundation, Minneapolis
- Gary L. Filerman, Executive Director, Association of University Programs in Hospital Administration, Washington, D.C.
- Bruce E. Fischer, Director, Mental Health-Mental Retardation, Hennepin County, Minneapolis
- Edith Lentz Hamilton, former Associate Professor, Program in Hospital Administration, South Duxbury, Massachusetts
- James A. Hamilton, Professor Emeritus, Program in Hospital Administration, South Duxbury, Massachusetts
- Warren B. Hempstead, Sales Manager, Physicians and Hospitals Supply Company, Inc., Minneapolis
- Helen Jamison, Director of Nursing, Mt. Sinai Hospital, Minneapolis
- Eugene H. Keating, Attorney-at-Law, Minneapolis
- M. Barbara Killen, Coordinator for Health Careers, Manpower Research Center, American Rehabilitation Foundation, Minneapolis
- John E. Kralewski, Director, Division of Health Care Administration, University of Colorado, Denver, Colorado
- Eleanor Lambertson, Director, Division of Nursing Education, Columbia University, New York, New York

Richard B. Magraw, Bureau of Health Services, Public Health Service, Silver Springs, Maryland

John R. Mannix, Executive Vice-President, Blue Cross of Northeast Ohio, Cleveland, Ohio

Fred A. McNamara, Hospital Consultant, Washington, D.C.

Walter J. McNeerney, President, Blue Cross Association, Chicago, Illinois

Winston R. Miller, Program Director, Northland Regional Medical Program, St. Paul

Andrew Pattullo, Director, Division of Hospitals, W. K. Kellogg Foundation, Battle Creek, Michigan

Jerome Pollack, Associate Dean for Medical Care Planning, Harvard Medical School, Boston, Massachusetts

Stephen Rogness, Executive Director, Minnesota Hospital Association, Minneapolis

Virgil Slee, Director, Commission on Professional and Hospital Activities, Inc., Ann Arbor, Michigan

J. E. Smits, Regional Hospital Administrator, Kaiser Foundation Hospitals, Los Angeles, California

Richard J. Stull, Executive Vice-President, American College of Hospital Administrators, Chicago, Illinois

George G. Ulmer, President, Physicians and Hospitals Supply Company, Inc., Minneapolis

David J. Vail, Medical Director, Minnesota Department of Public Welfare, St. Paul

Donald L. Van Hulzen, Executive Director, Metropolitan St. Paul and Minneapolis Planning Councils, St. Paul

Joel T. Watson, Senior Consultant, Consulting Division, Biomedical Computer Services, St. Paul

Lawrence L. Weed, University of Vermont Hospital, Burlington, Vermont

Donald E. Wood, Executive Director, Twin City Hospital Association, St. Paul



University of Minnesota • HEALTH SCIENCES CENTER

# School of Public Health

## GENERAL INFORMATION

The School of Public Health offers a wide selection of general and professional courses in the fields of public health and preventive medicine. The general courses are designed for the student who desires knowledge of personal health and an understanding of the community programs that exist for the promotion of the public health. The professional courses are intended to furnish technical training for those who seek a career in public health work or who wish to use technical knowledge and procedures in their future work in allied fields.

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

All professional degree programs in the school are fully accredited by the appropriate national accrediting agencies.

The school occupies two and a half floors of the Mayo Memorial Building of the University of Minnesota Health Sciences Center. Here are located teaching and research laboratories, classrooms, conference rooms, and the offices of the school. Environmental health research laboratories are located in the adjacent University Health Service Building and the new Space Science Center. The Laboratory of Physiological Hygiene is separately situated at the Memorial Stadium only 3 blocks distant.

Teaching programs have been developed in close collaboration with other departments in the College of Medical Sciences and with departments dealing with collateral fields of knowledge, in particular with the biological sciences, dentistry, education, engineering, the social sciences, and veterinary medicine. Practical field experience and observation are provided through a close working relationship with many official and voluntary public health agencies. The Minnesota Department of Health maintains its offices and laboratories adjoining the Minneapolis Campus, and its staff participates actively in teaching. The public health services of Minneapolis and St. Paul share in teaching responsibilities.

## **School of Public Health**

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**Professional Programs in Public Health**—The School of Public Health provides programs of graduate study for physicians, dentists, public health nurses, health educators, veterinarians, public health statisticians, hospital administrators, public health nutritionists, and for engineers, sanitarians, and other scientists in the field of environmental health. Programs of study usually can be arranged for other persons with appropriate professional training and public health experience.

The programs of study emphasize training of a coordinated team of professional workers, each member of which has some understanding and appreciation of the contributions that each of the other disciplines makes to the broad field of public health. To this end all students pursuing courses of study leading to a professional degree in public health are required to take the basic core courses, PubH 5-002/5-003/5-004, and courses in environmental health, epidemiology, health education, public health administration, public health nursing, and statistics. To this nucleus of required courses, which so far as possible all advanced students take together, each of the programs adds courses from its respective field of special interest.

All programs leading to a Master's degree are arranged as orderly sequences of courses extending over a minimum of 11 months. The programs in public health nursing and in hospital and health care administration extend over 2 academic years and begin with the fall quarter in September. Students in public health administration, dental health, environmental health, veterinary public health, public health nutrition, and health education are expected to begin with the second term of Summer Session and to continue through the ensuing spring quarter or Summer Session. Students wishing to acquire special competence in one of the fields of public health such as epidemiology, maternal and child health, or some aspect of environmental health should plan one or more extra years beyond the Master's degree.

**Program in Hospital and Health Care Administration**—This 21-month program consists of either 10 months of academic study on campus followed by a year of practical experience, or 2 academic years on campus and an intervening summer of supervised practicum. The academic training provides specialized background in management, planning, and public health for health care administration careers in a variety of planning and operating health care organizations.

**Programs in Biometry**—Graduate study combining theory and methodology for the application of statistics, mathematics, and computer science in medical, biological, and public health research is offered by the Biometry Division. The division can currently offer a number of traineeships sponsored by the Public Health Service. Requirements for entering a graduate program leading to the degrees of master of science and doctor of philosophy in biometry can be found in the *Graduate School Bulletin*.

**Laboratory of Physiological Hygiene**—In 1937 the Laboratory of Physiological Hygiene was established at the University as a research and teaching unit and was made a division of the School of Public Health in 1946. The laboratory offers unusual opportunities for advanced study in the fields of nutrition, epidemiology of heart disease, gerontology, physiology of exercise, and problems of metabolism. Facilities and personnel are specialized for experimental studies on man. Programs of study are available which lead to the

degree of master of science or doctor of philosophy in physiology, physiological chemistry, or, in particularly well-qualified cases, physiological hygiene.

**Summer Session** — The Summer Session of the University of Minnesota consists of 2 terms, each of 5 weeks. In each of these terms certain courses are concentrated that during the regular year are spread over 1 or 2 quarters. It is not possible, however, for a student to complete the requirements for an advanced degree by attending only a series of summer sessions. Special workshops or intensive programs of study are offered during the summer.

**In-Service Courses** — In-service courses are offered at the Nolte Center for Continuing Education. These courses vary in length from 2 days to 2 or 3 weeks and are offered to physicians, engineers, nurses, hospital administrators, educators, or other groups within the public health field. The faculty for these courses is recruited from the regular University staff, supplemented by special lecturers. The school likewise offers courses through the General Extension Division. Credits earned through extension courses can be transferred to count toward degrees. No professional courses are offered by correspondence.

**Traineeships** — Under Sections 306 and 307, Public Health Service Act, funds are available through the Public Health Service to provide a limited number of traineeships for graduate students in schools of public health who are preparing for public health employment. These cover tuition, university fees, and a generous living allowance depending upon the number of dependents and the student's academic background. Section 306 provides traineeships for all types of public health personnel except nurses working for advanced degrees. Stipends under this section are calculated on the basis of \$6,000 a year for students with a Doctor's degree and \$3,000 a year for those with a Bachelor's degree. These stipends may be increased slightly, dependent upon years of prior related work experience. A dependency allowance calculated on the basis of \$500 per year per dependent is also provided. Under Section 307, traineeships are available to graduate nurses in the Master's program at \$250 a month plus dependency allowance and tuition.

All traineeships are awarded directly by the school. Students who are interested in applying for traineeships should write to the School of Public Health, 1325 Mayo Memorial, University of Minnesota, Minneapolis, Minnesota 55455.

Students from other countries who desire financial support for their training should apply, through the Ministry of Health of their country, to the World Health Organization or to the Agency for International Development of the U.S. Department of State for such support. The school has no money that it can award directly to support the training of students from other countries.

**Special Traineeships** — In addition to the foregoing "general purpose" traineeships, special traineeships provided by the Public Health Service are available for study in air pollution, biometry, hospital engineering, maternal and child health, nutrition, radiological health, and vital statistics. Training grants from the Department of the Interior provide support for students in sanitary biology. The school has an approved program for students receiving direct fellowship support from the Atomic Energy Commission. The amounts

## **School of Public Health**

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of such stipends vary with the field of study. Inquiries should be addressed directly to the school.

### **Admission**

The University of Minnesota is guided by the principle that there shall be no differences in the treatment of persons because of race, creed, color, sex, or national origin, and that equal opportunity and access to facilities shall be available to all. This principle is particularly applicable in the admission of students in all colleges, and in their academic pursuits. It is also applicable in University-owned or University-approved housing, in food services, student unions, extracurricular activities, and all other student services. It is a guiding policy in the employment of students either by the University or by outsiders through the University and in the employment of faculty and civil service staff.

**Graduate Program** — Those who wish to become candidates for the degrees of master of public health or master of hospital administration should apply directly to the School of Public Health for admission. Application blanks will be furnished by the school upon request. Two certified transcripts attesting to the applicant's college record and his graduation must be submitted with the application together with the \$10 credentials examination fee which is nonrefundable. At least two letters of recommendation, supporting the application, should also be sent directly to the school from persons who are capable of assessing the ability of the candidate to do graduate work, and who can assess his past and potential success in his chosen discipline. After the application and all supporting papers have been received, applicants will be notified of action taken. Detailed admission requirements and degree requirements for the several programs are listed in the section under Programs of Study. Candidates for the degree of doctor of philosophy or master of science should apply directly to the Graduate School.

**Special Students** — Those who do not present themselves immediately as candidates for degrees but who wish to pursue studies centered in the School of Public Health may be admitted as "adult special" students. Students from foreign countries other than Canada are always admitted as adult special students for their first quarter of residence and will be continued as such until accepted as candidates for degrees. The academic record of each adult special student will be reviewed after the close of each quarter of residence to determine his eligibility for transfer to degree candidacy.

Credits earned as adult special students will count toward the master of public health degree when the student is transferred to degree candidacy. Adult special students who wish to transfer to candidacy for the master of science degree should consult the *Graduate School Bulletin* for regulations governing such transfer.

**Transfer of Credits** — No transfer of credit from other institutions to apply to a Master's degree is permitted. Consult the *Graduate School Bulletin* for regulations concerning transfer of credit toward a Ph.D. degree.

## Degree Requirements

**Doctor of Philosophy** — A program of study and research leading to the doctor of philosophy degree may be elected with a major in biometry, environmental health, epidemiology, hospital and health care administration, or physiological hygiene. Entrance to work for this degree with a major in any of the above fields will be limited to students who have already completed a Master's degree or the equivalent in public health or related fields. Those whose interest is in the field of maternal and child health should plan their work through the Department of Pediatrics of the Graduate Medical School. A major in biometry may be elected by those whose chief interests center in the application of statistics, mathematics, and computer science to biological fields. Similarly, a major in physiological hygiene may be elected by qualified students in that field though many such students may prefer a major in physiological chemistry or physiology. The doctoral program in hospital and health care administration is focused on the hospital in its relationship to the community rather than on problems of internal management.

A program of at least 3 years of study and research is required. A minimum of 3 quarters must be spent in residence at the University of Minnesota. The general requirements are set forth in the *Graduate School Bulletin*.

The University of Minnesota does not grant the doctor of public health degree. With the exception of the professional degrees of M.D., D.D.S., and D.V.M., it is the policy of the University of Minnesota that the only doctoral degree offered is the Ph.D., regardless of the field of specialization.

**Master of Science** — This degree is available under two plans, Plan A involving preparation of a thesis plus a minimum of course work, and Plan B which requires more extended course work and the preparation of papers of the quality, though not the range, of a Master's thesis. A minimum of 3 quarters of study in residence at the University of Minnesota is required under each plan. Students may major in public health (concentrating upon one of the component fields), or in biometry, environmental health, epidemiology, or in physiological hygiene. For detailed information, see the *Graduate School Bulletin*.

**Master of Public Health** — This is an advanced professional degree, granted in recognition of scholastic attainment in public health to individuals with suitable previous professional education and experience. The University of Minnesota in its requirements for admission to candidacy for the master of public health degree is guided by the standards established by the American Public Health Association. Applicants for the master of public health degree should possess:

- “(i) A graduate degree, from an acceptable institution, in a discipline relevant to public health, or
- “(ii) A bachelor's degree, from an acceptable institution, with substantial knowledge in a discipline relevant to public health, either through study or experience or a combination of these.”

All candidates for the master of public health degree must complete a program of at least 11 months of approved study in residence at the University of Minnesota. This must include a minimum of 45 credits in courses of graduate grade offered by the University. The total program of study for each must

## School of Public Health

include PubH 5-002/5-003/5-004 and courses in environmental health, epidemiology, health education, public health administration, public health nursing, and statistics. The courses selected must have the approval of the student's adviser.

An overall grade average of not less than 2.75 (based on A = 4, B = 3, C = 2, D = 1) must be attained, including a grade average of 2.50 in all public health courses so graded and a grade average of 2.50 in the foregoing required courses. If a student repeats a course, the honor point average is based on the original grade; the second grade does not count in the average.

Papers of the quality, though not the scope of a Master's thesis, must be prepared in connection with courses totaling 9 credits, as determined by the student's adviser. The student must also successfully pass a comprehensive examination at the end of the period of study.

**Master of Hospital Administration** — See page 30.

**Bachelor's Degree — Major in Biometry** — Registration for courses leading to the bachelor of arts degree with a major in biometry is in the College of Liberal Arts (see bulletin of that college). The curriculum is of a broadly elective type and designed for a normal period of study covering 4 academic years.

### Expenses (1970-71)

(Subject to change)

1. Tuition fee per quarter (except for hospital administration)	
Resident (full schedule) .....	\$141.00
Nonresident (full schedule) .....	380.00
Resident (per credit hour) .....	11.75
Nonresident (per credit hour) .....	31.75
2. Tuition fee per quarter (hospital administration only)	
Resident (full schedule) .....	\$228.00
Nonresident (full schedule) .....	516.00
Resident (per credit hour) .....	19.00
Nonresident (per credit hour) .....	43.00
3. Credentials examination fee (to be sent with application and nonrefundable) .....	10.00
4. Incidental fee (per quarter) .....	37.00
5. Summer Session tuition (per term)	
3 credits or less .....	42.00
4 credits (\$14 per credit) .....	56.00
5 credits .....	70.00
6 credits .....	84.00
7 credits .....	98.00
8 credits .....	112.00
9 credits .....	126.00
10 credits (\$7 per credit over 9 credits) .....	133.00
11 credits .....	140.00
12 credits .....	147.00
Summer Session incidental fee (per term; not included in tuition fee) .....	18.50
6. Special course fees are charged as follows:	
PubH 5-239 .....	150.00
PubH 5-755, 5-068 (in addition to regular tuition) .....	100.00
PubH 8-002 (September field course — in lieu of tuition) .....	200.00
7. Graduation fee	
Small diploma .....	15.00
Large diploma .....	22.50

## General Information

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If a student receives a traineeship which provides for direct payment of tuition and fees, a statement authorizing the University to submit bills for such charges should be sent to the School of Public Health in advance of registration. The tuition amounts indicated are for registration in the School of Public Health. For tuition rates for other colleges, the *General Information Bulletin* should be consulted.

The regular University year, extending from September to June, is divided into 3 quarters. The Summer Session consists of 2 terms, each of 5 weeks' duration. On the specified dates (see Calendar in *General Information Bulletin*) prior to the opening of each quarter or summer term, the following fees are due from each student: (a) tuition, (b) incidental, and (c) such special fees and deposits as may be required. Payment of fees cannot be deferred.

### Partial Calendar, 1970-71

A few of the pertinent dates of the 1970-71 academic year are as follows:

	<i>Beginning Date</i>	<i>Ending Date</i>
First Term Summer Session 1970	June 15	July 17
Second Term Summer Session 1970	July 20	August 21
Interim Period (PubH 8-002) 1970	August 23	September 13
Fall Quarter 1970	September 28	December 19
Winter Quarter 1971	January 4	March 20
Spring Quarter 1971	March 29	June 12
First Term Summer Session 1971	June 14	July 16
Second Term Summer Session 1971	July 19	August 20

The exact dates for the 1971-72 academic year are yet to be determined, but the training periods will be comparable.

### Residence Accommodations

Most out-of-town students live either in University-maintained residence halls or in private rooming houses. Information concerning residence halls and University housing for married students may be obtained from: Director of University Housing, 180 Westbrook Hall, University of Minnesota, Minneapolis, Minnesota 55455.

Information about private rooming houses may be obtained from the Student Housing Bureau at 209 Eddy Hall, which can also assist married students in finding suitable housing off campus.

### Further Information

For further details regarding admission, expenses, housing facilities, health service, scholarships, etc., consult the *General Information Bulletin*, which may be obtained upon request. Address: Office of Admissions and Records, Morrill Hall, University of Minnesota, Minneapolis, Minnesota 55455.

# PROGRAMS OF STUDY

## *Programs in Biometry*

Major Advisers — Richard B. McHugh, Eugene Ackerman, Jacob E. Bearman, Eugene A. Johnson, Glenn E. Bartsch, James R. Boen, Robert L. Evans, Marcus O. Kjelsberg

### Requirements for Admission

1. Bachelor's degree from an acceptable institution.
2. Satisfactory background in (a) mathematics, preferably through calculus; (b) the social sciences; and (c) the natural sciences, particularly biology.

## PROGRAM LEADING TO MASTER OF PUBLIC HEALTH DEGREE

### Plan of Instruction

The course of study leading to the master of public health degree includes basic courses in public health supplemented by courses in statistics and such other studies as seem best suited to give the student a well-balanced program for work in public health statistics. Students should ordinarily plan to be in attendance for 12 months beginning with the first term of the Summer Session.

Among the courses of special interest and value are the following:

#### RECOMMENDED COURSES

(Credits shown in parentheses; \*\* indicates required courses)

- |  |   |
|--|---|
| 5-002/5-003/5-004** — Elements of Public Health (6)                                | 5-460** — Demography and Health (3)   |
| 5-080** — Introduction to Public Health Education (2)                              | 5-461 — Biometric Topics in Epidemiology (3)  |
| 5-152** — Environmental Health (2)   | 5-462 — Life Table Techniques (3)   |
| 5-330**/5-335 — Epidemiology I, II (6)   | 5-541** — Organization of Public Nursing Services (1)   |
| 5-430/5-431/5-432 — Biomedical Computing (9)                                       | 5-700** — Public Health Administration (3)  |
| 5-433/5-434/5-435 — Computer Methodology in Delivery of Health Care I, II, III (9) | 5-760 — Orientation to Medical Sciences (3)   |
| 5-436 — Analytical Techniques for Health Delivery Systems (3)                      | 5-790 — Social and Economic Aspects of Medical Care (3)                                       |
| 5-450/5-452/5-454 — Biometry I, II, and III (9)                                    | PA 8-211 — Public Administration Seminar: Organization Theory and Administrative Behavior (3) |
| 5-451/5-453/5-455 — Biometry Laboratory I, II, and III (6)                         | Soc 5-551 — World Population Problems (3)   |
| 5-456 — Biometry Consulting Seminar (3)  | Soc 5-555 — Population Theory (3)   |
|  | Stat 5-121/5-122/5-123 or 5-131/5-132/5-133 — Theory of Statistics (9)                        |

The usual program of study will include PubH 5-430/5-431/5-432, PubH 5-450/5-452/5-454, PubH 5-451/5-453/5-455, PubH 5-460, 5-461, 5-462 in addition to the required public health core courses.

## PROGRAMS LEADING TO THE MASTER OF SCIENCE AND PH.D. DEGREES

The degrees of master of science and Ph.D. with a major in biometry are offered through the Graduate School. The master of science program normally requires 2 years to complete and includes course work in mathematical statistics, biomedical computing, and mathematical biology in addition to biomedical statistics. For persons without professional experience in public health who wish to pursue a health statistics program, a course of study is available which satisfies the requirements for the master of science degree and includes public health courses in lieu of mathematical biology. Detailed information about these programs is given in the *Graduate School Bulletin*. The Ph.D. program normally requires 4 years after the Bachelor's degree.

### *Program in Dental Public Health*

Major Advisers — Lawrence H. Meskin, Leslie V. Martens, Richard H. Gordon

#### Requirements for Admission

1. The degree of doctor of dental surgery or doctor of dental medicine from an acceptable institution.
2. Evidence of suitable undergraduate proficiency in clinical and basic science courses.
3. Evidence of personal and professional qualifications as supplied by three reference letters and, if requested, a personal interview.
4. Letter indicating applicant's interest and/or motivation in seeking the master of public health degree.

#### Plan of Instruction

This program is designed to prepare a select group of dentists for responsible involvement and leadership roles in comprehensive community health programs. The required courses form the framework of a general public health education. The variety of available elective courses assures individualization of course content in meeting the specific personal and professional interests and goals of each student.

The normal course of study leading to the degree of master of public health extends over an 11-month period beginning with the second term of the Summer Session. The interval between the Summer Session and fall quarter is reserved for field experience and study. Winter and spring quarters are required to complete the core and elective courses necessary for graduation. Among the courses of special interest and value are the following:

#### RECOMMENDED COURSES

(Credits shown in parentheses; \*\* indicates required courses)

5-002/5-003/5-004\*\* — Elements of Public Health (6)

5-031 — Mental Health (3)

5-080\*\* — Public Health Education (2)

5-154\*\* — Environmental Health Programs (3)

## School of Public Health

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- 5-201 — Measurement and Application of Ionizing Radiation (2 without lab, 3 with lab)  
5-330\*\*/5-335 — Epidemiology I, II (6)  
5-380 — Applied Human Nutrition (3)  
5-407\*\* — Vital Statistics I (3)  
5-430 — Biomedical Computing (3)  
5-506 — Child and Society (3)  
5-540\*\* — Organization of Public Health Nursing Services (2)  
5-610 — Maternal and Child Health (3)  
5-612 — Human Genetics and Public Health (3)  
5-613 — Handicapped Children (ar)  
5-651 — Philosophy and Concepts of Preventive Dentistry (3)  
5-652 — Seminar: Dental Health Literature (ar)  
5-653 — Dental Health Programs (ar)  
5-700\*\* — Public Health Administration (3)  
5-701 — Public Health Administration Problems (3)  
5-790 — Social and Economic Aspects of Medical Care (3)

## Programs in Environmental Health

Major Advisers — Richard G. Bond, George S. Michaelsen, Theodore A. Olson, Harold J. Paulus, Irving J. Pflug, Conrad P. Straub, Donald E. Barber, Velvl W. Greene, Knowlton J. Caplan, Walter H. Jopke, Orlando R. Ruschmeyer, Gustave L. Scheffler, Rexford D. Singer, Donald Vesley

## PROGRAMS LEADING TO MASTER OF PUBLIC HEALTH OR MASTER OF SCIENCE DEGREE

### Requirements for Admission

1. A Bachelor's degree from an acceptable institution with a major in engineering or in one of the biological or physical sciences.
2. Adequate training in basic and applied sciences, preferably including a basic course in microbiology. If preparation appears to be inadequate, certain additional courses may be required.

### Plan of Instruction

The course of instruction leading to a Master's degree requires a minimum of 11 months of study. Students should plan to be in attendance for the second term of the Summer Session preceding the regular academic year, and to remain in attendance during the interim period between the end of the second term of Summer Session and the beginning of the fall quarter.

The environmental health programs are designed to cover the many aspects of environmental control. The student may obtain specialized training in air pollution, environmental biology, hospital engineering, injury control, occupational health, radiological health, or water hygiene. The student not wishing to specialize may select training in the general field of environmental health with emphasis in the area of water supply, sewerage, solid wastes, general sanitation, milk and food, environmental microbiology, institutional environmental health, or administration. Course work in fields related to environmental health is available in other departments of the University. Properly qualified students are encouraged to include such work in their programs.

**Master of Science** — The master of science degree, with major emphasis in environmental health, is offered through the Graduate School — persons interested in this program should consult the *Graduate School Bulletin*. Students

planning to continue their studies for the Ph.D. degree, and/or to pursue an academic career of teaching and research in environmental health, should consider enrolling in the Graduate School as candidates for the M.S. degree. The program for this degree consists of a minimum of 21 credit hours in environmental health or in approved elective courses in the candidate's area of special interest, but including PubH 5-151, PubH 5-159, and PubH 8-002. At least 18 credit hours in two or more related fields with a minimum of 6 credit hours in each are also required. It is generally expected that the candidate will include PubH 5-002, PubH 5-330, PubH 5-405, PubH 5-406, and either PubH 5-161 or PubH 5-700 in either his major or one of the related fields.

**Master of Public Health** — Those persons having professional experience and who are planning to continue public health work with governmental agencies in an administrative or consultative capacity should consider enrolling for the M.P.H. degree. The master of public health program includes all of the required courses in public health and selected electives in the candidate's area of interest. Among the courses of special interest and value are the following:

**RECOMMENDED COURSES**

(Credits shown in parentheses; \*\* indicates courses required for M.P.H. degree)

- |   |  |
|---|--|
| 5-002/5-003/5-004** — Elements of Public Health (6)                       | 5-213 — Public Health Aspects of Toxic Products (2)                |
| 5-080** — Introduction to Public Health Education (2)                     | 5-214 — Agricultural Occupational Health (3)                       |
| 5-151** — Environmental Health (3)  | 5-216 — Health Aspects of Air Control in Hospitals (2)             |
| 5-159** — Seminar: Environmental Health (ar)                              | 5-221 — Institutional Food Protection Programs (2)                 |
| 5-161 — Administration of Environmental Health Programs (3)               | 5-222 — Food Sanitation (3)  |
| 5-171 — Environmental Microbiology (3)                                    | 5-239 — Hospital Engineering Problems (ar)                         |
| 5-177 — Environmental Biology (3)   | 5-330**/5-335 — Epidemiology I, II (6)                             |
| 5-178 — Vectors and Parasites in Human Diseases (3)                       | 5-405/5-406** — Biometric Methods in Environmental Health (6)      |
| 5-179 — Public Health Biology, Field Investigations (3)                   | 5-407 — Vital Statistics I (3)                                     |
| 5-181 — Introduction to the Air Pollution Problem (3)                     | 5-430/5-431/5-432 — Biomedical Computing (9)                       |
| 5-182 — Air Pollution Controls and Surveys (3)                            | 5-450/5-452/5-454 — Biometry I, II, and III (9)                    |
| 5-183 — Problems of Air Pollution Control (ar)                            | 5-451/5-453/5-455 — Biometry Laboratory (6)                        |
| 5-184 — Air Analysis (3)  | 5-541** — Organization of Public Health Nursing Services (1)       |
| 5-191 — Principles and Methods of Injury Control (ar)                     | 5-700** — Public Health Administration (3)                         |
| 5-192 — Hospital Safety (3)   | 5-701 — Public Health Administration Problems (3)                  |
| 5-193 — Chemical Laboratory Safety (1)                                    | 8-002 — Field Observation of Selected Public Health Practices (ar) |
| 5-201 — Measurement and Application of Ionizing Radiation (2; 3 with lab) | 8-201 — Radiation Dosimetry (3)                                    |
| 5-202 — Environmental Radioactivity (3)                                   | 8-202 — Radiation Dosimetry Laboratory (1)                         |
| 5-203 — Low-Level Radioactivity Measurements (3)                          | 8-208 — Field Practice in Radiological Health (ar)                 |
| 5-207 — Radiation Protection Criteria for Hospitals (2)                   | 8-211 — Health Survey of Manufacturing Processes (2)               |
| 5-209 — Seminar: Health Physics (1)                                       | 8-218 — Field Problems in Occupational Health (3)                  |
| 5-211 — Industrial Hygiene Engineering (3)                                | 8-246 — Ground Water Development (ar)                              |
| 5-212 — Ventilation Control of Environmental Hazards (3)                  |  |

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- 8-247 — Field Work in Ground Water Development (ar)  
8-248 — Water Quality Investigation and Research Techniques (6)  
8-249 — Water Quality Research (6)  
8-340 — Epidemiology of Noncommunicable Diseases (3)  
Biol 5-601 — General Cytology (3)  
Bot 5-233 — Biology of Algae (5)  
CE 5-501 — Sanitary Engineering Problems: Water (3)  
CE 5-506 — Sanitary Engineering Problems: Waste Water (3)  
CE 5-507 — Industrial Waste Disposal (3)  
CE 5-510 — Sanitary Engineering Laboratory (3)  
CE 8-508 — Solid Waste Disposal Problems (3)  
ChEn 5-701 — Nuclear Reactor Design (3)  
ChEn 5-751 — Biological Engineering Analysis (3)  
Ent 5-025 — Insect Morphology (5)  
Ent 5-275 — Medical Entomology (3)  
FScl 5-120 — Dairy and Food Microbiology (5)  
Geog 5-421 — Climatology (3)  
Geog 5-371 — Urban Geography (3)  
IE 5-320 — Industrial Safety (3)  
ME 5-600 — Thermal Environmental Engineering (4)  
ME 5-602 — Industrial Ventilation and Exhaust Systems (3)  
ME 5-650 — Particle Technology (3)  
MicB 5-105 — Biology of Microorganisms (4)  
Phcl 8-206 — Toxicology (2)  
Phys 5-441 — Introduction to Physics of the Atmosphere (3)  
Phys 5-442 — Meteorology (3)

The student's program of study can and usually does include additional course offerings from other departments of the University. Descriptions of course offerings in the other departments may be found in the *Graduate School Bulletin*.

### Variations in Curricula Within Environmental Health

**Air Pollution** — Specialized training in air pollution and its control is available for students with a Bachelor's degree in civil, chemical, or mechanical engineering, chemistry, physics, or certain biological sciences with strength in mathematics and chemistry. Each program is patterned to the student's academic background with elective courses in particle technology, physics of the atmosphere, meteorology, toxicology, and graduate courses in chemistry, physics, and chemical engineering. Each student in the air pollution training program receives instruction on the management of air pollution control programs, design and operation of air sampling networks, theory and operation of air sampling equipment and of control methods and equipment. The student also participates in group solutions to assigned problems involving air pollution control and in giving instruction when feasible.

**Environmental Biology** — This is a program of study emphasizing the biological aspects of environmental health. A specialized curriculum is developed for each individual as a means of preparation for one or more professional fields of environmental health activities on the local, national, and international scene. Among these are such fields as water supply biology, waste disposal biology, vector control, biological phenomena related to epidemiology, air pollution, housing, food control, etc. The training will be supplemented by courses in such other departments of the University as biochemistry, botany, entomology, food sciences, microbiology, or zoology as required to satisfy individual needs.

**Hospital Engineering** — This curriculum is designed to provide special training to prepare graduate engineers to serve the hospital administrator or the director of a hospital program during planning and construction and pro-

vide administrative direction to the overall operation of the hospital physical plant. Although the program is tailored to the needs of the individual student and his agency or institution, four areas of preparation are provided in the 2 years of required academic work. These are technical engineering, public health, hospital administration, and hospital environmental engineering. Courses in civil, electrical, industrial, and mechanical engineering, architecture, microbiology, and administration can be selected according to individual needs.

**Injury Control** — This curriculum is designed to meet the needs of injury control specialists in public health agencies. Instruction includes study in such areas as institutional and industrial safety, laboratory safety, principles of accident prevention and injury control, toxicology, and special tutorial work on other problem areas. Additional course work in the areas of epidemiology, biometry, community planning and organization, human behavior, health education, environmental controls, civil engineering, and public administration may be selected to meet the special interests or needs of the student.

**Occupational Health** — This program is planned to provide broad training for those students aiming toward a career in industrial hygiene or occupational health. A Bachelor's degree in engineering or in the physical or biological sciences is a good background. Instruction is provided in the social, economic, and legal aspects of occupational health as well as intensive training in technical aspects of evaluation and control of the industrial environment. Hazards to the general public from products distributed through commercial channels and programs for reducing product liability are considered. Laboratory and field exercises include air sampling, ventilation, and use of specialized instruments and equipment. The program also allows considerable flexibility in the choice of electives from other departments of the University.

**Radiological Health** — The primary purpose of this training program is to integrate the broad spectrum of knowledge required of the health physicist into a logical pattern directed toward understanding the implications of and control methods associated with protection of man from radiation hazards, to stimulate new ideas in both applied and pure research in radiological health, and to provide an opportunity to pursue a research topic in radiological health from inception to conclusion. Broad and intensive courses are offered to prepare students for positions of responsible leadership in professional practice, administration, and research. The program can be adapted to any of a number of interests, and opportunities for interdepartmental programs of study are readily arranged. Areas of special emphasis include internal emitters, medical uses of isotopes, dosimetry, and the radiation protection problems associated with the use of accelerators, medical sources of radiation, and Van de Graaff generators.

**Water Hygiene** — The major objective of this program is to increase the number of competent, well-trained engineers, chemists, and other scientists capable of filling positions in the water hygiene field involving management activities related to the operation of water hygiene programs in a variety of agencies, and in the control of water quality as it relates to the health and well-being of the population. Emphasis is placed on the significance of chronic exposure to a diversity of organic and inorganic chemical contaminants and on the survival of specific disease-producing bacteria and viruses found in water.

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Other specialty courses suited to the academic background of each student are available in various departments of the University.

### **Traineeships**

Traineeships are available for qualified students in environmental health. These traineeships are generally for 1 year and are granted by the school through the Public Health Service Title I program and through Special Purpose Traineeship Grants from the Public Health Service and the Department of the Interior in the specialized areas of air pollution, radiological health, hospital engineering, and environmental biology. Special traineeships also are available directly from the Atomic Energy Commission.

## **DOCTORAL DEGREE PROGRAM**

### **Requirements for Admission**

Admission to the Ph.D. program in environmental health is limited to those students presenting, as a minimum, a Bachelor's degree from an acceptable institution with a major in engineering or in one of the biological or physical sciences. Candidates are required to demonstrate a reading knowledge of two modern foreign languages, or of one foreign language and option of a special research technique or a collateral field of knowledge. Persons interested in this program should consult the *Graduate School Bulletin* for further information.

### **Plan of Instruction**

The program and course offerings are planned to prepare a select group of individuals for research, teaching, and high level administrative positions in the field of environmental health. The course work is adapted to the needs of the individual student and takes cognizance of the several fields of specialization within environmental health. Candidacy for the Ph.D. degree implies the completion of a Master's degree or equivalent in environmental health or related fields. Minors are chosen from a fundamental discipline appropriate to the student's previous academic training and individual interests.

## ***Programs in Health Education***

Major Adviser — Norman A. Craig

### **Requirements for Admission**

1. Bachelor's degree from an acceptable institution.
2. Grade point average of B in undergraduate course work relevant to health education.
3. Satisfactory background in (a) basic health sciences, (b) educational theory and method, (c) social sciences.

4. An acceptable score on the Miller Analogies Test, graduate level, and other tests as determined by faculty. Applicants may secure information on where to take the Miller test by writing to the Student Counseling Bureau, 101 Eddy Hall, University of Minnesota, Minneapolis, Minnesota 55455.
5. Personal interview by person designated by the program director.

### **Plan of Instruction**

The curriculum for health education specialists is designed to prepare persons who can assume leadership roles in planning, carrying out, and evaluating the educational components of community health programs.

The curriculum provides a basic public health content which will help the student understand the broad field of public health and the role and function of other health disciplines. Related courses in health education provide knowledge and skills in educational principles, methods, and techniques applied to solution of individual and community health problems and the psychological and socio-cultural factors affecting health behavior. Concurrent community laboratory experiences are planned to complement the academic courses. The program of study consists of required courses supplemented by electives approved by the health education faculty as relevant to the student's needs and interests. Graduates are prepared to work in a variety of programs and services involving health education of individuals, families, groups, and the community.

**One-Year Program** — For qualified applicants with at least 3 years of health-related work experience after completion of undergraduate studies or an acceptable combination of work experience and other graduate studies. The program, of approximately 14 months' duration, begins with the second term of Summer Session and continues through to the end of second term of the following Summer Session. Upon completion of the required academic courses and community laboratory experience, students must complete satisfactorily a 10-week period of supervised field practice in a community agency or institution.

**Two-Year Program** — Open to candidates who have just completed a Bachelor's degree which included relevant undergraduate studies but lack the health-related work experience required for the 1-year program. The course of studies comprises 5 quarters of academic courses and community laboratory and 2 quarters of supervised health education practice in a community agency or institution. The timing and sequence of academic work and community practice are determined by the professional needs and interests of the individual student, but the course of studies must include required public health and health education core courses. Students in this program ideally should begin their course of studies at the same time as those in the 1-year program. In exceptional cases, arrangements can be made to accept students at other times during the academic year.

Among the courses of special interest and value are the following:

#### **RECOMMENDED COURSES**

(Credits shown in parentheses; \* indicates required courses)

5-002/5-003/5-004\*\* — Elements of Public Health (6)      5-050/5-051/5-052/5-053\*\* — Principles and Methods in Public Health Education (15)

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- 5-060/5-061/5-062/5-063\*\* — Community Health Education Laboratory (ar)  
5-064 — Group Process in Community Health Education (2)  
5-065 — Health Education Preparation of Health and Allied Personnel (2)  
5-066 — Health Education and Contemporary Health Care Systems (2)  
5-067 — Comparative Community Health Education (3)  
5-068\*\* — Community Health Education Practice (5)  
5-152\*\* — Environmental Health (2)  
5-330\*\* — Epidemiology I (3)  
5-407\*\* — Vital Statistics I (3)  
5-506 — Child and Society (3)  
5-540\*\* — Organization of Public Health Nursing Services (2)  
5-610 — Maternal and Child Health (3)  
5-700\*\* — Public Health Administration (3)  
5-701 — Public Health Administration Problems (3)  
8-610 — Health of the School Age Child (2)  
AgJo 5-340 — Rural Communication Media and Media Behavior (3)  
Anth 5-381 — Cultural Change and Development (3)  
Anth 5-382 — Applied Anthropology (3)  
Educ 5-104 — Adult Education (3)  
Hlth 5-140 — Administration of the School Health Education Program (3)  
Jour 5-501 — Communication and Public Opinion (3)  
Jour 5-514 — Mass Communication Theory (3)  
Jour 5-531 — Public Opinion and Persuasion (3)  
Pol 5-317 — Community Power Structures (3)  
PsyF 5-170 — Group Dynamics in Education (3)  
PsyF 5-171 — Analysis of Group Behavior (3)  
SeEd 5-105 — Audio-Visual Materials in Education (3)  
SeEd 8-805 — Problems in Audio-Visual Education (ar)  
Soc 5-401 — Social Organization (3)  
Soc 5-405 — Social Stratification and Mobility (3)  
Soc 5-555 — Population Theory (3)  
Soc 5-611 — Planning (3)  
Soc 5-651 — Rural Social Institutions (3)  
Soc 5-855 — Sociology of Medicine and Medical Institutions (3)  
Spch 5-431 — Argumentation and Persuasion (3)  
Spch 5-411 — Discussion (3)  
Spch 5-404 — Speech and Language in Human Behavior (3)  
SW 8-305 — Community Organization (3)  
SW 8-320 — Seminar: Community Organization (ar)

## Programs in Hospital and Health Care Administration

Major Advisers — Bright M. Dornblaser, James W. Stephan, Theodor J. Litman, Vernon E. Weckwerth, John M. Phin, Janet G. Brodahl

### MASTER'S DEGREE PROGRAM IN HOSPITAL AND HEALTH CARE ADMINISTRATION

#### Requirements for Admission

1. Bachelor's degree as attested by certified transcript (submit two copies) of applicant's college record.
2. Course in elements and principles of accounting (6 quarter hours or equivalent). May be taken during Summer Session prior to start of academic year.
3. Letter indicating applicant's previous work experience and reasons for selecting hospital and health care administration.
4. Names of three references (preferably connected with hospital, health, or medical field, and work experience).
5. An acceptable score on the Miller Analogies Test, graduate level. Applicants may secure information on where to take the Miller test by writing

to the Student Counseling Bureau, 101 Eddy Hall, University of Minnesota, Minneapolis, Minnesota 55455.

6. Personal interview by person designated by the program director.

Resources limit the number of students who can be accepted. Experience in hospital administration is valuable but not essential and does not in any way shorten the period of study. Preference will be given to full-time students as degree candidates. All correspondence regarding this program, including application for admission, should be directed to: Director, Program in Hospital and Health Care Administration, School of Public Health, University of Minnesota, Minneapolis, Minnesota 55455.

The objective of this program is to prepare men and women to achieve, after the requisite years of practical experience and responsible supervisory planning and managerial positions, the chief executive status of a hospital or other health care planning or operating organization. The program normally consists of an academic year of 3 quarters and 1 to 2 terms of Summer Sessions in full-time attendance at the University followed by an administrative residency under a faculty-appointed clinical preceptor in an approved hospital or other health care program. A second academic year on campus may be substituted for the residency. Limited part time enrollment is possible under special circumstances. The student must prepare and submit a research thesis during the second year. The curriculum draws upon other University facilities and upon facilities provided by hospitals and other health care planning and operating organizations within the region adjacent to the University. The program of study provides a central group of subjects pertaining directly to the administration and planning of hospital and health care organizations, with supplementary instruction in related fields including public health and medical care. Upon satisfactory completion of the program with a grade point average of not less than 2.75 (based on A = 4, B = 3, C = 2, D = 1), students are awarded the degree of master of hospital administration.

A typical program of study includes the following courses:

(Credits shown in parentheses)

- |  |   |
|--|---|
| 5-002/5-003/5-004 — Elements of Public Health (6)                  | 5-756 — Planning Practicum (ar)   |
| 5-081 — Health Education in Hospitals (1)                          | 5-760 — Orientation to Medical Sciences (3)                                     |
| 5-153 — Institutional Environmental Health (3)                     | 5-761 — Education for the Health Professions (3)                                |
| 5-404 — Introduction to Biostatistics and Statistical Decision (3) | 5-763 — Health Manpower, Organizations, and Standards (3)                       |
| 5-541 — Organization of Public Health Nursing Services (1)         | 5-764 — Principles of Organization and Management of Hospitals (4)              |
| 5-611 — Maternal and Child Health Program (1)                      | 5-765 — Hospital Departmental Operations (3)                                    |
| 5-700 — Public Health Administration (3)                           | 5-770 — Topics in Hospital and Health Care Administration (3)                   |
| 5-750 — Principles of Administration in Hospitals (6)              | 5-785 — Quantitative Methods Applied to Health Care Administrative Problems (3) |
| 5-751 — Principles of Organization and Management (3)              | 5-786 — Research Methodology in Hospital and Health Care Administration (2)     |
| 5-752 — Hospital Clerkship (5)                                     | 5-790 — Social, Economic, and Political Aspects of Medical Care (3)             |
| 5-753 — Management Problems in Hospital Administration (6)         | Spch 5-412 — Public Speaking, Conference Leadership (3)                         |
| 5-754 — Management: Interpersonal Relations (3)                    | Soc 5-855 — Sociology of Medicine and Medical Institutions (3)                  |
| 5-755 — Administrative Residency (ar)                              |   |

## DOCTORAL PROGRAM IN HOSPITAL AND HEALTH CARE ADMINISTRATION

### Requirements for Admission

1. Bachelor's degree from an accredited institution, preferably with an emphasis on the social sciences, economics, and administration.
2. Advanced training in hospital and health care administration or such related field as business administration, comprehensive health planning, economics, industrial relations, medical care, medical sociology, medicine, nursing, public administration, or public health.
3. Evidence of marked academic ability and potential for independent study and research. Two certified transcripts of all previous academic work must be submitted.
4. Letter indicating applicant's reasons for seeking training at the doctoral level.
5. Names of three references who can advise as to the applicant's scholarship, personality, and fitness for a career in teaching, research, or planning in the field of health care.
6. Acceptable score on the Miller Analogies Test, graduate level.

### Plan of Instruction

In contrast to the professional Master's degree program offered by the School of Public Health, the doctorate is awarded through the Graduate School and is designed for those who wish to pursue a career in teaching, research, and planning in the field of health care. Emphasis is thus placed more upon depth and breadth of learning than the acquisition of technical and management skills per se. Broadly conceived, the doctoral program in hospital and health care administration encompasses all elements that affect the hospital and other related health services as basic social institutions. The curriculum, which is multidisciplinary in nature, is organized around four major core areas: (1) organization and administration of health care services, (2) social, political, and economic aspects of health care, (3) research and statistics in health and health care, and (4) comprehensive health planning. During their course of study, students are given an opportunity to gain a better understanding of the relationship between health and social behavior, expand their knowledge of the organization, development, and planning of health services, and obtain an appreciation of the interrelationship of major social institutions and the health care system through analysis of changing needs and alternative patterns of care both in the United States and abroad. The program of study further provides an opportunity to acquire knowledge and training in the application of research theory and methods to the problems of health and health care.

### *Programs in Maternal and Child Health*

Major Adviser — Allyn Bridge, M.D.

Programs of study allowing limited concentration in maternal and child health are available for suitably qualified physicians, dentists, nurses, social

workers, and health administrators. These programs are highly individualized according to the student's professional background and goals and, in general, provide a concentration on maternal and child health or related courses within the appropriate Master's program. Opportunities exist for specialized work experience in the University Health Sciences Center and various community agencies. For listings of available electives see page 39.

## ***Program for Physical Therapists***

Major Adviser — Eleanor Anderson

### **Requirements for Admission**

1. Bachelor's degree from a course in physical therapy accredited by the Council on Medical Education of the American Medical Association in collaboration with the American Physical Therapy Association.
2. Two letters of reference from professional persons qualified to comment on applicant's academic or professional capability.
3. Two years' experience in the practice of physical therapy is recommended.

### **Plan of Instruction**

The course of study leading to the degree of master of public health or master of science is designed for experienced physical therapists who are interested in a professional career in public health or other community agencies. The program covers 5 academic quarters beginning with the fall quarter and extending through the following Summer Session and fall quarter. The plan of study includes basic courses in public health and in physical medicine and rehabilitation supplemented by electives in these and related fields, notably social sciences and psychology. Opportunities for varied practical experience are provided by the Department of Physical Medicine and Rehabilitation of the Medical School and by local community agencies. A limited number of federally supported traineeships are available on a competitive basis.

Among the courses of special interest and value are the following:

#### **RECOMMENDED COURSES**

(Credits shown in parentheses; \*\* indicates courses required for M.P.H. degree)

5-002/5-003/5-004** — Elements of Public Health (6)	5-541** — Organization of Public Health Nursing Services (1)
5-080** — Introduction to Health Education (2)	5-613 — Handicapped Children (3)
5-152** — Environmental Health (2)	5-700** — Public Health Administration (3)
5-330** — Epidemiology I (3)	5-701 — Public Health Administration Problems (3)
5-407** — Vital Statistics (3)	5-790 — Social and Economic Aspects of Medical Care (3)
5-506 — Child and Society (3)	8-340 — Epidemiology of Noncommunicable Diseases (3)
5-507 — Group Dynamics (2)	8-506 — Health Behavior and Socio-Cultural Change (3)
5-510** — Directed Research (ar)	Anth 5-161 — Culture and Personality (3)
5-518/5-519 — Long-Term Patient Care and Rehabilitation (ar)	
5-520** — Field Practice: Physical Therapy in Community Agencies (ar)	

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- CPsy 5-313 — Psychology of Handicapped Children (3)  
PsyF 5-160 — Personality Development, Mental Hygiene (3)  
PsyF 8-160 — Personality Theory in Mental Health (3)  
PMed 5-281/5-282 — Theory of Therapeutic Exercise (6)  
PMed 8-192\*\* — Introduction to Scientific Literature and Research (2)  
PMed 8-193\*\* — Research Problems in Physical Therapy (6)  
PMed 8-205 — Readings in Physical Medicine (1)  
PMed 8-206 — Conference on Physical Medicine and Rehabilitation (1)  
Soc 5-855 — Sociology of Medicine, Medical Institutions (3)  
SW 8-301 — Administration and Social Work (2)  
SW 8-320 — Community Organization (3)

## Program in Physiological Hygiene

Major Advisers — Ancel Keys, Henry L. Taylor

### Requirements for Admission

1. Bachelor's degree from an acceptable institution.
2. Evidence of satisfactory background in at least three of the following fields: biochemistry, physiology, psychology, physical education, physical anthropology, medicine, public health.
3. Acceptance of advisory responsibility by one of the graduate faculty members.

### Plan and Program of Study

In general, students wishing to emphasize work in physiological hygiene in a program leading to an advanced degree are advised to do so in connection with a major in physiology, physiological hygiene, or epidemiology. The course of study leading to the Master's degree covers at least 3 academic quarters but in most cases should be planned to cover at least a full calendar year. A large part of 2 or more quarters will ordinarily be required for thesis work. The actual program will be adjusted to the individual needs of the student but will be arranged with emphasis on either physiology or biochemistry. In general, the following courses, or their equivalents, will be required for the Master's degree, in addition to courses that may be necessary to satisfy the core course requirements.

#### RECOMMENDED COURSES

(Credits shown in parentheses)

- 5-002/5-003/5-004 — Elements of Public Health (6)  
5-181 — Introduction to Air Pollution Problems (3)  
5-202 — Environmental Radioactivity (3)  
5-211 — Industrial Hygiene Engineering (3)  
5-380 — Applied Human Nutrition (3)  
5-385 — Physiology of Exercise (2)  
5-386 — Public Health Aspects of Cardiovascular Disease (3)  
5-450, 5-451 — Biometry I, Biometry Laboratory I (5)  
8-387 — Research in Physiological Hygiene and Related Areas (6)  
Phsl 8-100 — Human Physiology (15)  
Physiological chemistry or agricultural biochemistry, graduate level courses (7)

## *Programs in Public Health Nursing*

Major Advisers — Alma Sparrow, Eleanor M. Anderson, Dorothy Downey, Delphie Fredlund, Rita A. Kroska, Margaret Sloan, Erma Carver, Barbara Leonard, Elaine Sime

### **Requirements for Admission**

1. A baccalaureate degree from a program accredited by the National League for Nursing which prepares for professional nursing in all clinical areas, including psychiatric and public health nursing. Individual consideration will be given to applicants whose basic nursing preparation varies from the above. Deficiencies must be removed prior to admission to degree candidacy.
2. A grade point average of B in undergraduate course work.
3. An acceptable score on the Miller Analogies Test, graduate level. Applicants may secure information on where to take the Miller test by writing to the Student Counseling Bureau, 101 Eddy Hall, University of Minnesota, Minneapolis, Minnesota 55455.
4. Evidence of personal and professional qualifications as supplied by two reference letters and, if possible, by an interview.
5. Nursing experience. Normally, applicants are expected to have had some public health experience, but well-qualified candidates who have just completed their baccalaureate education are given individual consideration.

### **Major Program of Study**

Nurses who wish graduate preparation in public health nursing and who meet entrance requirements are admissible to programs of study leading to either the master of public health or the master of science degree. In both the M.P.H. and M.S. programs the major is public health. The program extends over a 6-quarter period beginning with the fall quarter, i.e., 2 academic years with the intervening summer free.

The first academic year in both programs consists of a core of required courses in public health, clinical public health nursing, and research methodology. Graduate level courses for which the student meets prerequisites can be elected in the social and biological sciences, humanities, administration, and education.

In the public health courses, advanced theory and practice in public health are shared with students in other disciplines in the School of Public Health. Preparation for service in the multidisciplinary health care system is a goal of the program.

The clinical public health nursing courses in the first year place emphasis on promotion of physical and psychosocial health and prevention of illness. In the second year the focus is on the chronically ill, maternal and child health, and mentally ill patients. Theoretical content is coordinated with clinical experience and nursing seminars.

**Master of Science** — The master of science degree, with special emphasis on public health nursing, is offered as a Plan B program in the Graduate School. It provides for concentration in public health and public health nursing

## School of Public Health

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as the major with a social science as one related field and the other selected with reference to the student's specific goal. Students who are recent graduates of a baccalaureate program or who are planning to pursue an academic career of teaching or research in nursing should enroll in the Graduate School as candidates for the M.S. degree. See the *Graduate School Bulletin*. Further details concerning related fields in line with various career plans will be supplied by the School of Public Health.

**Master of Public Health** — This is an advanced professional program in which students representing the various disciplines within the public health field pursue a common core of courses supplemented by courses appropriate to varying professional backgrounds. Nurses planning to continue public health work in an administrative or consultative capacity should consider enrolling for the M.P.H. degree and make application to the School of Public Health.

### Additional Programs of Study

Building upon the courses in the first year and the concurrent courses of the second year, the student elects an additional program in teaching or supervision-administration which will further prepare her for leadership positions in community health. Individual students may include extra emphasis on long-term patient care and rehabilitation or on school nursing.

**Teacher Education** — For students preparing to teach public health nursing in a collegiate school of nursing, the School of Public Health offers a special program of graduate study. This curriculum is designed to utilize the multidiscipline setting of a school of public health plus the educational advantages made possible through collaboration with a collegiate school of nursing. Students have opportunity to enroll in courses in higher education and, with faculty guidance, to apply principles from public health and education to the practice teaching of public health nursing. Students enroll in the Graduate School as candidates for the M.S. degree.

**Supervision-Administration** — Nurses preparing for beginning positions in supervision pursue theory and practice courses with emphasis on the guidance aspects of the supervisory relationship. Those with experience in supervision have opportunity to secure additional preparation in administration through practice under faculty guidance. Students may enroll in either the M.S. or M.P.H. program.

Among the courses of special interest and value are the following:

#### RECOMMENDED COURSES

(Credits shown in parentheses; °° indicates required courses; °°° indicates additional course required in M.P.H. program)

5-002/5-003/5-004°° — Elements of Public Health (6)  
5-080°°° — Introduction to Public Health Education (2)  
5-152°°° — Environmental Health (2)  
5-330°°/5-335 — Epidemiology I, II (6)  
5-407°° — Vital Statistics I (3)  
5-500/5-501°° — Public Health-Mental Health Nursing (8)

5-502°° — Clinical Seminar: Public Health-Mental Health Nursing (ar)  
5-506°° — Child and Society (3)  
5-507°° — Group Dynamics (2)  
5-510°° — Research Methodology in Nursing (3)  
5-518/5-519 — Long-term Patient Care and Rehabilitation (ar)  
5-610 — Maternal and Child Health (3)

## Programs of Study

- 5-612 — Human Genetics and Public Health (3)  
5-613 — Handicapped Children (ar)  
5-650 — Dental Health (1)  
5-700\*\*\*, 5-701 — Public Health Administration (6)  
8-340 — Epidemiology of Noncommunicable Diseases (3)  
8-503\*\* — Clinical Seminar: Advanced Community Nursing (3)  
8-504 — Public Health Nursing of the Mentally Ill (ar)  
8-505\*\* — Public Health Nursing in the Group Setting (ar)  
5-506 — Health Behavior and Socio-Cultural Change (3)  
8-520 — Seminar: Long-Term Patient Care and Rehabilitation (ar)  
8-525 — Leadership for Action and Change (3)  
8-526 — Practicum in Teaching Public Health Nursing (ar)  
8-531 — Problems and Practicum in Supervision and Administration in Community Nursing (6)  
8-535 — Seminar: School Nursing with Related Field Practice (ar)  
8-610 — Health of the School-Age Child (2)  
8-611 — Maternal and Child Health Problems (3)  
CPsy 5-311 — Behavior Problems (3)  
Educ 8-250 — Higher Education in the United States (3)  
Educ 8-251 — Curriculum Trends in American Colleges (3)  
Educ 8-252 — Effective College Teaching (3)  
PsyF 5-120 — Educational Measurement in the Classroom (3)  
PsyF 5-170 — Group Dynamics (3)  
SpEd 5-101 — Education of Exceptional Children (3)  
Hlth 5-300 — Advanced Instruction in School Health for Secondary Schools (3)  
Soc 5-201 — Social Psychology (3)  
Soc 5-401 — Social Organization (3)  
Soc 5-501 — The Family (3)  
Soc 5-505 — Family Development (4)  
Soc 5-855 — Sociology of Medicine and Medical Institutions (3)  
Spch 5-404\*\* — Speech, Language in Human Behavior (3)  
SW 8-301 — Administration in Social Work (2)

## Program in Public Health Nutrition

Major Advisers — Ruth Stief, Joseph Anderson

### Requirements for Admission

1. Bachelor's degree from an approved institution.
2. Appropriate courses in biochemistry, microbiology, nutrition, dietetics, education, psychology, behavioral sciences, foods, and food service management. Candidates who have not had undergraduate course work considered to be essential will be required to make up the deficiencies.

### Plan of Instruction

The course of study leading to the degree of master of public health or master of science covers a minimum of 1 calendar year beginning mid-July with the second term of the Summer Session. Students remain in residence during the interim between the end of Summer Session and the beginning of fall quarter to start the field course. This is completed in the first term of the Summer Session of the following year.

The program of study includes certain required courses supplemented by electives chosen in accordance with the student's special interests and needs. The course credits are distributed approximately one-third in public health areas other than nutrition, one-third in nutrition, and one-third in related courses covering the areas of social welfare, community organization, the behavioral sciences, and education.

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Students desiring the master of science degree should consult the public health listing in the *Graduate School Bulletin*. Students interested in program emphasis in specialized aspects of nutrition leading to the master of science or Ph.D. in nutrition should consult the *Graduate School Bulletin*.

Traineeships for suitably qualified students are available through grants from the Public Health Service.

Among the courses of special interest and value are the following:

### RECOMMENDED COURSES

(Credits shown in parentheses; °° indicates required courses)

5-002/5-003/5-004°° — Elements of Public Health (6)	HEc 5-361/5-362 — Human Nutrition (3 each)
5-080°° — Introduction to Public Health Education (2)	HEc 5-381 — Current Developments in Nutrition (3)
5-152°° — Environmental Health (2)	HEc 5-391 — Nutrition Topics (1)
5-330°° — Epidemiology I (3)	Anth 5-161 — Culture and Personality (3)
5-380 — Applied Human Nutrition (3)	Anth 5-381 — Cultural Change and Development (3)
5-407°° — Vital Statistics I (3)	Soc 5-501 — The Family (3)
5-540°° — Organization of Public Health Nursing Services (2)	Soc 5-601 — Urban Sociology (3)
5-600 — Field Course in Public Health Nutrition (ar)	SW 5-011 — Special Topic: The Deprived Child (3)
5-601 — Seminar: Public Health Nutrition (ar)	SW 8-305 — Community Organization (2)
5-700°° — Public Health Administration (3)	Educ 5-104 — Adult Education (3)
5-701 — Public Health Administration Problems (3)	PsyF 5-160 — Personality Development and Mental Hygiene (3)
5-609 — Topics in Public Health Nutrition (ar)	Pol 5-308 — Legislative Organization and Procedure (3)
	PA 8-210 — Administrative Agencies, Political Process (3)

## Programs for Public Health Officers

Major Advisers — Leonard M. Schuman, Allyn G. Bridge

### Requirements for Admission

1. Degree of doctor of medicine from an acceptable institution.
2. One year's experience as an intern in an approved hospital or an acceptable substitute.

### Plan of Instruction

These programs are designed to train physicians who seek to become health officers or to occupy administrative posts in public health or health care programs.

The programs of study include a core of required public health courses supplemented by electives in public health or related fields, chosen in accordance with the student's special interest and needs. Programs leading to the degree of master of public health cover a minimum of 11 months. Students must begin their work with the second term of the Summer Session preceding the regular academic year and remain in residence during the interim period

between the end of the second term of Summer Session and the beginning of fall quarter.

Among the courses of special interest and value are the following:

**RECOMMENDED COURSES**

(Credits shown in parentheses; \*\* indicates required courses)

- |   |  |
|---|--|
| 5-002/5-003/5-004** — Elements of Public Health (6)                                   | 5-613 — Handicapped Children (ar)                                    |
| 5-031 — Mental Health (3)   | 5-650 — Dental Health (1)  |
| 5-080** — Introduction to Public Health Education (2)                                 | 5-700**, 5-701 — Public Health Administration (6)                    |
| 5-154** — Environmental Health Programs (3)   | 5-790 — Social and Economic Aspects of Medical Care (3)              |
| 5-181 — Introduction to Air Pollution Problems (3)                                    | 8-340 — Epidemiology of Noncommunicable Diseases (3)                 |
| 5-201 — Measurement and Application of Ionizing Radiation (3 with lab, 2 without lab) | 8-610 — Health of School Age Child (2)                               |
| 5-300 — Comparative Medicine and Public Health (2)                                    | 8-611 — Maternal and Child Health Problems (3)                       |
| 5-330*/5-335 — Epidemiology I, II (6)   | 8-750/8-751 — Alternative Patterns for Meeting Health Care Needs (3) |
| 5-340 — Epidemiologic Survey Methods (3)  | 8-790 — Political Aspects of Health Services (3)                     |
| 5-380 — Applied Human Nutrition (3)   | Anth 5-161 — Culture and Personality (3)                             |
| 5-386 — Public Health Aspects of Cardiovascular Disease (3)                           | PA 8-210 — Foundations of Public Administration (3)                  |
| 5-407** — Vital Statistics I (3)  | PA 8-261 — Social Welfare Administration (3)                         |
| 5-408 — Vital Statistics II (3)   | PA 8-321 — Intergovernmental Administration Relations (3)            |
| 5-430 — Biomedical Computing (3)  | PA 8-501 — Local Administration (3)                                  |
| 5-540** — Organization of Public Health Nursing Services (2)                          | PA 8-521 — Urban Development (3)                                     |
| 5-610 — Maternal and Child Health (3)   | Soc 5-611 — Planning (3)   |
| 5-612 — Human Genetics and Public Health (3)  | Soc 5-855 — Sociology of Medicine and Medical Institutions (3)       |

**Concentration in Epidemiology** — For students interested in epidemiology there is a suitable group of public health electives (PubH 5-335, 5-340, 5-300, 5-386, 5-612, 8-340, 8-379). Through use of directed reading or research courses added emphasis can be given to areas of special student interest. Students wishing to gain advanced epidemiologic skills or desiring a Ph.D. program should read the description of the doctoral program on page 19.

**Concentration in Maternal and Child Health** — Physicians with a special interest in maternal and child health will find several directly related public health electives (PubH 5-610, 5-612, 5-613, 5-650, 8-610, 8-611). Individualized programs of study can be developed for suitably qualified advanced students through use of special reading courses and electives in related fields. Correlated clinical experience can be arranged in the University Health Sciences Center and community agencies. Traineeships from the Public Health Service are available.

For those interested in combining work in pediatrics and public health, there is a residency in community pediatrics. This special program allows pursuit of a master of public health degree while completing specialty requirements in pediatrics. It is supported by a grant from the Public Health Service and is administered jointly by the Department of Pediatrics of the Medical School and by the School of Public Health.

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### Program for Public Health Veterinarians

Major Advisers — Robert K. Anderson, Stanley L. Diesch

This program is offered in cooperation with the College of Veterinary Medicine located on the University's St. Paul Campus.

#### Requirements for Admission

1. Degree of doctor of veterinary medicine from an acceptable institution.
2. One year of experience in veterinary medicine is desirable.

#### Plan of Instruction

This course of instruction, leading to a master of public health degree, ordinarily requires 11 months of study. Students should plan to be in attendance for the second term of Summer Session preceding the regular academic year, and remain in attendance during the interim between the end of second term Summer Session and the beginning of fall quarter.

The program of study is designed in accordance with the individual veterinarian's special needs and interests. The program includes a core curriculum of required public health courses. Electives may be selected in areas of special interest, including epidemiology, environmental health, microbiology, food hygiene, and administration. Additional electives in other areas are available. These electives provide specialized training to prepare veterinarians for positions in local, state, Federal, and international programs.

Among the courses of special interest and value are the following:

#### RECOMMENDED COURSES

(Credits shown in parentheses; \*\*indicates required courses)

- |   |  |
|---|--|
| 5-002/5-003/5-004** — Elements of Public Health (6)   | 8-002 — Field Observation of Selected Public Health Practices (ar) |
| 5-080** — Introduction to Public Health Education (2)   | 8-340 — Epidemiology of Noncommunicable Diseases (3)               |
| 5-151** — Environmental Health (3) (5-154 may be substituted)   | 8-379 — Seminar: Epidemiology (ar)                                 |
| 5-181 — Introduction to Air Pollution Problems (3)  | AnSc 5-512 — Meat Chemistry, Processing (4)                        |
| 5-201 — Measurement and Application of Ionizing Radiation (2 without lab, 3 with lab)                           | Ent 5-400 — Experimental Ecology (3)                               |
| 5-222 — Food Sanitation (3)   | FScI 5-120 — Food Microbiology (3 or 5)                            |
| 5-330**/5-335 — Epidemiology I, II (6)  | FScI 5-122 — Sanitation, Process Microbiology (3)                  |
| 5-340 — Epidemiologic Survey Methods (3)  | FScI 5-321 — Special Problems: Dairy, Food Microbiology (1-3)      |
| 5-342 — Public Health Bacteriology (3)  | FScI 5-571 — Special Problems: Food Manufacturing (1-3)            |
| 5-405/5-406** — Biometric Methods in Environmental Health I and II (6) (5-450, 5-451, 5-407 may be substituted) | FScI 5-581 — International Food Technology (3)                     |
| 5-541** — Organization of Public Health Nursing Services (1)  | MicB 5-216 — Immunology (3)  |
| 5-700** — Public Health Administration (3)  | MicB 5-424 — Biology of Viruses (3)                                |
| 5-701 — Public Health Administration Problems (3)   | PA 8-210 — Administrative Agencies in the Political Process (3)    |
|   | PA 8-211 — Administrative Theory and Behavior (3)                  |

## *Programs of Study*

PA 8-311 — Legal Environment of Public Administration (3)

Pol 5-305 — Administrative Process (3)

VMic 5-410 — Problems in Veterinary Bacteriology and Public Health (ar)

VMic 8-205 — Advanced Veterinary Bacteriology (3)

VMic 8-211 — Advanced Veterinary Bacteriology (3)

VMic 8-221\*\* — Zoonoses and Comparative Medicine (ar)

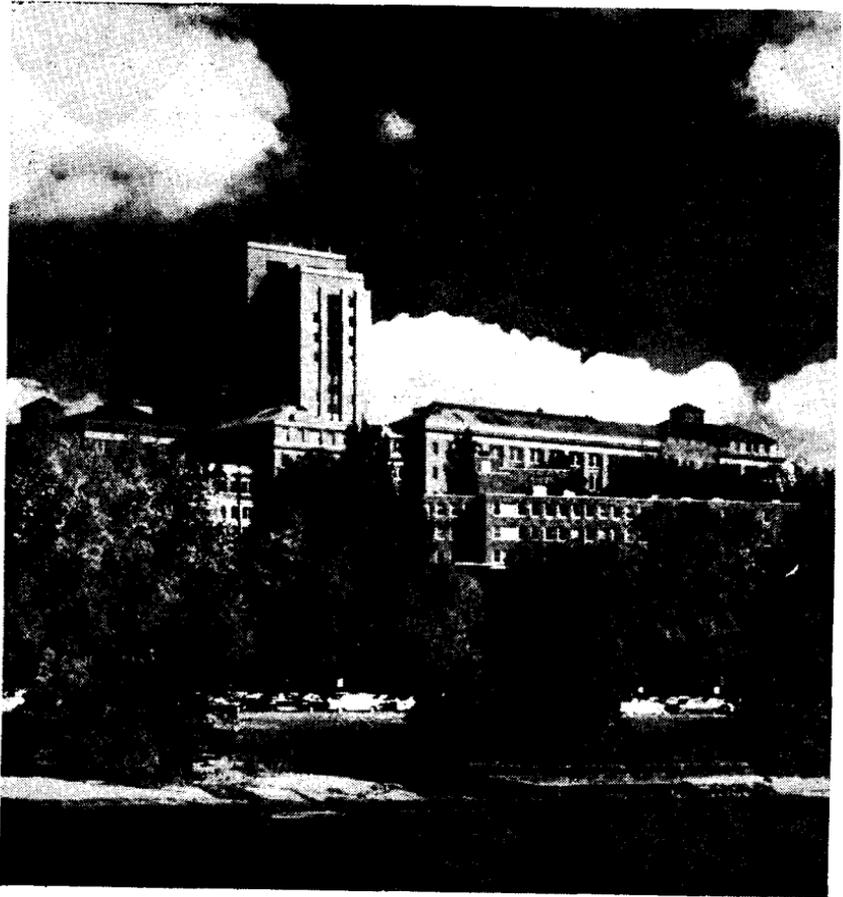
VPaP 8-801 — Seminar: Pathology (1)

VPaP 8-802 — Advanced Veterinary Parasitology (3)

VSR 8-421 — Fundamentals of Nuclear Medicine (3)

VSR 8-441 — Radiation Biology (3)

VM 5-790 — Seminar: World Food Supply Problems (3)



## DESCRIPTION OF COURSES

**Course Numbering** — A course is designated by a prefix (departmental abbreviation) and number, and sometimes a letter. It will have the same number regardless of the quarter in which it is offered.

A new system of numbering University courses is effective Fall Quarter 1970. In this section on course descriptions, the *new* number is given first, followed by the *old* number in parentheses. If there is no number in parentheses, the course is a newly established one.

The new numbering system, unless otherwise noted, indicates the general level of the course:

0-000 to 0-998	Courses generally not applicable for degree credit
1-000 to 1-998	Courses primarily for freshmen and sophomores (Lower Division)
3-000 to 3-998	Courses primarily for juniors and seniors (Upper Division)
5-000 to 5-998	Courses primarily for juniors, seniors, or graduate students; also for courses which apply to professional degrees
8-000 to 8-998	Courses for graduate students

A course sequence separated by a slant mark (5-123/5-124/5-125) must be taken *in the order listed* unless there is a † mark indicating that a student may enter the sequence in any quarter. Courses separated by commas are non-sequence courses.

**Room Schedules** — These will be posted at the School of Public Health office.

**Symbols** — The following symbols are used throughout the course descriptions and will carry no page footnotes:

† To receive credit, all courses listed after dagger must be completed.

§ No credit is given if credit has been received for equivalent course listed after section mark.

¶ Means "concurrent registration in" (i.e., must be taken simultaneously).

‡ Means "consent of instructor."

**Abbreviations** — The following abbreviations are used throughout the course descriptions:

Ar	To be arranged or assigned	Lect	Lecture
Avg	Average	Prereq	Prerequisite
Cr	Credit(s)	Qtr	Quarter
Equiv	Equivalent	Rec	Recitation
Lab	Laboratory		

A parenthetical statement after the course title gives the following information: the number of credits the course carries, and the courses or special class standing prerequisite to it. **Abbreviated statement:** (5 cr; prereq sr, 1-006). **Expanded statement:** This course carries 5 credits, is open to seniors or above only, and has as a prerequisite course 1-006 in the same department as the course being described.

## **PUBLIC HEALTH (PubH)**

### **General**

(Courses 001-029)

- 1-001 (3). PERSONAL HEALTH.** (2 cr, §old 2, §3-001) Thomson  
Normal body function; causes and prevention of disease.
- 1-002 (4). HEALTH PROBLEMS OF THE COMMUNITY.** (2 cr; not open to students exempted from old 2, or 1-001 on basis of military service; prereq 1-001)  
Prevention of disease in family and community.
- 1-003 (5). INDIVIDUAL AND PUBLIC HEALTH.** (3 cr, §old 2, §1-001, §1-002, §3-001, §3-002) Thomson  
Basic concepts of cause and prevention of disease in family and community.
- 3-001 (50). PERSONAL AND COMMUNITY HEALTH.** (3 cr, §old 2, §1-001, §1-002, §1-003, §3-002, §old 52) Thomson  
Fundamental principles of health conservation and disease prevention.
- 3-002 (51). COMMUNITY HYGIENE.** (3 cr, §1-002, §1-003, §3-001, §5-002; not open to students exempted from 1-001 on basis of military service; prereq 1-001)  
Community programs for disease control.
- 3-003 (53). INTRODUCTION TO PUBLIC HEALTH.** (5 cr; open to nurses or nursing students only; prereq 1-001 or 3-001 or equiv and a course in microbiology)  
Basic concepts of disease prevention and control through community programs.
- 5-001 (100). ELEMENTS OF PREVENTIVE MEDICINE AND PUBLIC HEALTH.** (6 cr; open to medical students only)  
Occurrence and prevention of communicable, degenerative, and industrial diseases; health regulation of the environment; maternal and child health.
- 5-002 (100A). ELEMENTS OF PUBLIC HEALTH I.** (3 cr; prereq 1-001, or 3-001, and a course in microbiology and §)  
Occurrence and prevention of communicable, degenerative, and industrial diseases; protection of food, water, and milk; maternal and child health.
- 5-003 (100B). ELEMENTS OF PUBLIC HEALTH II.** (2 cr; prereq 5-002)  
Group work in evaluation and solution of representative community health problems.
- 5-004 (100C). ELEMENTS OF PUBLIC HEALTH III.** (1 cr; prereq 5-003)  
Continuation of group work in evaluation and solution of representative community health problems.
- 5-005 (123). TOPICS IN PUBLIC HEALTH.** (Cr ar; prereq §) Staff  
Selected readings in public health with discussion based on these readings.
- 8-001 (210). SEMINAR: PUBLIC HEALTH.** Staff
- 8-002 (230). FIELD OBSERVATION OF SELECTED PUBLIC HEALTH PRACTICES.**  
(Cr ar; prereq §) Staff
- 8-003 (200). RESEARCH.** (Cr ar) Staff  
Opportunities will be offered by the School of Public Health and by various co-operating organizations for qualified students to pursue research work.

### **Mental Health**

(Courses 030-049)

- 5-030 (132). MENTAL HEALTH PROGRAM.** (1 cr; prereq 5-700 or §) Williams  
Community program for promotion of mental health and care of mentally ill persons.
- 5-031 (133). MENTAL HEALTH.** (1 cr; prereq 5-700 or §) Williams  
Emotional factors underlying wholesome family relations or interfering with successful adjustment in family and community.

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- 5-032 (131). EDUCATIONAL ASPECTS OF DRUG USE AND ABUSE.** (5 cr; prereq education srs, tchrs, counselors, school nurses or § and advance regis) Heilman and staff  
Basic background information on alcohol and other drugs and chemicals with emphasis on curriculum concepts, teaching methodology, materials, counseling and referral procedures appropriate for elementary, junior and senior high school.

### **Health Education**

(Courses 050-098)

- 5-050 (181A). FOUNDATIONS IN PUBLIC HEALTH EDUCATION PRACTICE.** (3 cr; prereq §) Craig  
Role and function of health education specialist; relationship to other public health disciplines; overview of public health and related fields; introduction to health education principles and methods.
- 5-051 (181C). COMMUNICATION PROCESS IN HEALTH EDUCATION.** (3 cr; prereq 5-050) Craig  
Communication theory and process; application of communication models in planned community health education efforts; case studies in communication.
- 5-052 (181B). PRINCIPLES AND METHODS OF HEALTH EDUCATION PLANNING.** (3 cr; prereq 5-051) Craig, Veninga  
Nature and role of planning process in health education; elements of comprehensive educational planning.
- 5-053 (181D). PRINCIPLES AND METHODS IN PUBLIC HEALTH EDUCATION.** (3 cr; prereq 5-052) Craig, Veninga  
Organization, administration, evaluation of public health education.
- 5-060/5-061/5-062/5-063 (187A, B,C, D). COMMUNITY HEALTH EDUCATION LABORATORY.** (Cr ar; prereq 5-053) Craig, Schwanke, Veninga  
Practical experience in community agencies and organizations; background studies in specific neighborhood areas; supervised health education practice; action planning for health education.
- 5-064 (193). GROUP PROCESS IN COMMUNITY HEALTH EDUCATION.** (2 cr; prereq 5-050, or 5-080 and §)  
Group methodology in problem solving; principles, concepts, and process of group dynamics as a method to community health education.
- 5-065 (194). HEALTH EDUCATION PREPARATION OF HEALTH AND ALLIED PERSONNEL.** (2 cr; prereq ¶5-053 and §) Craig, Veninga  
Methods, procedures, and techniques for planning, implementing, and evaluating programs for in-service and short-course preparation in health education for health and allied personnel.
- 5-066 (198). HEALTH EDUCATION AND CONTEMPORARY HEALTH CARE SYSTEMS.** (2 cr; prereq ¶5-053 and §) Craig  
Role of health education specialist in traditional and developing health services; factors affecting health education practice in special settings such as hospitals, schools, and industry and in subject matter areas such as mental health, dental health, injury control.
- 5-067 (128). COMPARATIVE COMMUNITY HEALTH EDUCATION, URBAN AND RURAL.** (3 cr; prereq §) Craig  
Factors affecting community organization in urban and rural settings; population characteristics, agencies, institutional patterns as determinants of health behavior; process of community organization for health.
- 5-068 (190). COMMUNITY HEALTH EDUCATION PRACTICE.** (10 cr; prereq 5-063 and §) Craig, Schwanke, Veninga  
Approximately 10 weeks of supervised community health education experience.
- 5-080 (125). INTRODUCTION TO PUBLIC HEALTH EDUCATION.** (2 cr; prereq §) Craig  
Planning educational components of community health programs; group procedures; community organization; methods and materials.

## Description of Courses

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- 5-081 (125A). HEALTH EDUCATION IN HOSPITALS.** (1 cr; prereq hospital administration students) Craig  
Guiding principles; purposes and scope; methods and materials; health education planning, with special emphasis on hospitals.
- 5-082 (127). ADVANCED STUDIES IN HEALTH EDUCATION.** (3 cr; prereq 5-080, 5-081, or #) Craig  
Case studies; planning and educational processes as applied within specific public health disciplines.
- 5-098 (123). TOPICS IN PUBLIC HEALTH EDUCATION.** (Cr ar; prereq #) Craig  
Selected readings in public health education with discussion based on these readings.

### Environmental Health

(Courses 150-298)

- 3-151 (75). INTRODUCTION TO ENVIRONMENTAL HEALTH.** (3 cr; prereq 3 cr in public health) Vesley  
Principles of environmental health relating to water, food, wastes, housing, accidents, radiation, air, industrial hygiene.
- 3-152 (75A). INTRODUCTION TO ENVIRONMENTAL HEALTH.** (3 cr; open to pharmacy students; prereq 3 cr in public health) Bond and staff  
Principles of environmental health relating to water, food, wastes, housing, accidents, radiation, air, industrial hygiene.
- 5-150 (123). TOPICS IN ENVIRONMENTAL HEALTH.** (Cr ar; prereq #) Staff  
Selected readings and discussions of problems in environmental health.
- 5-151 (102). ENVIRONMENTAL HEALTH.** (3 cr; prereq #) Bond and staff  
Methods for promoting man's health and comfort by controlling the environment.
- 5-152 (102A). ENVIRONMENTAL HEALTH.** (2 cr; prereq 5-002 or #) Bond, Stauffer  
General principles of urban and rural sanitation; problems encountered by official health agencies.
- 5-153 (109). INSTITUTIONAL ENVIRONMENTAL HEALTH.** (3 cr; prereq hospital administration students or #, 5-002) Michaelsen and staff  
Sanitation and safety practices in hospitals and other institutions.
- 5-154 (114). ENVIRONMENTAL HEALTH PROGRAMS.** (3 cr; prereq 5-002, #) Bond and staff  
Public health supervision of activities in urban and rural sanitation.
- 5-159 (212). SEMINAR: ENVIRONMENTAL HEALTH.** (Cr ar; prereq #) Olson
- 5-161 (116). ADMINISTRATION OF ENVIRONMENTAL HEALTH PROGRAMS.** (3 cr, §5-154; prereq #) Bond  
Administrative organization of environmental health activities.
- 5-170 (123). TOPICS IN ENVIRONMENTAL BIOLOGY.** (Cr ar; prereq #) Staff  
Selected readings in environmental biology with discussion of control techniques.
- 5-171 (118). ENVIRONMENTAL MICROBIOLOGY.** (3 cr; prereq 5-002, 5-151, MicB 3-103 or #) Greene  
Survival, dissemination, transportation, and significance of microorganisms in the environment; application of principles to environmental health problems.
- 5-177 (117A). ENVIRONMENTAL BIOLOGY.** (3 cr; prereq #) Olson, Ruschmeyer  
Introduction to plant and animal forms important in environmental health and biological aspects of water supply, waste treatment, stream pollution, and special phenomena related to human disease transmission.
- 5-178 (117B). VECTORS AND PARASITES IN HUMAN DISEASES.** (3 cr; prereq #) Olson, Ruschmeyer  
Basic biological concepts of parasitic diseases, vectors and application of vector control methods in environmental health programs.

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- 5-179 (117C). PUBLIC HEALTH BIOLOGY, FIELD INVESTIGATIONS. (3 cr; prereq #) Olson, Ruschmeyer  
Field studies and laboratory analyses related to special problems in assessment of water supplies, waste treatment facilities, and stream pollution surveys.
- 5-180 (123). TOPICS IN AIR POLLUTION. (Cr ar; prereq #) Staff  
Selected readings in air pollution with discussion based on these readings.
- 5-181 (155). INTRODUCTION TO THE AIR POLLUTION PROBLEM. (3 cr; prereq #) Paulus  
History, sources, controls, effects, surveys, legal aspects; administration of programs.
- 5-182 (156). AIR POLLUTION CONTROLS AND SURVEYS. (3 cr; prereq 5-181, #) Paulus  
Public health engineering approach to air pollution controls and surveys.
- 5-183 (186). PROBLEMS OF AIR POLLUTION CONTROL. (Cr ar; prereq 5-181, #) Paulus  
Special supervised studies involving laboratory and field investigation procedures; pertinent literature review.
- 5-184 (185). AIR ANALYSIS. (3 cr; prereq 5-181, 5-183 or 5-211, #) Paulus  
Laboratory and field exercises including air flow measurement, calibration of instruments, analysis of gases, stack sampling, dust counting and sizing, and industrial plant visits.
- 5-190 (154). TOPICS IN INJURY CONTROL. (Cr ar; prereq #) Michaelsen, Scheffler  
Directed readings and reports on selected problem areas in injury control.
- 5-191 (153). PRINCIPLES AND METHODS OF INJURY CONTROL. (Cr ar; prereq #) Michaelsen, Scheffler  
Accidents as a community public health problem; current concepts of etiology and methodology of control.
- 5-192 (158). HOSPITAL SAFETY. (3 cr; prereq #) Michaelsen, Scheffler  
Theories and practices in accident and fire prevention and control for hospitals and other medical care facilities.
- 5-193 (159). CHEMICAL LABORATORY SAFETY. (1 cr; prereq #) Scheffler  
Principles of accident and fire prevention in chemical laboratories.
- 5-200 (123). TOPICS IN RADIOLOGICAL HEALTH. (Cr ar; prereq #) Staff  
Selected readings in radiological health with discussion based on these readings.
- 5-201 (143). MEASUREMENT AND APPLICATION OF IONIZING RADIATION. (3 cr lect and lab, 2 cr lect only; prereq #) Barber, Jonas  
Introduction to principles of measurement and use of radiative sources; emphasis on health hazards.
- 5-202 (147). ENVIRONMENTAL RADIOACTIVITY. (3 cr; prereq #) Barber, Straub  
Sources, measurement, evaluation, and control of environmental radioactivity; hazards to general population.
- 5-203 (145). LOW-LEVEL RADIOACTIVITY MEASUREMENTS. (3 cr; prereq #) Barber  
Lecture and laboratory on the assay of low levels of radioactivity in environmental samples.
- 5-207 (157). RADIATION PROTECTION CRITERIA FOR HOSPITALS. (2 cr; prereq #) Barber, Wollan  
Methods of design, shielding, equipping, and operation of isotope laboratories, X-ray, and other ionizing radiation facilities.
- 5-209 (148). SEMINAR: HEALTH PHYSICS. (1 cr; prereq #) Barber  
Review and discussion of current health physics problems.
- 5-210 (123). TOPICS IN OCCUPATIONAL HEALTH. (Cr ar; prereq #) Staff  
Selected readings in occupational health with discussions based on these readings.
- 5-211 (152). INDUSTRIAL HYGIENE ENGINEERING. (3 cr; prereq #) Michaelsen, Caplan  
Field and laboratory methods used by industrial hygiene engineers in study and control of occupational health hazards.

## *Description of Courses*

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- 5-212. VENTILATION CONTROL OF ENVIRONMENTAL HAZARDS.** (3 cr; prereq 5-211, #) Caplan  
Theory and application of exhaust ventilation in control of airborne environmental hazards; principles of exhaust hoods, air moving devices, gas cleaning devices; demonstration of measurement techniques; relationship of hazard and process to ventilation design criteria.
- 5-213. PUBLIC HEALTH ASPECTS OF TOXIC PRODUCTS.** (2 cr; prereq #) Caplan  
Problems of protecting industrial workers and private consumers from useful but potentially harmful products; product testing programs and administration; labeling problems.
- 5-214. AGRICULTURAL OCCUPATIONAL HEALTH.** (3 cr; prereq 5-211 or #) Caplan  
Occupational health problems of agricultural workers, practical and available preventive measures, educational and administrative needs.
- 5-216 (151). HEALTH ASPECTS OF AIR CONTROL IN HOSPITALS.** (2 cr; prereq #) Michaelsen  
Basic considerations in control of natural and mechanical air flow in hospitals to avoid spread of infection, to control odors, and to promote patient care.
- 5-220 (123). TOPICS IN FOOD SANITATION.** (Cr ar; prereq #) Staff  
Review of literature and practice to identify association of food sanitation problems to public health.
- 5-221 (115A). INSTITUTIONAL FOOD PROTECTION PROGRAMS.** (2 cr; prereq #) Bond, Jopke  
Public health implications in food preparation and service; regulatory controls by official public health agencies.
- 5-222 (115). FOOD SANITATION.** (3 cr; prereq 5-002, #) Olson  
Review of current literature on sanitary problems in production, processing, and distribution of milk, meat, shellfish, and other foods; methods of supervision.
- 5-230 (123). TOPICS IN INSTITUTIONAL ENVIRONMENTAL HEALTH.** (Cr ar; prereq #) Staff  
Review of literature and practice to identify institutional environmental health problems.
- 5-239 (138). HOSPITAL ENGINEERING PROBLEMS.** (Cr ar; prereq #) Michaelsen, Teske, and visiting lecturers  
Application of environmental engineering, sanitation and maintenance principles to planning, administration, and operation of hospitals.
- 8-150 (200). RESEARCH: ENVIRONMENTAL HEALTH.** (Cr ar) Staff  
Opportunities will be offered for qualified students to pursue research in the public health importance of environmental stresses on the health of man.
- 8-170 (200). RESEARCH: ENVIRONMENTAL BIOLOGY.** (Cr ar; prereq #) Olson, Greene
- 8-180 (200). RESEARCH: AIR POLLUTION.** (Cr ar; prereq #) Paulus
- 8-190 (200). RESEARCH: INJURY CONTROL.** (Cr ar; prereq #) Michaelsen
- 8-200 (200). RESEARCH: RADIOLOGICAL HEALTH.** (Cr ar; prereq #) Barber
- 8-201 (238). RADIATION DOSIMETRY.** (3 cr; prereq #) Barber  
Radiant energy absorption in liquids, gases, and solids; absorption in biological systems.
- 8-202 (238A). RADIATION DOSIMETRY LABORATORY.** (1 cr; prereq ¶8-201) Barber  
Laboratory exercises involving principles discussed in 8-201.
- 8-208. FIELD PRACTICE IN RADIOLOGICAL HEALTH.** (Cr ar; prereq #) Barber
- 8-210 (200). RESEARCH: OCCUPATIONAL HEALTH.** (Cr ar; prereq #) Michaelsen
- 8-211. HEALTH SURVEY OF MANUFACTURING PROCESSES.** (2 cr; prereq 5-211) Caplan  
Survey of occupational disease problems and preventive measures in major industries and in operations common to many industries; field trips.
- 8-218. FIELD PROBLEMS IN OCCUPATIONAL HEALTH.** (3 cr; prereq 5-211, 5-212 or ¶5-213, #) Caplan

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Guided evaluation of actual potential occupational health problems, recommendations, and design criteria for correction if indicated.

- 8-220 (200). RESEARCH: FOOD SANITATION. (Cr ar; prereq #) Pflug
- 8-230 (200). RESEARCH: INSTITUTIONAL ENVIRONMENTAL HEALTH. (Cr ar; prereq #) Michaelson, Greene
- 8-246 (231). GROUND WATER DEVELOPMENT. (Cr ar; prereq grad engr, #) Bond, Singer, staff, visiting lecturers  
Ground water exploration; well hydraulics, design, and construction; special references to public health problems.
- 8-247 (232). FIELD WORK IN GROUND WATER DEVELOPMENT. (Cr ar; prereq grad engr, 8-246) Bond, Singer, staff, visiting lecturers  
Construction of wells, field tests, and public health problems.
- 8-248 (233). WATER QUALITY INVESTIGATION AND RESEARCH TECHNIQUES. (6 cr; prereq #) Olson, Odlaug, Ruschmeyer  
Field techniques and special research methods for establishing pollution base-lines; recognition and appraisal of advancing eutrophication.
- 8-249 (234). WATER QUALITY RESEARCH. (6 cr; prereq #) Olson, Odlaug, Ruschmeyer

## Veterinary Public Health

(Courses 300-329)

- 5-300 (188). COMPARATIVE MEDICINE AND PUBLIC HEALTH. (2 cr; prereq 5-002 and #) Diesch  
Survey of comparative medicine in man's relationship to biologic environment, interrelationship between animal and human health, source of animal diseases, ecology of zoonoses; food production and hygiene, laboratory animal medicine.

## Epidemiology

(Courses 330-379)

- 5-330 (104). EPIDEMIOLOGY I. (3 cr; prereq 5-002, and 5-405, 5-407, or 5-450, 5-451) Schuman  
Basic epidemiologic principles applicable to infectious and noninfectious disease; host-agent-environment complex; factors underlying spread of infectious disease; laboratory applications of statistical and epidemiologic methods.
- 5-335 (105). EPIDEMIOLOGY II. (3 cr; prereq 5-330) Schuman  
Extension of epidemiologic principles to detailed study of selected infectious diseases.
- 5-340 (129). EPIDEMIOLOGIC SURVEY METHODS. (3 cr; prereq 5-330, and 5-407 or equiv and #) Schuman  
Practical aspects of survey design, execution, analysis, and interpretation.
- 5-342 (103). PUBLIC HEALTH BACTERIOLOGY. (Cr ar; prereq MicB 5-232, 5-161, #) Bauer  
Bacteriologic and serologic diagnosis, public health laboratory administration and methods.
- 5-379 (123). TOPICS IN EPIDEMIOLOGY. (Cr ar; prereq #) Staff  
Selected readings with discussion based on these readings.
- 8-330 (200). RESEARCH: EPIDEMIOLOGY. (Cr ar) Staff  
Opportunities will be offered by the School of Public Health and by various cooperating organizations for qualified students to pursue research work.
- 8-340 (241). EPIDEMIOLOGY OF NONCOMMUNICABLE DISEASES. (3 cr; prereq 5-330) Schuman  
Application of basic epidemiologic principles to noncommunicable diseases and to trauma; selected disease examples.

## Description of Courses

- 8-379 (213). SEMINAR: EPIDEMIOLOGY. (Cr ar; prereq #) Schuman  
Discussion of selected current epidemiologic problems.

### Physiological Hygiene

(Courses 380-398)

- 3-385 (91). PHYSIOLOGICAL HYGIENE. (4 cr; prereq 5-386 or #, 8 cr in chemistry and 4 cr in human anatomy or equiv) Alexander, Taylor  
Basic physiological principles and facts.
- 3-386 (92). PHYSIOLOGICAL HYGIENE. (4 cr; prereq 3-385 or equiv) Alexander, Taylor  
Effects of exercise, nutrition, environment, and age on performance and health.
- 5-380 (191). APPLIED HUMAN NUTRITION. (3 cr; prereq #) J Anderson, Stief, Grande  
Food composition, nutrient requirements, nutrition surveys, public health programs in nutrition.
- 5-385 (192). PHYSIOLOGY OF EXERCISE. (Cr ar; prereq Phsl 5-100 or equiv and #)  
Taylor  
Muscular efficiency, training, deconditioning, effects of exercise on metabolism and physiological systems.
- 5-386 (195). PUBLIC HEALTH ASPECTS OF CARDIOVASCULAR DISEASE. (3 cr; prereq #) Blackburn, Grande  
Etiology, incidence; problems of control and relationship to mode of life.
- 8-385 (202). SEMINAR: PHYSIOLOGICAL HYGIENE. (1 cr) Staff  
Nutrition, tests and measurements of human physical fitness; gerontology; adaptation in health and disease; body composition; circulatory dynamics and related topics.
- 8-386 (220). READINGS IN PROBLEMS OF PHYSIOLOGICAL HYGIENE. (Cr ar; prereq #) Keys and staff
- 8-387 (290). RESEARCH: PHYSIOLOGICAL HYGIENE AND RELATED AREAS. (Cr ar)  
Staff

### Biometry

(Courses 400-498)

- 3-400 (70). DIRECTED STUDIES IN BIOMETRY. (Cr ar [may be repeated for cr]; prereq #) Staff  
Individual study or research under the guidance of a staff member.
- 5-400. INTRODUCTION TO QUANTITATIVE METHODS IN THE LIFE SCIENCES. (3 cr; open to premedical and biological science majors; prereq Biol 1-002, Chem 1-005, #)  
Basic quantitative methods for the design and analysis of clinical and laboratory studies in biology and medicine.
- 5-401. QUANTITATIVE METHODS IN THE HEALTH SCIENCES. (3 cr; open to medical and health science students; prereq 5-400 or #)  
Reliability in diagnosis and clinical laboratory measurement; logic of design in prevalence surveys, retrospective and prospective studies, and clinical trials; measures of morbidity and mortality; life tables and survival after treatment; assays.
- 5-403 (120H). COMPUTER APPLICATIONS IN HOSPITAL AND HEALTH CARE ADMINISTRATION. (3 cr; open to hospital and health care administration students, others #) Johnson  
Introduction to digital computer and FORTRAN programming with applications in hospital and health care administration.
- 5-404 (108). INTRODUCTION TO BIostatISTICS AND STATISTICAL DECISION. (3 cr; prereq #) Weckwerth  
Variation, frequency distribution; probability; significance tests; estimation; trends; data handling; simple operations research applications; statistical approach to rational administrative decision making; lectures and laboratory exercises.

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- 5-405 (180). BIOMETRIC METHODS IN ENVIRONMENTAL HEALTH I.** (3 cr; open to environmental health students, others §) Kjelsberg, Boen  
Variation; frequency distribution; demographic techniques; probability; introduction to data analysis.
- 5-406 (180A). BIOMETRIC METHODS IN ENVIRONMENTAL HEALTH II.** (3 cr; prereq 5-405)  
Estimation; tests of significance; Poisson distribution; serial dilutions and most probable number; elements of bioassay; radiologic statistics.
- 5-407 (140). VITAL STATISTICS I.** (3 cr) Bearman  
Official sources; population changes; rates; trends; significant differences.
- 5-408 (140A). VITAL STATISTICS II.** (3 cr; prereq 5-407 with grade of B)  
Demographic techniques and statistical inference for public health majors.
- 5-409/5-410. BIOMETRY IN CLINICAL STUDIES I AND II.** (3 cr per qtr; prereq D.D.S., M.D., or D.V.M., or §) Bearman  
Introduction to the numerical and graphical treatment of data from dental, medical, and veterinary research; examples taken from the recent literature; design, conduct, and analysis of clinical studies; prophylactic and therapeutic trials; validity and reliability of measurements and calibration studies for clinical setting; sensitivity and specificity of tests and their application in clinical research and diagnosis; special problems of cooperative studies.
- 5-429 (144). HISTORY OF BIOMETRY.** (3 cr; prereq 3 cr in statistics)  
Development of probability theory and systems for collection of vital statistics; early application to life tables, medical, and biological problems; biographies of men important in development.
- 5-430/5-431/5-432 (120A-B-C). BIOMEDICAL COMPUTING.** (3 cr per qtr; prereq Math 1-110) Johnson  
Introduction to digital computers and FORTRAN programming, with applications in biology and medicine; information capture, storage, retrieval, and display; statistical analysis packages; simulation; analog signal processing; nonlinear models; hospital information systems.
- 5-433/5-434/5-435. COMPUTER METHODOLOGY IN THE DELIVERY OF HEALTH CARE.** (3 cr per qtr; prereq 5-432 or §) Ackerman and staff  
Records and files, file maintenance, report generation, hospital administrative information and accounting systems; medical records, abstracting the medical record, medical information systems based on the medical record for hospitals, surveys, physicians, outpatient clinics and research; monitoring of clinical laboratory equipment, physiological monitoring of acutely ill patients, total hospital information systems.
- 5-436. ANALYTICAL TECHNIQUES FOR HEALTH DELIVERY SYSTEMS.** (3 cr; prereq calculus and 5-450, 5-451 or §) Johnson  
Operations research and systems analysis techniques applied to medical service systems. Special emphasis on applications of linear programming, theory of queues, and inventory models in health care systems.
- 5-440/5-441/5-442 (121A-B-C). QUANTITATIVE MAMMALIAN BIOLOGY.** (3 cr per qtr; prereq 1-yr sequences in mathematics, physics, chemistry, and biology and §) Evans  
Diffusion, surface tension, and mechanics of respiration, circulation, digestion, and locomotion.
- 5-450 (110A). BIOMETRY I.** (3 cr; prereq basic concept of calculus and ¶5-451) Bartsch, Jeffries  
Basic concepts in probability; binomial, Poisson, and normal probability models; estimation and testing statistical hypotheses of parameters of probability models.
- 5-451 (111A). BIOMETRY LABORATORY I.** (2 cr; prereq ¶5-450) Jeffries  
Application of concepts of probability to the development of probability models for random phenomena in the biological and medical sciences.
- 5-452 (110B). BIOMETRY II.** (3 cr; prereq 5-450, ¶5-453) Bartsch, Jeffries  
Further consideration of testing statistical hypotheses and interval estimation;  $\chi^2$

## Description of Courses

- applied to frequency data; regression analysis; correlation; analysis of variance; contrasts and multiple comparison techniques.
- 5-453 (111B). BIOMETRY LABORATORY II.** (2 cr; prereq ¶5-452) Jeffries  
Application of concepts of testing and estimation of the parameters of the basic probability models; application of  $\chi^2$  to goodness of fit and heterogeneity tests; application of regression to bioassay; application of analysis of variance to bioassay.
- 5-454 (110C). BIOMETRY III.** (3 cr; prereq 5-452 and ¶5-455) Bartsch, Jeffries  
Analysis of nested, randomized block, factorial, and split plot designs.
- 5-455 (111C). BIOMETRY LABORATORY III.** (2 cr; prereq ¶5-454) Jeffries  
Basic designs will be illustrated with numerous examples from the biological sciences.
- 5-456. BIOMETRY CONSULTING SEMINAR.** (3 cr; prereq biometry major) Boen  
Consultant and consultee interaction; communication and formulation of the biometric problem; role and responsibility of the biometrician; robustness and relevance of frequently used analytical techniques; biometry student internship experiences.
- 5-457. STOCHASTIC MODELS IN BIOLOGY AND MEDICINE.** (3 cr; prereq 5-451, theoretical statistics, biometry majors and §) Boen  
Applications of stochastic processes to health care systems, and to such varied biologic phenomena as epidemics, urinary tract infection, and carcinogenesis.
- 5-460. DEMOGRAPHY AND HEALTH.** (3 cr, §5-408; prereq biometry major, §) Kjelsberg  
Needs, sources, collection, and interpretation of data in the areas of population, mortality, morbidity, natality, and health services.
- 5-461. BIOMETRIC TOPICS IN EPIDEMIOLOGY.** (3 cr; prereq biometry major, §) Kjelsberg  
Relative risk; summarization of rates; misclassification; matching designs; incidence as a function of several variables; selection; clustering; familial aggregation.
- 5-462. LIFE TABLE TECHNIQUES.** (3 cr; prereq biometry major, §) Kjelsberg  
Mathematical development of life table techniques and application; follow-up studies in medicine and public health.
- 5-463. MATHEMATICAL DEMOGRAPHY.** (3 cr; prereq 5-460, 5-462, biometry major, §) McHugh  
Continuous and discrete stable population theory; measurement of fertility, mortality, nuptuality, and migration.
- 5-465/5-466/5-467. ADVANCED BIOMETRIC METHODS.** (3 cr per qtr; prereq 5-455 or §) McHugh and staff  
Propagation of random error; elements of bioassay; compartment analysis; nonlinear estimation; categorical and nonparametric data analysis; diagnostic models; classification and clustering techniques; clinical trial methodology; Bayesian inference.
- 5-470 (123). TOPICS IN BIOMETRY.** (Cr ar; prereq §) Staff  
Selected readings with discussion based on these readings.
- 8-400 (211). SEMINAR: BIOMETRY.** (Cr ar) Staff
- 8-405/8-406/8-407. ADVANCED TOPICS IN HEALTH COMPUTER SCIENCE.** (3 cr per qtr; knowledge of COBOL and BASIC) Ackerman  
Peak detection and resolution, nonlinear optimization, graphic displays; small computer operation and programming including hardware concepts, data transmission and programming; computer systems design for the health sciences, using U of M Health Sciences Center as a case history, including medical goals and proposed alternate computer systems to achieve these.
- 8-415/8-416/8-417 (197A-B-C). MATHEMATICAL BIOLOGY.** (5 cr per qtr; prereq §) Ackerman, Evans  
Physico-chemico-mathematical biology; statics and dynamics of tissues and fluids; biological reaction and compartment analysis, ion diffusions, and colloids; analog and digital computer used in biomedicine.
- 8-430/8-431/8-432. ADVANCED BIOMETRIC ANALYSIS.** (5 cr per qtr; prereq 5-467, advanced calculus, theoretical statistics) McHugh and staff  
Biomedical measurement models; quantal, quantitative; direct, indirect; tolerance

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distributions and dose-response functions; parallel line and slope ratio assays; radioactivity measurement and radiotracer experiments; multifactorial and multi-stage designs in medical surveys and clinical trials; sampling and randomization theory; validity, reliability, sensitivity, and efficiency in the design and analysis of clinical and laboratory research.

- 8-449 (201). **TOPICS IN BIOMETRY.** (Cr ar; prereq 5-450 and #) Staff  
Studies in special topics for advanced students.
- 8-450 (200). **RESEARCH IN BIOMETRY.** (Cr ar) Staff  
Opportunities will be offered for qualified students to pursue research work.

### Public Health Nursing

(Courses 500-598)

- 3-500 (65). **FOUNDATION COURSE IN COMMUNITY NURSING.** (6 cr; prereq nurses)  
Carver, Downey, Sloan  
Selected concepts underlying the practice of nursing in the community; application of nursing process to nurse-family interaction, study of community organization as related to the health system; laboratory in selected public health agencies.
- 5-500 (175A). **PUBLIC HEALTH-MENTAL HEALTH NURSING I.** (4 cr; prereq #)  
Downey, Carver, Leonard, Sloan  
Critical analysis of selected theories of physical, psychosocial development; emphasis on primary prevention in infancy and early childhood; supervised laboratories in selected nursery school and pediatric clinics.
- 5-501 (175B). **PUBLIC HEALTH-MENTAL HEALTH NURSING II.** (4 cr; prereq 5-500)  
Downey, Carver, Leonard, Sloan  
Emphasis on primary prevention in later childhood and early adulthood; supervised laboratories in neighborhood centers and selected school settings.
- 5-502 (176). **CLINICAL SEMINAR: PUBLIC HEALTH-MENTAL HEALTH NURSING.**  
(Cr ar; prereq 5-501) Downey, Carver, Leonard, Sloan  
Focus on individual in adulthood; critical analysis of nursing process; adaptation of the process to a well family, emphasis on prevention; supervised clinical experience.
- 5-506 (173). **CHILD AND SOCIETY.** (3 cr; prereq #) Kroska  
Cross-cultural study of the structure and function of socialization practices in differing societies; various research and theoretical approaches are discussed with emphasis placed upon the relationships of the process of enculturation and cultural systems.
- 5-507 (177). **GROUP DYNAMICS.** (2 cr; prereq #) Rosenberg  
Practical application of social psychological concepts to analysis of group behavior.
- 5-510 (171). **RESEARCH METHODOLOGY IN NURSING.** (3 cr; prereq 5-407) Kroska  
Examination of selective research studies in nursing and of the development of models and theory in nursing research; steps in formulating a research design.
- 5-517 (123). **SEMINAR: PATIENT REHABILITATION IN THE COMMUNITY.** (Cr ar; prereq #) E Anderson  
Exploration of multidiscipline approach in developing community programs for patient care.
- 5-518 (179A). **LONG-TERM PATIENT CARE AND REHABILITATION.** (Cr ar; prereq #) E Anderson  
Problems associated with rehabilitation; selected experience correlated with seminars.
- 5-519 (179B). **LONG-TERM PATIENT CARE AND REHABILITATION.** (Cr ar; prereq #) E Anderson  
Independent study; exploration of a comprehensive multidiscipline approach in the continuity of care for long-term patients.
- 5-520 (179C). **FIELD WORK: PHYSICAL THERAPY IN COMMUNITY AGENCIES.**  
(Cr ar; prereq #) E Anderson  
Advisory service and planning in-service programs for nursing staff; selected experiences in county and state health departments.

## *Description of Courses*

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- 5-535 (123). CONTEMPORARY SCHOOL NURSING.** (Cr ar; prereq #) Fredlund  
Exploration of changes which are occurring in school health programs with emphasis on the changing role of the public health nurse; review of related research.
- 5-540 (170). ORGANIZATION OF PUBLIC HEALTH NURSING SERVICES.** (2 cr, §5-541; prereq health officers, #) Fredlund  
Interpretation of background and trends in public health nursing; organization for delivery of services; relationship to other aspects of public health.
- 5-541 (170A). ORGANIZATION OF PUBLIC HEALTH NURSING SERVICES.** (1 cr, §5-540; prereq #) Sime  
Interpretation of background and trends in public health nursing; organization for delivery of services; relationship to other aspects of public health.
- 5-575 (123). TOPICS IN PUBLIC HEALTH NURSING.** (Cr ar; prereq #) Staff  
Selected readings in public health nursing with discussion based on these readings.
- 8-503 (226A). CLINICAL SEMINAR: ADVANCED COMMUNITY NURSING.** (3 cr; prereq 5-500, 5-501, and 5-502) E Anderson, Fredlund, Sime  
Focus on families with health problems (maternal and child health, chronic illness) utilizing behavioral and mental health concepts.
- 8-504 (226B). PUBLIC HEALTH NURSING OF THE MENTALLY ILL.** (Cr ar; prereq #) Sparrow, Fredlund, and staff  
Selected experiences with mentally ill patients including a multidisciplinary approach to their total care; related theory.
- 8-505 (226C). PUBLIC HEALTH NURSING IN THE GROUP SETTING.** (Cr ar; prereq #) Sparrow, Fredlund, and staff  
Opportunity for working with small groups in the community with emphasis on the group method of rendering public health nursing services.
- 8-506 (285). HEALTH BEHAVIOR AND SOCIO-CULTURAL CHANGE.** (3 cr; prereq #) Kroska  
Cultural background of health behavior and relationship of health and illness to society; examination of concepts and theoretical approaches to the study of change; the role of the public health worker as agent of change.
- 8-510 (200). DIRECTED RESEARCH.** (Cr ar; prereq 5-510) Kroska  
Guided study in research designs.
- 8-519 (200). DIRECTED RESEARCH.** (6 cr; prereq PMed 8-192) E Anderson  
Guided study in research related to physical therapy in community health programs.
- 8-520 (221). SEMINAR: LONG-TERM PATIENT CARE AND REHABILITATION.** (Cr ar; prereq 5-518 or 5-519 or #) E Anderson  
Development of a project relative to multidisciplinary action affecting patient care; review of current research findings.
- 8-525 (224). LEADERSHIP FOR ACTION AND CHANGE.** (3 cr; prereq #) E Anderson, Sloan, Sime  
Commonalities and differences of leadership roles and responsibilities in academic and service institutions.
- 8-526 (225). PRACTICUM IN TEACHING PUBLIC HEALTH NURSING.** (Cr ar; prereq #)  
Identification of major health concepts; application of educational principles to teaching of public health nursing; selected experiences; supervised teaching in public health nursing; supervision of student in laboratory experience.
- 8-531 (281). PROBLEMS AND PRACTICUM IN SUPERVISION AND ADMINISTRATION IN COMMUNITY NURSING.** (6 cr; prereq 8-525) E Anderson, Sime  
Analysis of and experience in selected aspects of the administrative and supervisory process.
- 8-535 (222). SEMINAR: SCHOOL NURSING WITH RELATED FIELD PRACTICE.** (Cr ar; prereq #) Fredlund  
Exploration of nursing in the school setting.

## School of Public Health

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### Maternal and Child Health

(Courses 600-649)

- 3-600 (95). HUMAN NUTRITION.** (3 cr; prereq courses in chemistry and biology, or #) Stief  
Principles of nutrition, application to individual and family eating patterns, discussion of nutritional aspects of selected community problems or programs.
- 5-600 (189). FIELD COURSE IN PUBLIC HEALTH NUTRITION.** (Cr ar; prereq #) Stief and associates  
Placement in an approved agency with opportunity for experience in nutrition aspects of public health programs.
- 5-601 (196). SEMINAR: PUBLIC HEALTH NUTRITION.** (Cr ar; prereq #) Stief
- 5-609 (123). TOPICS IN PUBLIC HEALTH NUTRITION.** (Cr ar; prereq #) Stief
- 5-610 (107). MATERNAL AND CHILD HEALTH.** (3 cr, §5-002) Bridge, Martens  
Community health needs and services for mothers and children.
- 5-611 (107A). MATERNAL AND CHILD HEALTH PROGRAM.** (1 cr, §5-610; open to hospital administrators or #) Bridge  
Community programs for major maternal and child health problems.
- 5-612 (134). HUMAN GENETICS AND PUBLIC HEALTH.** (3 cr; prereq 5-002 and #) Schacht  
Evaluation of current studies in human genetics and applications to community health.
- 5-613 (136). HANDICAPPED CHILDREN.** (Cr ar; prereq 5-610 and #) Bridge  
Prevention and rehabilitation of handicapping conditions affecting children; community activities related to emotional, physical, and intellectual handicaps.
- 5-649 (123). TOPICS IN MATERNAL AND CHILD HEALTH.** (Cr ar; prereq #) Bridge  
Selected readings in maternal and child health with discussion based on these readings.
- 8-610 (214). HEALTH OF THE SCHOOL AGE CHILD.** (2 cr; prereq 5-610 or #) Bridge  
Review of major health problems among children of school age; methods of providing and evaluating school health services.
- 8-611 (215). MATERNAL AND CHILD HEALTH PROBLEMS.** (3 cr; prereq 5-610) Bridge, Martens  
Problems in administration of health programs for infants, preschool and school age children, handicapped children, and women of childbearing age.

### Dental Public Health

(Courses 650-674)

- 5-650 (137). DENTAL HEALTH.** (1 cr; prereq #) Meskin, Gordon  
Conditions resulting in tooth decay and loss; preventive and corrective measures; mouth hygiene; community programs for dental health.
- 5-651 (182). PHILOSOPHY AND CONCEPTS OF PREVENTIVE DENTISTRY.** (3 cr; prereq #) Meskin, Martens  
Basic principles of preventive dentistry; relationship between oral and general disease processes; epidemiology of oral diseases; preventive procedures; organizing and evaluating community dental health programs.
- 5-652 (183). SEMINAR: DENTAL HEALTH LITERATURE.** (Cr ar; prereq #) Meskin, Martens  
Current review of literature pertinent to dental public health, critical examination for design, content, and validity of conclusions.
- 5-653 (184). DENTAL HEALTH PROGRAMS.** (Cr ar; prereq #) Meskin, Martens  
Dental health activities and problems in a community situation; observation visits and participation in public and voluntary facilities; preventive, curative, rehabilitative, and research activities of local, state, and federal agencies; problems of dental manpower.

## *Description of Courses*

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### **Public Health Administration**

(Courses 700-749)

- 5-700 (106). PUBLIC HEALTH ADMINISTRATION.** (3 cr; prereq 5-002)  
Structure, basic functions, and activities of public health agencies.
- 5-701 (122). PUBLIC HEALTH ADMINISTRATION PROBLEMS.** (3 cr; prereq 5-700)  
Budgeting, program planning, appraisal of public health procedures.
- 5-749 (123). TOPICS IN PUBLIC HEALTH ADMINISTRATION.** (Cr ar; prereq #)  
Staff  
Selected readings in public health administration with discussion based on these readings.

### **Hospital and Health Care Administration**

(Courses 750-798)

- 3-775 (160A). MANAGEMENT AND ORGANIZATION IN HOSPITAL AND HEALTH CARE FACILITIES.** (15 cr; prereq 1 yr experience as health care facility administrator and #) Weckwerth, Phin, and staff  
Twelve months' program of on-campus residential (3 weeks) and off-campus independent study which includes periodic seminars and monthly classes under program preceptors; principles of management, executive role, hospital development and organization, functions of personnel, financial control, business office and patient care services.
- 5-750 (160). PRINCIPLES OF ADMINISTRATION IN HOSPITALS.** (6 cr; prereq #)  
Dornblaser, Sweetland, and staff  
Lectures, seminars, selected hospital placement; hospital administrative principles; top management and board of trustees, policy formation, human relations, management problem definition.
- 5-751 (162). PRINCIPLES OF ORGANIZATION AND MANAGEMENT.** (3 cr; prereq #)  
Dornblaser and staff  
Lectures and case studies on the role of health care services administrators; principles of management and the administrative process.
- 5-752 (166). HOSPITAL CLERKSHIP.** (5 cr; prereq 5-750) Bieter, Metzner, Moser, Tronnes  
Assignment to local hospital or planning agency for survey and solution of management problem and preparation of formal report.
- 5-753 (167). MANAGEMENT PROBLEMS IN HOSPITAL ADMINISTRATION.** (6 cr; prereq 5-751, 5-752) Dornblaser, Sweetland, Stephan  
Assignment and solution of specific managerial problems.
- 5-754. MANAGEMENT: INTERPERSONAL RELATIONS.** (3 cr; open to hospital and health care administration students) Rosenberg  
Interpersonal skills in development and management of hospital and health care programs.
- 5-755 (169). ADMINISTRATIVE RESIDENCY.** (Cr ar; prereq #) Dornblaser, staff and clinical preceptors  
Field work of 11 months' duration in an approved health care planning or operating organization, weighted rotation through departments, solution of management problems and special projects; preparation of formal report.
- 5-756 (169A). PLANNING PRACTICUM.** (Cr ar; prereq #) Dornblaser, staff and planning preceptors  
Field work of 8 weeks' duration in an approved planning agency, solution of special problems and preparation of formal report.
- 5-760 (168). ORIENTATION TO MEDICAL SCIENCES.** (3 cr; prereq #) Thomson  
Medical terminology, applied anatomy, and physiology.

## School of Public Health

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- 5-761 (163). EDUCATION FOR THE HEALTH PROFESSIONS. (3 cr; prereq #) Brodahl, Phin, and staff  
Interpretation and implications of medical, nursing, and continuing education and of medical specialties to role of hospital and health care administrator.
- 5-763 (161). HEALTH MANPOWER, ORGANIZATIONS, AND STANDARDS. (3 cr; prereq #) Phin and staff  
Principles and issues of health manpower; implications of health organizations and standards to management of hospital and health care programs.
- 5-764 (164A). PRINCIPLES OF ORGANIZATION AND MANAGEMENT OF HOSPITALS. (4 cr; prereq 5-751) Brodahl, Bieter, Countryman  
Personnel department; legal liability; fiscal management; hospital insurance.
- 5-765 (163A). HOSPITAL DEPARTMENTAL OPERATIONS. (3 cr; prereq #) Brodahl and staff  
Examination of selected hospital departments and functions; lectures, case studies.
- 5-770 (123). TOPICS IN HOSPITAL AND HEALTH CARE ADMINISTRATION. (Cr ar; prereq #) Staff  
Selected readings in hospital and health care with discussion based on these readings.
- 5-785 (165). QUANTITATIVE METHODS APPLIED TO HEALTH ADMINISTRATIVE PROBLEMS. (3 cr; open to hospital administration students or #) Weckwerth and staff  
The application of quantitative methods including analysis of cyclicities, PERT, data handling systems, simple ANOVA, linear programming, cost benefit analysis, task analysis and inventory control in the solution of health problems at administrative levels.
- 5-786 (164B). RESEARCH METHODOLOGY IN HOSPITAL AND HEALTH CARE ADMINISTRATION. (2 cr; prereq 5-404, 5-764) Litman, Weckwerth  
Research design.
- 5-790 (141). SOCIAL, ECONOMIC, AND POLITICAL ASPECTS OF MEDICAL CARE. (3 cr; prereq #) Litman and staff  
Social, economic, and political forces shaping health care systems; possible future impact of these forces.
- 8-750/8-751 (261-262). ALTERNATIVE PATTERNS FOR MEETING HEALTH CARE NEEDS. (3 cr per qtr; prereq #) Litman and staff  
Future role of hospitals and related health services in light of patient needs and community services.
- 8-752 (264). SEMINAR: MEDICAL CARE PATTERNS ABROAD. (3 cr; prereq #) Litman
- 8-760 (266). HOSPITAL ADMINISTRATION TOPICS. (Cr ar; prereq #) Dornblaser, Stephan, Weckwerth  
Independent study under tutorial guidance on selected problems, current issues.
- 8-761 (274). READINGS IN THEORY AND PRINCIPLES OF HOSPITAL ADMINISTRATION. (Cr ar; prereq #) Dornblaser, Stephan, and staff
- 8-762 (273). CONTEMPORARY PROBLEMS OF HOSPITAL AND RELATED HEALTH SERVICES. (Cr ar; prereq #) Dornblaser, Stephan, and staff  
Current concepts, problems, principles, and future developments in hospital and related health services.
- 8-770 (267). HEALTH AND HUMAN BEHAVIOR. (3 cr; prereq #) Litman  
Social ecology of health; social and personal components of illness; health and the community; social and cultural aspects of health care services.
- 8-780 (263). ADVANCED STATISTICAL METHODS IN HEALTH CARE RESEARCH. (3 cr; prereq 5-450 or #) Weckwerth  
Survey and analysis of the application of nonparametric statistics to health care research.
- 8-781 (265). SEMINAR: RESEARCH STUDIES IN HEALTH CARE. (3 cr; prereq #) Litman, Weckwerth, and staff
- 8-790 (269). POLITICAL ASPECTS OF HEALTH SERVICES. (3 cr; prereq #; offered 1970-71 and alt yrs) Litman  
Analysis of interrelationships between government, politics, and health services; political and social bases of health legislation and community decision making in provision and modifications of health services.

# UNIVERSITY OF MINNESOTA BULLETIN

JULY 29, 1970

1970  

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School of Dentistry

**DENTISTRY**

# UNIVERSITY OF MINNESOTA

FOUNDED IN THE FAITH THAT MEN ARE ENNOBLED BY UNDERSTANDING,  
DEDICATED TO THE ADVANCEMENT OF LEARNING AND THE SEARCH FOR TRUTH,  
DEVOTED TO THE INSTRUCTION OF YOUTH AND THE WELFARE OF THE STATE.

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## SCHOOL OF DENTISTRY

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Volume LXXIII

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### UNIVERSITY OF MINNESOTA BULLETIN

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The contents of this bulletin and other University bulletins, publications, or announcements are subject to change without notice.

# School of Dentistry

## Section I

### *DENTISTRY*

#### GENERAL INFORMATION

##### Historical Statement

The University of Minnesota was chartered in 1851, 7 years before the Territory of Minnesota became a state. The University began as a two-story preparatory school in Sioux Indian land on the banks of the Mississippi. It was beset by financial crises during the early years and struggled to gain faculty, students, and permanent buildings.

While prospective students joined the Civil War cause, loyal University supporters were erecting the first permanent University building, Old Main. The University, closed during the Civil War, reopened in 1869 with William Watts Folwell as president. A year earlier, the University was allotted public land under the Morrill Act in proportion to its representation in Congress. John Sargent Pillsbury, as University Regent, State Senator, and later Governor, led the University out of its financial problems and set it on the road to greatness.

In 1888, the University took over the Minnesota College Hospital, a private school of medicine which since 1883 had been giving courses of instruction in dentistry and medicine. The College of Dentistry was one of three colleges included in the Department of Medicine established by the University in 1888. The College of Dentistry, organized as a separate college in 1892, changed its name to the School of Dentistry in 1932.

Minnesota's Board of Regents in 1968 changed the University's Medical Center title to the University of Minnesota Health Sciences Center and recognized a Council of Health Sciences Deans and Directors as an advisory body for programs in the health sciences. The council's members represent the College of Pharmacy, College of Veterinary Medicine, Medical School, School of Dentistry, School of Nursing, School of Public Health, and the University Hospitals.

##### Facilities

The School of Dentistry, housed in five different buildings since its beginning, is now located in Owre Hall just south of Washington Avenue between Church Street and Union Street Southeast, on the Minneapolis Campus of the University of Minnesota. In recent years, a new addition and extensive remodeling of Owre Hall have provided expanded clinical, laboratory, and research facilities.

## ***School of Dentistry***

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The dental school is part of a great university health center. The school is adjacent to the University of Minnesota Hospitals and the teaching and research laboratories of the basic medical sciences. The center and associated teaching hospitals provide the students with excellent facilities for the study of dentistry and allied dental fields.

These facilities and the highly specialized teaching staff in the dental school, the University and other teaching hospitals, the basic medical science departments, and departments of other academic disciplines enable the students to study dentistry and allied fields under very favorable conditions. Instruction is given by lecture, laboratory courses, seminars, closed circuit television, demonstrations, and clinical practice in the dental clinics and hospitals.

Students in dentistry enjoy all the advantages which come from participation in the activities of a university composed of academic, scientific, and professional colleges. Since the dental school is on the Minneapolis Campus of the University, cultural and recreational opportunities are available for the students. A central library and the biomedical library are conveniently located near Owre Hall. Dormitories for men and women are just a short distance from the dental school.

### **Equal Opportunity**

The University of Minnesota is guided by the principle that there shall be no differences in the treatment of persons because of race, creed, color, sex, or national origin, and that equal opportunity and access to facilities shall be available to all. This principle is particularly applicable in the admission of students in all colleges, and in their academic pursuits. It is also applicable in University-owned or University-approved housing, in food services, student unions, extracurricular activities, and all other student services. It is a guiding policy in the employment of students either by the University or by outsiders through the University and in the employment of faculty and civil service staff.

### **Administration**

The dean is the chief administrator of the school. A Faculty Executive Committee, composed of divisional chairmen and other full-time faculty people, is the legislative body of the school and is advisory to the dean.

### **Teaching, Research, and Service Objectives**

It is the primary objective of this School of Dentistry to devote all its resources and to dedicate its entire efforts toward total and continuing advancement of all existing and all potential responsibilities of the profession of dentistry. These efforts are directed toward our responsibilities in teaching, research, and service. The objectives are:

#### **TEACHING**

1. To prepare undergraduates for high quality dental practice through the acquisition of skills, knowledge, and attitudes essential to the practice of dentistry.
2. To conduct educational programs strongly based on scientific and biological principles which give the students an understanding of the patient's total health and teach them to plan, execute, and direct oral health treatment as part of general health care with emphasis on preventive measures.

3. To inculcate in the student a community-conscious attitude, an understanding of the sociological and psychological aspects of health and disease, and an appreciation for the obligations of a professional person in general and a member of a health profession in particular.
4. To provide the student with experience in working with auxiliary personnel and practicing team dentistry.
5. To train dental auxiliary personnel to assist the practicing dentist and to perform clinical duties consistent with their skills and training.
6. To provide graduate-level training for the preparation of individuals interested in careers in research, academic dentistry, and specialty practice.
7. To teach undergraduate and graduate students the essentials of practicing dentistry in hospitals and community health centers.
8. To stimulate the students to do research, to think critically about the information available, and to understand public health needs and preventive dentistry.
9. To utilize the most advanced teaching methods in a curriculum subject to constant review.
10. To promote meaningful programs of continuing education for dental practitioners and related health professionals.
11. To integrate the teaching programs of the school with those of the other health sciences and the community.
12. To provide other health science workers and the University community appropriate insights into the subject of oral health.
13. To inform and influence society and our community about the benefits of good oral health.

### RESEARCH

1. To advance the knowledge of oral health with an active, expanding fundamental and applied research program.
2. To investigate various educational methods and develop new techniques and measurements capable of evaluating educational programs to determine the need for change and improvement.
3. To investigate community oral health problems, causes of oral disease, and elements of preventive measures.
4. To conduct fundamental biological research not necessarily confined to oral structures.
5. To develop an environment conducive to full and open inquiry into all facets of health, disease, and education applicable to the role of dentistry in total health care.

### SERVICE

1. To provide exemplary care for patients treated in the clinics.
2. To provide prompt and efficient consultative service to dental practitioners, medical practitioners, and other health science professionals.
3. To promote and cooperate with communities on oral health service projects consistent with the mission of the dental school.
4. To elevate the standards of dental practice in the community.
5. To demonstrate an attitude of social responsibility and sensitivity by the way in which our service programs are undertaken and carried out.
6. To share and disseminate meaningful oral health knowledge with dental practitioners, other health science workers, and the public.

## Programs

The School of Dentistry conducts extensive programs in education, research, and service. It offers a 4-year program in dentistry leading to the degree of doctor of dental surgery (D.D.S.). This dental school promotes a strong graduate activity at the M.S.D. and Ph.D. levels and sponsors auxiliary personnel programs in dental hygiene and dental assisting. The school main-

## *School of Dentistry*

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tains facilities for an active research effort and provides service to the public and the profession of dentistry through a variety of activities.

### **Accreditation**

Undergraduate programs in dentistry, dental hygiene, and dental assisting are fully approved by the Council on Dental Education of the American Dental Association. The advanced specialty training programs in endodontics, oral pathology, oral surgery, orthodontics, pediatric dentistry, periodontics, and prosthodontics are also approved by the council. The School of Dentistry is a full member of the American Association of Dental Schools.

### **Four-Year Program Leading to Degree of Doctor of Dental Surgery**

#### *Requirements for Admission*

**General** — The 4-year program in dentistry for the D.D.S. degree is open to men and women. A freshman class is admitted once a year, in the fall, although students planning to enter dental school can begin their liberal arts education at any time.

While high school credentials are not examined as part of the admission evaluation, high school students anticipating dental careers are urged to take a sound academic program in high school to prepare properly for the liberal arts and dental educational programs. Classes should include mathematics, chemistry, physics, biology, foreign languages, English, and social studies.

The Admissions Committee favorably considers mature, motivated young people of sound moral character and with such attributes as honesty, stability, common sense, industry, cooperativeness, and leadership ability.

A minimum of 90 quarter credits (60 semester credits) from an accredited liberal arts college is required but at least 3 years of liberal arts study is preferred. One semester credit is equivalent to 1½ quarter credits. While acceptance is based primarily on quality of performance, applicants with a broad liberal education are looked on with favor.

The School of Dentistry believes that all of its students should hold in common the search for a liberal education. In the broadest sense a liberal education is one which frees us from the limitations placed by ignorance on our powers of judgment and choice. More specifically, a liberal education asks of us that we seek control over the general intellectual instruments for acquiring and communicating knowledge, primarily the instruments of language and number; that we seek understanding of the ways in which scientists contribute to man's knowledge of himself and his environment; that we seek historical and philosophic perspective on the nature of our own lives and the world in which we live; and that we seek appreciation of the creative insights into life and nature provided by literature and the arts. To help students achieve the goals of liberal education, the School of Dentistry expects each student to distribute some part of his pre-dental liberal arts course work in areas of study other than those related to the biological and physical sciences. Pre-dental students are urged to plan their liberal arts education to at least satisfy the

distribution requirements listed in the section explaining the B.S. degree in dentistry on page 12 of this bulletin.

Quality credits may not be used to decrease the minimum requirement of 90 credits. The minimum scholastic average which may be considered is C, but acceptance is on a competitive basis and an average well above C is usually necessary to achieve admission.

Required courses and minimum credits accepted are given below. Sciences must include both lecture and laboratory instruction. Exemptions and advanced courses with less credits will be recognized, but transcripts must clearly identify these and individual judgments will be made. Courses in biology, chemistry, and physics may be considered outdated if taken more than 5 years prior to time of application. Only under unusual circumstances will P credits on a P-N (pass-no-credit) basis be accepted for required courses. It is expected that applicants will not exceed the following number of P credits in elective courses: 6 credits for 2-year students, 15 credits for 3-year students and 25 credits for 4-year students.

1. English — 12 quarter credits. If the basic English course is less than 12 quarter credits, additional credits must be completed in composition, literature, speech, humanities, or etymology to satisfy the minimum requirement of 12 quarter credits.
2. General Biology — 10 quarter credits. General zoology alone is acceptable but not preferred. If the general biology course is less than 10 credits, additional credits can be taken in other biology or zoology courses.
3. Physics — 12 quarter credits.
4. General Principles of Chemistry -- 12 quarter credits.
5. Organic Chemistry — 8 quarter credits. The course content must contain both the aliphatic and aromatic series. One-semester courses are generally not of sufficient credits or depth to be acceptable.
6. Mathematics — Applicants are expected to demonstrate by college validation or college credit a background in mathematics at least through college algebra.

Elective courses should be selected to give the student as broad and liberal an education as possible within the limits of time available. A proper distribution of courses in the following categories of knowledge is recommended: (1) communication, language, symbolic systems; (2) physical and biological sciences; (3) man and society; (4) artistic expression.

Students are expected to select the following preferred electives if at all feasible: psychology, speech, comparative anatomy, and a foreign language. Additional electives can be chosen from at least these subjects: analytical chemistry, anthropology, basic drawing, classics, economics, etymology, genetics, history, humanities, logic, higher mathematics, political science, and sociology.

A maximum of 5 quarter credits in ROTC courses and 4½ quarter credits in religion will be accepted as part of the 90 minimum quarter credits. However, credits in physical education, human anatomy, physiology, histology, and microbiology are not acceptable as part of the 90 quarter credits required for admission. Courses in the human biological sciences are not recommended as part of the student's liberal arts preparation since they will be taken in dental school. However, credits in these courses will be accepted if in addition to the minimum of 90 quarter credits as defined above.

If the student anticipates the possibility of taking graduate study following the earning of his D.D.S. degree, it is suggested that he prepare himself

## *School of Dentistry*

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during his preidental education by earning additional credits in higher mathematics and the sciences.

**Required Entrance Test** — All applicants are required to take the Dental Aptitude Test prepared by the American Dental Association. It is given three times a year, usually in October, January, and April in many testing centers in the United States and in several foreign countries. It is administered on the Minneapolis Campus of the University of Minnesota. A good time to take the test is during the first quarter of the sophomore year or as soon as the courses in biology and general chemistry have been completed.

Candidates are expected to take the test no later than October or January in the academic year prior to the year of requested enrollment. The April testing date is strongly discouraged for candidates desiring admission that fall. The results from this testing period are not available until June when most of the selections have already been made. Although the test generally measures aptitudes rather than special knowledge, some questions are specific in biology and general chemistry; thus a review of these subjects prior to taking the test is suggested, particularly if these courses have been taken more than 1 year before the testing date. It is advised that the applicant practice his carving ability on chalk. The size of the chalk for practicing is not important and any diameter available through most school supply stores is suitable. An application form and a brochure describing the test and testing centers and dates are available from the Office of Admissions and Records, 6 Morrill Hall, University of Minnesota, Minneapolis, Minnesota 55455. These materials can also be obtained by writing to the Division of Educational Measurements, American Dental Association, 211 East Chicago Avenue, Chicago, Illinois 60611.

**Residence Requirements** — First choice is given to Minnesota residents, second choice to residents of neighboring states that do not have dental schools, and third choice to other nonresidents who have acceptable reasons for attending the University of Minnesota School of Dentistry. Nonresidents are accepted only if their scholarship has been outstanding and if their other qualifications indicate unusual promise for the study of dentistry and a career in science.

The Committee on Admissions will give preference to those applicants who have high scholastic records in college; who make satisfactory scores on the dental aptitude test; who will have completed all course requirements by the end of the usual academic year previous to the desired date of admission; who, after having been granted a provisional acceptance, maintain an academic record of quality at least as good as the record at the time of the provisional acceptance; and who, in all other respects, give promise of becoming successful students and dentists of high standing.

**Personal Interview** — While a personal interview with each applicant is not required, candidates may be requested to appear for an interview at the discretion of the Admissions Committee. Students are encouraged to request an interview if they wish to discuss matters relative to their applications and their preidental course of study. It is suggested that students write or call for an appointment to assure that a faculty member will be available. The address is: Dean's Office, School of Dentistry, 136 Owre Hall, University of Minnesota, Minneapolis, Minnesota 55455. The telephone number is 373-3454 (area code 612).



*Predental Student Discussing School of Dentistry Application  
With Admissions Committee Member*

**Recommendations** — Applicants are required to have recommendation forms submitted from two recommenders. These forms should be completed by a college counselor, religious leader, or some other appropriate respected citizen who is closely familiar with the applicant. Recommendation forms are available from the Office of Admissions and Records and will be included with the application forms. As indicated on the application form, the candidate is requested to list one other name of a responsible person from whom the Admissions Committee could request additional reference information.

### *Application Procedures*

**General** — Application blanks and recommendation forms can be secured from the Office of Admissions and Records, 6 Morrill Hall, University of Minnesota, Minneapolis, Minnesota 55455. Applications should be filed between October 1 and April 15 of the academic year prior to the fall quarter the applicant desires to enroll in the School of Dentistry. While the closing date for application is April 15, early filing is encouraged since late application may be to the student's disadvantage. Early applications with complete data may be acted on in December.

All applicants are required to pay a \$10 credentials examination fee. This fee should accompany the application, and it should be in the form of a check, money order, or a bank draft made out to the University of Minnesota.

### *Students Now Attending the University of Minnesota —*

1. Fill out an Admission Application (typewritten or in ink) and bring it to the Office of Admissions and Records.

## School of Dentistry

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2. Apply for a change of college at the College Transfer Window in the Office of Admissions and Records.
3. If you have attended any other colleges or universities before entering the University of Minnesota, two copies of complete transcripts from each institution attended previously must be attached to your application and filed with it. Appearance on the University of Minnesota transcript of courses and credits transferred from other colleges and universities is *not* sufficient. After the request for transfer of college has been submitted, the Office of Admissions and Records will provide the School of Dentistry with the student's University of Minnesota transcripts as needed by the school.

### Students Now Attending Other Colleges and Universities —

1. Fill out an Admission Application (typewritten or in ink) as well as a Professional School Application Supplement.
2. Mail these applications, together with two official transcripts from each institution previously attended, to the Office of Admissions and Records, 6 Morrill Hall.
3. Following the completion of each semester's or quarter's course work two official transcripts of your grades must be forwarded to the Office of Admissions and Records, 6 Morrill Hall. This is a firm requirement. The applicant must take the responsibility to be certain this request is satisfied.

### Fees

Tuition fee (per quarter):	
Residents of Minnesota .....	\$228.00
Nonresidents .....	516.00
Credit hour tuition fee (unclassified students, auditors, and others carrying less than full work):	
Residents of Minnesota .....	19.00
Nonresidents .....	43.00
Record service fee (applicable only to students new to the University of Minnesota) .....	3.00
Student services fee (per quarter) .....	41.00
(For privileges such as the Coffman Memorial Union, the Health Service, and the Minnesota Daily)	
Graduation fee:	
Large diploma .....	22.50
Small diploma .....	15.00
Special fees:	
Credential examination fee .....	10.00
Examination on subjects taken out of class. Such an examination may be taken only upon approval of the appropriate committee. (No fee for such examination on first entering the University, if taken within the first quarter) .....	20.00

**Privilege Fees** — The fee for the privilege of late registration or late payment of fees is \$6 through the first week of classes. During the second week the fee is \$10 and after the second week the fee is \$20.

**Dental Equipment and Books**

Students are required to provide themselves with the instruments and textbooks specified in the Official List which will be mailed to new students in July. Dental instruments and equipment are not offered for sale by the University but may be purchased from regular dealers in dental supplies. Books may be obtained from the Professional Colleges Bookstore in the Main Engineering Building or from other nearby bookstores.

The following are cost estimates for equipment, books, supplies, and laboratory fees for the 1970-72 years.

	<i>Instruments</i>	<i>Books and Supplies</i>	<i>Laboratory Fees</i>	<i>Totals</i>
Freshman year .....	\$ 787	\$235	\$ 8	\$1,030
Sophomore year .....	1,265	411	6	1,682
Junior year .....	948	150	.....	1,098
Senior year .....	57	20	.....	77
<b>Totals .....</b>	<b>\$3,057</b>	<b>\$816</b>	<b>\$14</b>	<b>\$3,887</b>

**Financial Aids**

Financial aid is available from an increasing number of loan and scholarship funds. Academic achievement, professional promise, and financial need are required for eligibility of support from most of these funds. The only security for loans to students is the character of the applicant and his ability to perform satisfactorily in his courses. Most of the loans and scholarships are administered by the Office of Student Financial Aid in consultation with the School of Dentistry. This office is located in 107 Armory, Minneapolis Campus.

**LOAN FUNDS**

The following major loan funds are available for undergraduate dental students. Other loans may be obtained through various private and public sources.

1. American Dental Trade Association — Junior and Senior Student Loan Fund.
2. Dr. Alfred Owre Loan Fund.
3. Health Professions Student Loan Fund sponsored by the Federal government.
4. Special Bank Fund for junior and senior students sponsored by the Minnesota State Dental Association.
5. Guaranteed Student Loan Fund sponsored by commercial banks in consultation with the Office of Student Financial Aid.
6. University of Minnesota Trust Fund — A general fund and many special funds provide financial aid for dental students through contributions by individuals, graduating classes, foundations, philanthropic groups, societies, and commercial firms. The special funds administered by the Office of Student Financial Aid for dentistry are as follows:

- American Fund for Dental Education sponsored by the American Dental Association
- Delta Sigma Delta Loan Fund
- 1936 Dental Memorial Fund
- Dr. Ambert B. Hall Loan Fund sponsored by Dr. Oscar C. Nord
- Duluth District Dental Society Auxiliary
- International College of Dentists
- Minneapolis District Dental Society Auxiliary

## *School of Dentistry*

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School of Dentistry Loan Fund sponsored by students, alumni, and friends of  
the School of Dentistry  
Southeast District Dental Society  
St. Paul District Dental Society Auxiliary  
W. K. Kellogg Foundation  
William S. Lindsley Dental School Loan Fund

### **SCHOLARSHIPS AND FELLOWSHIPS**

Scholarship funds are very limited but more awards are becoming available. Research fellowships are increasing in number.

Allan T. H. Bluhm Memorial Scholarship  
Duluth District Dental Society Auxiliary Scholarship  
Jack Brice Anderson Memorial Scholarship  
James and Alice O'Neill Scholarship  
Kramer Dental Studio Scholarship  
Postsophomore Ph.D. Fellowships sponsored by the United States Public Health Service  
School of Dentistry Scholarships sponsored by students, alumni, and friends of the School of Dentistry  
School of Dentistry Century Club Scholarships  
Undergraduate Summer Research Fellowships sponsored by the United States Public Health Service, the Minnesota Dental Research Foundation, Inc., and other special funds  
University of Minnesota Bookstore Scholarships

### **SPECIAL AWARDS AND HONORS**

Several special awards are available for the dental students for scholarly achievement and excellence in specific aspects of dental practice.

#### **Ability and Promise in Preclinical and Clinical Dentistry**

##### *Sponsors:*

Academy of General Dentistry  
American Academy of Oral Medicine  
American Academy of Gold Foil Operators  
American Academy of Dental Radiology  
American Association of Endodontists  
American Academy of Periodontology  
American Society of Dentistry for Children  
American Society of Periodontists  
C. V. Mosby Company Awards  
Minnesota Academy of Restorative Dentistry  
Minnesota Prosthodontic Society  
Minnesota Society of Oral Surgeons  
Minnesota Society of Orthodontists  
Minnesota Unit of American Society of Dentistry for Children  
Periodontics Award of Lactona Products Division

#### **Class of 1925 Research Award**

*Sponsor:* Contributors from the 1925 graduating class of the School of Dentistry

#### **William H. Crawford Undergraduate Research Award**

*Sponsor:* Minnesota Section of International Association for Dental Research

#### **Highest Ranking Senior Dental Student**

*Sponsor:* Alpha Omega Professional Dental Fraternity

#### **Two Highest Ranking Freshman, Sophomore, and Junior Dental Students**

*Sponsor:* Minneapolis District Dental Society Auxiliary

#### **Senior Student Showing Greatest Professional Development and Growth**

*Sponsor:* International College of Dentists

### **SELF-SUPPORT AND GRANTS-IN-AID**

The Student Employment Service assists students who find it necessary to earn part or all of their expenses. However, the program in dentistry is a

full one, and students find it difficult to devote many hours a week to outside employment. Occasionally, a few research assistantships are available in the School of Dentistry.

At the present time, the federal government provides, through the Health Professions Scholarship Fund, special grants-in-aid for students in extreme financial need.

### *Student Affairs*

Each fall the undergraduate students are requested to elect their class officers. These officers comprise the Student Council which serves as liaison between the student body and the faculty. The council convenes with faculty advisers to discuss matters of mutual concern to the students and faculty.

Information on student affairs and faculty and staff activities appears in *The Dental Newsletter* published during the academic year and distributed to students, faculty, and employees.

Four dental professional fraternities are active on the campus: Alpha Omega, Delta Sigma Delta, Psi Omega, and Xi Psi Phi. Matters common to these fraternities are considered in the Dental Inter-Fraternity Council which is duly recognized by the Office for Student Affairs. A faculty member serves as adviser to the council.

For many years, the senior class has written and published an annual, *The Explorer*, which contains formal and candid pictures of the students, faculty, and staff and observations by the students of their 4 years in dental school.

The undergraduates are encouraged to become student members of the American Dental Association and Minnesota State Dental Association. For a nominal membership fee, the students receive the *Journal of the American Dental Association* and can participate in the insurance programs of the A.D.A. Membership in the Minnesota State Dental Association permits the student to participate in the loan and insurance programs of this association.

The National Board Dental Examinations are held twice a year on the campus. Part I of the examination is usually taken by the junior students in July while Part II is taken in April by the senior students. Virtually all of the students elect to take these written examinations recognized by the Licensing Boards in 48 states, the District of Columbia, and the Virgin Islands.

### *Honor Fraternity*

Omicron Kappa Upsilon, the national honor dental fraternity, is represented at Minnesota by the Beta Beta Chapter. Students are elected to membership in the senior year by the faculty on the basis of scholarship, character, and conduct. Not more than 12 percent of the class is eligible.

### *Evaluation of Student Performance*

The class committees make quarterly evaluations of each student's academic achievement and personal conduct. Recommendations on the student's status and promotion are transmitted to the Faculty Executive Committee for action.

The students are expected to act as mature, professional persons. A set of guidelines for personal conduct by the students is prepared by a student-

## School of Dentistry

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faculty committee. Respect for school property is obviously required. Certain rules and regulations are prescribed.

Regular class attendance and punctuality are required and diligence in study is urged. The students must exercise their clinical responsibilities with discretion and display concern for the dignity and importance of the individual patient.

While every effort is made to aid the students in their studies and counsel them on their academic and personal problems, certain standards of performance have been established. Students cannot advance to the next academic year with major scholastic deficiencies. Dismissal from school can be for disciplinary as well as scholastic reasons.

The class committee chairman serves as the major adviser for the class. Counseling is available also through the Dean's Office in the School of Dentistry and the Student Counseling Bureau of the University and from faculty of the student's own choosing.

A special counseling program has been arranged for freshmen. Four or five students are assigned to a full-time or part-time faculty member who serves as an adviser during the entire year. This rather informal counseling system gives the new students a faculty member with whom they can discuss academic or personal matters on an unofficial basis.

### *Bachelor of Science in Dentistry*

The bachelor of science degree will be granted to all students in the School of Dentistry who have satisfactorily completed 2 years of pre-dental liberal arts study and 2 years of dentistry. The degree is optional on the part of the student, but application for the degree should be made before the student completes the D.D.S. degree.

Students with a grade point average of 3.50 or higher in the School of Dentistry may graduate *with high distinction*. Those with a grade point average of 3.00 or higher may graduate *with distinction*.

Students must satisfy the requirements of the all-University policy on liberal education to be eligible for the B.S. degree in dentistry. The purpose of this is to help all students to a broad and better understanding of self, nature, and society.

During the 2 or more years of liberal arts study, students must satisfy the following distribution requirements to be eligible for the B.S. degree.

- A. 9 credits in English composition with waiver accepted if advanced English course has less than 9 credits for composition or student is exempted from English.
- B. 48 additional credits distributed among the four categories of knowledge listed below, with not less than 9 credits exclusive of English composition in each.
  1. *Communication, Language, Symbolic Systems*  
Linguistics, logic, rhetoric, philosophical analysis, mathematics, and English and foreign language communication skills.
  2. *The Physical and Biological Sciences*  
The physical universe to include chemistry, physics, geology, natural science, astronomy, and geography. The biological universe with such courses as biology, zoology, genetics, anthropology, entomology, botany, and natural science.
  3. *Man and Society*  
The analysis of human behavior and institutions with courses such as social science, anthropology, economics, geography, political science, psy-

chology, sociology, and speech. The development of civilization: historical and philosophical studies which could include humanities, classics, history, and philosophy.

#### 4. *Artistic Expression*

Art, music, architecture, speech and theatre arts, foreign or American literature, and languages.

### ***Combined Program in Arts and Dentistry Leading to the Degrees of Bachelor of Arts and Doctor of Dental Surgery***

During the first 3 years of this program, the student pursues an academic course in the College of Liberal Arts, subject to regulations of that college and must secure at least 135 credits. Of the 135 credits, 45 must be earned in residence in the Arts College Upper Division and a minimum of 30 must be in Upper Division courses. All College of Liberal Arts requirements must be met except for the total of 180 credits.

The Arts College credits must include 30 Upper Division credits outside the major and minor areas. Since the major area is dentistry, the 30 Upper Division elective credits must be in the humanities and social sciences. An average of C must be maintained in all University of Minnesota courses, in all transfer credits applicable to the B.A. degree, and in all Upper Division courses taken in residence.

The requirements for admission to the Upper Division (see *College of Liberal Arts Bulletin*) as well as work in chemistry, physics, and biology prescribed for admission to the School of Dentistry must be completed. Students transferring from other colleges must spend at least 1 year in the College of Liberal Arts, earning a minimum of 45 credits.

During the third year, the student elects courses in the Arts College, subject to the approval of the Scholastic Committee. The courses of the freshman and sophomore years in the School of Dentistry, exclusive of special dental courses, when completed according to the standards required by that school count as the equivalent of the fourth year (45 credits of the Arts course). The student is then eligible for the B.A. degree, and he becomes eligible for the D.D.S. degree in 2 more years.

### ***Admission with Advanced Standing in Dentistry***

Students from other dental colleges whose standards are fully equivalent to those of this institution may be received into advanced classes. However, space is limited and only students with strong records of academic achievement and potential can be considered. Such students must make formal application on the forms provided by the Office of Admissions and Records, and must submit transcripts covering both prerequisite and dental studies. Such credentials must show that the student has completed the required prerequisite subjects and has maintained the standard of scholarship required of students of this school.

Notebooks and other evidences of laboratory work must be presented. The amount of credit to be granted a student from another school is decided by the heads of the respective divisions in conference with the class committee. Subject credit (but not legal time credit) may be given for studies pursued in schools other than dental schools.

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Students desiring advanced standing in dentistry should contact the School of Dentistry, 136 Owre Hall. The following procedure applies to any person desirous of entering the School of Dentistry with advanced standing:

1. Students applying for advanced standing must meet the equivalent of the prerequisite education required of our own students.
2. Advanced standing applicants are requested to complete the regular application form for admission to dentistry and a professional school application supplement. These forms are obtained from the Office of Admissions and Records, 6 Morrill Hall, University of Minnesota, Minneapolis, Minnesota 55455. The applicant is requested to indicate clearly on a note stapled to the applications that advanced standing admission is being requested.
3. They must present formal credentials for their entire educational record. There is a fee of \$10, payable in advance, to have these credentials evaluated.
4. They must take the University of Minnesota School of Dentistry placement tests which include written, oral, laboratory, and practical examinations in all of the basic medical sciences as well as in dental technology.
5. Applicants are required to take certain standard tests of personality characteristics and of aptitude for scientific and health science study. Specific information on these tests will be included with the application materials. After completed application papers and credentials are received and initially evaluated by the School of Dentistry, the applicant will be advised regarding dates and locations for these special tests.
6. There must be a personal interview.
7. Advanced standing will not be granted beyond the beginning of the junior year.
8. Transfer students from other dental schools must provide a letter of recommendation from the dean of that school stating that the applicant is in good standing and is eligible for promotion to the next class.
9. Graduates of foreign dental schools must take the Science Achievement Examination administered by the American Dental Association.

### *Requirements for Graduation*

A candidate for the degree of doctor of dental surgery shall have satisfied the following requirements:

1. Completed all requirements for admission to the School of Dentistry.
2. Complied with the rules and regulations of the school.
3. Given evidence of sound moral character.
4. Completed honorably all requirements of the curriculum.
5. Attended an accredited dental school for 4 academic years; the last 2 must be spent in this school.

6. Returned all equipment and supplies assigned to him for his use.
7. Attained a minimum of 2.00 or "C" average.
8. Discharged all financial obligations to the University.
9. Been recommended by the faculty of the School of Dentistry for the degree.

#### *Four-Year D.D.S. Curriculum*

Numerous changes have been made in our 4-year D.D.S. curriculum in recent years. The purposes of these changes are to develop a more biological and scientific basis for the instruction, integrate more fully the basic medical sciences and clinical subjects, offer a course of study in human ecology, expand dental educational programs in hospitals, place considerably more emphasis on preventive dentistry, and provide more experience in team dentistry and comprehensive oral health care. While the curriculum contains a prescribed sequence of courses, increasing opportunities for electives and special programs are offered for the undergraduate students. The outline of the 4-year program in dentistry, on page 18, is for the 1970-71 academic year.

#### **Continuing Education Program**

The Department of Continuing Dental Education regularly offers a series of short courses in dentistry, dental hygiene, and dental assisting. These courses are intended to meet the needs of the profession for material not normally covered in the undergraduate curriculum and new developments in research and clinical procedures and concepts. Sessions usually are 3 days to 1 week in duration. In some courses clinical practice is included. Special brochures listing courses, dates, and costs are available to those requesting that their names be placed on the mailing list. Inquiries should be mailed to: Robert D. Jeronimus, Director, Department of Continuing Dental Education, School of Dentistry, University of Minnesota, Minneapolis, Minnesota 55455.

#### **Student Services**

##### *Housing Facilities*

Students may live in residence halls, private housing, or in fraternities or sororities. Dormitory application is made independently of application for admission. Private housing can be secured if University residence hall space is not available.

Information concerning all types of residence may be obtained by writing to the Housing Office, 201 Eddy Hall, University of Minnesota, Minneapolis, Minnesota 55455.

Living in a residence hall has many advantages for the student. The halls, located close to class buildings and to the student unions, offer comfortable living with well planned, healthful meals, served under the direction of a trained dietitian. Opportunities for counseling, health supervision, student government, social and athletic programs are provided. All residence halls are modern, fireproof brick buildings, constructed in accordance with the highest

## *School of Dentistry*

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safety standards. The 1970-71 rates will range from \$347-\$403 per quarter for board and room payable in monthly installments. Many residents can earn part of their board and room by work in the residence halls; an early interview and application is recommended for students interested in this opportunity.

Application should be made early for accommodations in University residence halls. Write to: Director of Housing, 201 Eddy Hall, or directly to the residence hall of your choice. Do not wait until registration time to apply. Applications will be accepted after January 1. Final acceptance by the University is not necessary before applying.

### **HALLS FOR WOMEN**

(Minneapolis Campus)

*Sanford Hall*, for undergraduate and graduate women, is located on University Avenue S.E. near the campus.

*Comstock Hall* accommodates sophomore, junior, senior, and graduate women in large double and single rooms. This hall is situated along the Mississippi River close to the center of University life.

*Pioneer Court*, providing housing for undergraduate and graduate women, is located adjacent to Pioneer Hall for men and faces on East River Road. Women residents will share the common facilities of dining and recreation with men residing in Pioneer Hall.

*Middlebrook Hall*, accommodating undergraduate and graduate men and women, is located on the West River Road close to the center of the West Bank campus area.

*Bailey Hall* is a dormitory for undergraduate and graduate men and women on the St. Paul Campus.

### **HALLS FOR MEN**

(Minneapolis Campus)

*Pioneer*, *Centennial*, *Territorial*, and *Frontier Halls* are located in a quadrangle on the edge of the campus near the East River Road. These halls accommodate 2,360 men. Special houses for graduate students are available. Most unmarried dental students live in either Centennial or Pioneer Halls.

*Middlebrook Hall*, accommodating undergraduate and graduate men and women, is located on the West River Road close to the center of the West Bank campus area.

*Bailey Hall* is a dormitory for undergraduate and graduate men and women on the St. Paul Campus.

### **COOPERATIVE HOUSING FOR MARRIED STUDENTS**

*Commonwealth Terrace*, new permanent apartments for married students and located on the St. Paul Campus, provides housing for 362 families in one- and two-bedroom units, unfurnished except for stove and refrigerator.

*Thatcher Hall*, for married graduate students only, is located at the edge of the St. Paul Campus. The building contains efficiency and one-bedroom furnished apartments and one two-bedroom apartment.

The demand for family housing is great and an early application is advisable. Applications for any of the locations should be sent to the Family Housing Office, 1295 Gibbs Avenue, St. Paul, Minnesota 55108.

#### PRIVATE HOUSING

Vacancies in apartments, housekeeping units, and sleeping rooms are reported to the Housing Office, where students may get help with housing. Non-University housing is inspected to secure adequate housing standards for health, safety, and study conditions. Married students have found it desirable for one member of the family to come and live in temporary accommodations while looking for quarters for the entire family.

Rooms or apartments in private residences must be engaged "on the spot" — no reservations can be made before arrival on campus. Students should make arrangements for housing at an early date before classes begin to be assured of adequate quarters. Single students, under 21 years of age, must have approval of the Housing Office and their parents to live in an apartment.

Whatever lease arrangement you make, housing regulations provide that you must give notice according to rental pay period if you plan to move. Any change of address must be reported to the Housing Office. The Housing Office is the agency to consult in case of problems or difficulties about housing, or about your privileges, rights, and obligations. Use of its counsel in a dispute is likely to lead to a satisfactory conclusion.

#### MOVING TO FRATERNITIES AND SORORITIES

Joining a fraternity or sorority does not excuse you from a rooming contract. If you plan to move to a fraternity or sorority house, you should make the move at the expiration of your contract or room commitment, or at such time as you are able to furnish a substitute to take over your contract. Information on rush week and fraternity and sorority pledging may be obtained from the Student Activities Bureau, 110 TNM, University of Minnesota, Minneapolis, Minnesota 55455.

#### *University Health Service*

Medical care and health counseling are provided for all students through the University Health Service. No charge is made to students for general care or for consultations with a specialist on physical or mental health problems except for prolonged treatment of an elective nature for certain conditions. Medical care is given to a hospitalized student without charge, except for surgery. Students also receive specialized services, such as allergy testing and treatment, eye examinations, and laboratory services. Physical therapy and X-ray therapy are provided up to a limit of \$50 per quarter. Charges are made on a cost basis or less for dentistry, drugs, and glasses.

#### *Libraries*

The University of Minnesota Library is one of the finest libraries in existence today and ranks as one of the 10 largest university research libraries in the United States. The several library buildings in the system house well over 2 million volumes and many periodicals and pamphlets covering every

## School of Dentistry

subject in the University curriculum. Its large, airy reading rooms provide an excellent place to study.

The Biomedical Library in Diehl Hall is located 1 block south of the School of Dentistry building. It includes extensive reference materials in the fundamental and clinical health sciences. Reference books, texts, and treatises of various kinds are kept on open shelves in this library. This section includes all available literature on dentistry in book and periodical form, and additional volumes are purchased as soon as they have been recommended by the Library Committee of the faculty in dentistry. This library, with over 198,000 volumes and over 3,000 current periodical subscriptions, offers the student an excellent opportunity to secure a knowledge of the science and practice of dentistry and provides a quiet, convenient place to study.

Also, reference books and periodicals for the use of students are located in the Reading Room on the third floor in the School of Dentistry.

### Coffman Memorial Union

The Coffman Memorial Union provides extensive recreational and rest facilities for students. The 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 ballrooms are among the features that make the building a popular center of campus life.

### FOUR-YEAR PROGRAM IN DENTISTRY (1970-1971)

	Fall Qtr		Winter Qtr		Spring Qtr		Total	
	Cr	Hrs	Cr	Hrs	Cr	Hrs	Cr	Hrs
<b>Freshman Year</b>								
Dent 50 (5-650) — Oral Anatomy I .....	4	80					4	80
Dent 51 (5-651) — Oral Anatomy II .....					2	40	2	40
Dent 51 (5-725) — Oral Histology and Embryology .....					3	35	3	35
Dent 52 (5-600) — Biomaterials .....			2	20			2	20
Dent 52L (5-601) — Biomaterials Laboratory .....			2	60			2	60
Dent 65 (0-100) — Orientation to the Health Sciences .....	0	10					0	10
Dent 66 (5-026) — Preventive Dentistry I .....	2	20					2	20
Dent 68 (5-028) — Health Behavior .....			2	20			2	20
Dent 72 (5-750) — Occlusion I .....			2	30			2	30
Dent 95 (5-451) — Periodontics I .....					2	30	2	30
Dent 5-062 — Freshman Ecology Selective .....	ar	ar	ar	ar	2	ar	2	ar
Anat 105 (5-105) — Dental Microscopic Anatomy .....	6	100					6	100
Anat 108-109 (5-108/5-109) — Gross Anatomy for Dental Students .....			6	120	6	120	12	240
MdBc 104-105 (5-200/5-201) — Bio- chemistry for Dental Students .....	6	80	6	80			12	160

## Dentistry

	Fall Qtr		Winter Qtr		Spring Qtr		Total	
	Cr	Hrs	Cr	Hrs	Cr	Hrs	Cr	Hrs
MicB 100 (5-201) — Microbiology for Dental Students .....					6	90	6	90
Total — Freshman Year .....	18	290	20	330	21	315	59	935
<b>Sophomore Year</b>								
Dent 60-61 (5-550/5-551) — Dental Prosthetics I .....			3	90	2	20	5	110
Dent 73 (5-751) — Occlusion II .....			1	10			1	10
Dent 75-76-77 (5-001/5-002/5-003) — Crown and Bridge Technic .....	4	100	3	70	4	100	11	270
Dent 80 (5-700) — Oral Diagnosis I .....					1	10	1	10
Dent 81 (5-776) — Oral Radiology .....					2	20	2	20
Dent 83 (5-100) — Genetics .....			1	10			1	10
Dent 85-86 (5-150/5-151) — Operative Dentistry I .....	1	10	1	10			2	20
Dent 85L-86L (5-152/5-153) — Opera- tive Dentistry Technic Laboratory .....	3	90	3	90			6	180
Dent 87 (5-155) — Dental Assistant Utilization .....					1	10	1	10
Dent 90 (5-305) — Anesthesia and Pain Control .....					2	20	2	20
Dent 91 (5-307) — Oral Surgery I .....					1	10	1	10
Dent 96 (5-452) — Periodontics II .....	2	30					2	30
Dent 100 (5-375) — Development of Occlusion .....	4	60					4	60
Dent 5-067 — Sophomore Ecology Selective .....	ar	ar	ar	ar	2	ar	2	ar
Anat 110 (5-110) — Human Neuro- anatomy for Dental Students .....	3	40					3	40
Path 100 (5-100) — Pathology for Dental Students .....					8	130	8	130
Phsl 101 (5-101) — Human Physiology .....			8	100			8	100
Total — Sophomore Year .....	17	330	20	380	23	320	60	1030
<b>Junior Year</b>								
Dent 70 (5-555) — Dental Prosthetics II .....	1	10					1	10
Dent 70L (5-556) — Dental Prosthetics Laboratory .....	2	60					2	60
Dent 74 (5-752) — Occlusion III .....	1	10+					1	10+
Dent 78 (5-635) — Gerodontics .....					1	10	1	10
Dent 105 (5-380) — Orthodontics .....			2	20			2	20
Dent 106 (5-640) — Hospital Dentistry .....			1	22			1	22
Dent 110-111 (5-560/5-561) — Dental Prosthetics III .....	1	10	1	10			2	20
Dent 110C-111C-112C (5-562/5-563/ 5-564) — Dental Prosthetics Clinic Junior .....	2	60	2	60	2	60	6	180
Dent 115 (5-030) — Dental Literature Discussion .....			1	10			1	10
Dent 121 (5-006) — Crown and Bridge I .....			1	10			1	10
Dent 120C-121C-122C (5-010/5-011/ 5-012) — Crown and Bridge Clinic Junior .....	2	60	2	60	2	60	6	180
Dent 130 (5-701) — Oral Diagnosis II .....					2	20	2	20
Dent 132C (5-778) — Clinical Roentgenography I .....					1	30	1	30
Dent 142 (5-160) — Operative Dent- istry II .....					1	10	1	10

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	Fall Qtr		Winter Qtr		Spring Qtr		Total	
	Cr	Hrs	Cr	Hrs	Cr	Hrs	Cr	Hrs
Dent 140C-141C-142C (5-161/5-162/ 5-163) — Operative Dentistry Clinic Junior .....	3	90	3	90	3	90	9	270
Dent 144 (5-625) — Endodontics .....	2	20					2	20
Dent 149C (5-800) — Treatment Planning Clinic Junior†† .....					ar	ar††	ar	ar
Dent 150-151-152 (5-310/5-311/ 5-312) — Oral Surgery II .....	1	10	1	10	1	10	3	30
Dent 152C (5-313) — Oral Surgery Clinic†† .....					0	15††	0	15
Dent 161-162 (5-251/5-252) — Oral Pathology .....			3	40	3	40	6	80
Dent 170 (5-401) — Pediatric Dentistry I .....			1	10			1	10
Dent 171 (5-402) — Pediatric Dentistry II .....					1	10	1	10
Dent 171L (5-403) — Pediatric Dent- istry Laboratory .....					1	12	1	12
Dent 5-070/5-071/5-072 — Junior Ecology Elective .....	ar	ar	ar	ar	ar	ar	ar	ar
Dent 180-181-182 (5-455/5-456/ 5-457) — Periodontics III .....	1	10	1	10	1	10	3	30
Phcl 101-102 (5-101/5-102) — General Pharmacology .....	7	90					7	90
Phcl 108 (5-108) — Dental Therapeutics .....					1	10	1	10
<b>Total — Junior Year .....</b>	<b>23</b>	<b>430</b>	<b>19</b>	<b>352</b>	<b>20</b>	<b>387</b>	<b>62</b>	<b>1169</b>
<b>Senior Year</b>								
Dent 75 (5-753) — Occlusion IV (elective) .....	ar	ar	ar	ar	ar	ar	ar	ar
Dent 106C (5-641) — Hospital Dent- istry Clerkship** .....					1	30**	1	30
Dent 5-642 — Clinical Hospital Dentistry (elective) .....					ar	ar	ar	ar
Dent 115C-116C-117C (5-565/5-566/ 5-567) — Dental Prosthetics Clinic Senior .....	2	60	2	60	2	60	6	180
Dent 125 (5-007) — Crown and Bridge II .....	1	10					1	10
Dent 125C-126C-127C (5-015/5-016/ 5-017) — Crown and Bridge Clinic Senior .....	2	60	2	60	2	60	6	180
Dent 127-128-129 (5-020/5-570/ 5-168) — Seminar: Restorative Dentistry** .....	1	10	1	10	1	10**	3	30
Dent 135 (5-702) — Oral Medicine .....	2	20					2	20
Dent 138 (5-780) — Radiation Biology .....			1	10			1	10
Dent 145 (5-626) — Endodontics Clinic .....			2	60			2	60
Dent 145C-146C-147C (5-165/5-166/ 5-167) — Operative Dentistry Clinic Senior .....	2	60	3	90	2	60	7	210
Dent 149C (5-801) — Treatment Planning Clinic Senior** .....					ar	ar**	ar	ar
Dent 149 (5-802) — Treatment Planning .....					ar	ar	ar	ar
Dent 153 (5-315) — Oral Surgery III .....	1	10					1	10
Dent 153C (5-316) — Oral Surgery Clinic** .....					2	60**	2	60
Dent 165 (5-675) — Oral Biology .....			2	20			2	20

## Dentistry

	Fall Qtr		Winter Qtr		Spring Qtr		Total	
	Cr	Hrs	Cr	Hrs	Cr	Hrs	Cr	Hrs
Dent 172 (5-404) — Pediatric Dentistry III .....	1	10	.....	.....	.....	.....	1	10
Dent 173C-174C-175C (5-410/5-411/5-412) — Clinical Pediatric Dentistry .....	1	30	1	30	1	30	3	90
Dent 177 (5-036) — Community Communications .....	.....	.....	3	30	.....	.....	3	30
Dent 5-075/5-076/5-077 — Senior Ecology Elective .....	ar	ar	ar	ar	ar	ar	ar	ar
Dent 186C (5-465) — Periodontics Clinic†† .....	.....	.....	4	120††	.....	.....	4	120
Dent 195-198-199 (5-040/5-041/5-042) — Dental Jurisprudence and General Practice .....	1	10	1	10	1	10	3	30
Dent 196-197 (5-044/5-045/5-046) — Professional Orientation .....	1	10	2	20	1	10	4	40
<b>Total — Senior Year .....</b>	<b>15</b>	<b>290</b>	<b>24</b>	<b>520</b>	<b>13</b>	<b>330</b>	<b>52</b>	<b>1140</b>

\*\* Students participate in these courses throughout the senior year with credit given and hours recorded at the end of spring quarter.

†† Students participate in this course throughout the junior and senior years with credit given and hours recorded at the end of winter quarter of the senior year.

† Students participate in these courses throughout the junior year with hours recorded and/or credit given at the end of the spring quarter.

## DESCRIPTION OF COURSES

### DENTISTRY (*Dent*)

#### Division of Crown and Bridge

##### *Professor*

Douglas H. Yock, D.D.S., M.S., *chairman*  
Hubert H. Serr, M.A., D.D.S., M.S.

##### *Associate Professor*

Robert D. Jeronimus, D.D.S., M.S.

##### *Clinical Associate Professor*

Lee C. Hermann, D.D.S.  
Robert R. Hoover, D.D.S.  
Charles B. McAllister, D.D.S.

##### *Assistant Professor*

Harold A. Pressman, D.D.S., M.S.

##### *Clinical Assistant Professor*

Rad M. Jevric, D.D.S.  
George D. MacGibbon, D.D.S.  
Eugene A. Moll, D.D.S.

##### *Clinical Instructor*

Stephen P. Broderson, D.D.S.  
Charles H. Colby, D.D.S.  
Peter A. Haarala, D.D.S.  
James E. Indrehus, D.D.S.  
Kenneth D. Salo, D.D.S.  
Richard C. Stoffel, D.D.S.  
Terrence L. Tri, D.D.S.  
Walter M. Zierman, D.D.S.

##### *Lecturer*

Arthur R. Schmidt, D.D.S.

**75-76-77 (5-001/5-002/5-003). CROWN AND BRIDGE TECHNIC.** (4-3-4 cr; 270 lab and lect hrs) Serr and staff

Lectures, demonstrations, and laboratory procedures, including exercises in casting, soldering, and the construction of a mandibular hygienic bridge, maxillary posterior bridge, maxillary and mandibular anterior bridges, resin and porcelain crowns. An illustrated syllabus aids students in carrying out each project. Weekly lectures cover laboratory techniques and fundamental principles.

## School of Dentistry

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- 121 (5-006). CROWN AND BRIDGE.** (1 cr; 10 lect hrs) Yock, Jeronimus, Pressman  
History of crown and bridge work, interpretations and objectives of the course, definitions and nomenclature, aims of the service, diagnosis, a consideration of types of abutment, retainers, and pontics.
- 125 (5-007). CROWN AND BRIDGE.** (1 cr; 10 lect hrs) Yock, Pressman, Jeronimus  
Ceramics and resins as related to aesthetics in clinical restorative dentistry. Fundamental principles and technics proven to be biologically and mechanically sound are reviewed. Review of fixed prosthodontic literature is required which is correlated with lectures, slides, movies, and seminar discussion.
- 120C-121C-122C (5-010/5-011/5-012). CROWN AND BRIDGE CLINIC.** (2 cr per qtr; 180 clin hrs) Yock and staff  
Demonstrations and clinical practice designed to orient the student in the dental clinic. Instruction is given in the diagnosis, designing, and construction of the simpler cases.
- 125C-126C-127C (5-015/5-016/5-017). CROWN AND BRIDGE CLINIC.** (2 cr per qtr; 180 clin hrs) Yock and staff  
An advanced clinical course. Demonstrations and clinical practice. Includes the use of porcelain and resins in fixed crown and bridge prosthodontics, together with instruction in the diagnosis, treatment planning, and fabrication of the more complicated cases emphasizing complete mouth rehabilitation.
- 127 (5-020). SEMINAR: RESTORATIVE DENTISTRY.** (1 cr; 10 lect hrs) Yock, Folke, Jensen, Morstad  
Correlated series of lectures on the clinical approach to crown and bridge, operative, periodontic, and prosthetic dentistry which overlap in technical procedures and biological concepts.

## Division of Health Ecology

### *Professor*

Lawrence H. Meskin, D.D.S., M.S.D.,  
M.P.H., Ph.D., *chairman*

### *Visiting Professor*

J. Rennie Porteous, B.D.S. (U. Durham),  
M.D.S. (U. Ncle.)

### *Associate Professor*

John G. Geier, Ph.D., *associate chairman*  
Carl L. Bandt, D.D.S., M.S.D.

### *Assistant Professor*

David O. Born, Ph.D.  
James Canalichio, D.D.S., M.P.H.  
Richard Gordon, D.D.S., M.P.H.  
Kurt J. King, D.D.S., M.S.D.  
Michael Loupe, Ph.D.  
L. Neil McKenzie, D.M.D., M.P.H.  
Joanna Samuels, Ed.D.  
John Vincent, Ph.D.  
Jean Woodbury, B.A., M.P.H.

### *Clinical Assistant Professor*

Esther D. King, D.D.S.

### *Professorial Lecturer*

Irving R. Brand, LL.B.

### *Instructor*

Katherine Hirt, G.D.H., B.A.  
James I. Swenson, D.D.S.  
John M. Proshek, B.S.

### *Lecturer*

Richard Carlson, LL.B.  
William A. Jordan, D.D.S., M.P.H.  
Harold A. Miller, Ph.D.  
Quentin T. Smith, M.A.

### *Teaching Assistant*

Kenneth Zakariasen, Jr., D.D.S.

### *Intercultural Specialist*

Rita Hayden

- 66 (5-026). PREVENTIVE DENTISTRY: PHILOSOPHY AND CONCEPTS.** (2 cr; 20 lect hrs) Meskin and staff

Introduction to basic principles of preventive dentistry. The interrelationship of oral and general disease processes; the epidemiology of oral disease and implementation of preventive procedures on individual and community levels and recent changes in public health programs and their effect on dental practice will be stressed.



*Student Teaching Personal Oral Hygiene As One Means of Preventive Dentistry*

- 68 (5-028). HEALTH BEHAVIOR.** (2 cr; 20 lect hrs) Samuels and Woodbury  
Designed to offer dental students the opportunity to gain insight into the health behavior of people in all socioeconomic population groups. Through lecture, discussion, and group projects, students will gain ability to identify cultural, psychological, social, environmental, and individual determinants of health behavior and skill in applying this knowledge to planning and designing educational programs.
- 115 (5-030). DENTAL LITERATURE DISCUSSION.** (1 cr) Meskin and staff  
Utilizing the small group concept, students and staff critically will examine material presented in the dental literature for its design, content, and validity of conclusions. Emphasis will be placed on increasing the communication between dental investigators and practitioners.

## School of Dentistry

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- 5-062. FRESHMAN ECOLOGY SELECTIVE.** (2 cr) Meskin and staff  
Freshmen may select a course of study from several offerings. These "selectives" are taught by resource people from the Health Ecology faculty, the University of Minnesota faculty at large, and community professional educators in health-related activities. These selectives vary from year to year according to the current problems in the changing health programs.
- 5-067. SOPHOMORE ECOLOGY SELECTIVE.** (2 cr) Meskin and staff  
Sophomores will have opportunity to select a "track of interest." Specific areas include: health care delivery process, community health, rural health, minority group member interest, etc.
- 5-070, 5-071, 5-072. JUNIOR ECOLOGY ELECTIVE.**  
Juniors will again follow a "track of interest."
- 5-075, 5-076, 5-077. SENIOR ECOLOGY ELECTIVE.**  
Specific "tracks of interest" will be completed.
- 177 (5-036). COMMUNITY COMMUNICATION.** (3 cr; 30 lect hrs) Geier and staff  
The training of the dental student as an effective communicator with patients, auxiliary personnel, community individuals and groups, physicians and dentists. Specifically, through observation and participation the student will gain a greater appreciation for the skill to help him understand different types of communicative behavior.
- 195-198-199 (5-040/5-041/5-042). DENTAL JURISPRUDENCE AND ETHICS.** (1-1-1 cr) Brand  
Judicial systems, administration, and proceedings; regulation of practice of dentistry; organization of practice; ethics; advertising; fee splitting, etc.; legal problems incident to purchasing and leasing real estate and purchasing personal property; accounting; wills and estate planning; contracts; malpractice; and insurance.
- 196-197 (5-044/5-045/5-046). PROFESSIONAL ORIENTATION.** (1-2-1 cr) King and staff  
Philosophy of dental practice; dental organizations. Practice: types, locations; finance planning; relations with outside agencies; forms and records; auxiliary personnel; fee determination and collection; insurance and taxes; treatment planning and counseling. Estate planning; investments and retirement planning. The last quarter will be devoted to an assimilated postgraduate continuing education program. The students will be given a budget to develop their own faculty and evaluation system.

### Division of Human Oral Genetics

*Professor*

Carl J. Witkop, D.D.S., M.S., *chairman*

*Assistant Professor*

Karlind T. Moller, Ph.D.

*Associate Professor*

Burton L. Shapiro, D.D.S., M.S.D., Ph.D.

C. Roberto Umana, M.D., Ph.D.

Kathleen M. Keenan, Ph.D.

- 83 (5-100). GENETICS: AN INTRODUCTION FOR DENTAL STUDENTS.** (1 cr; 10 hrs) Shapiro

Lectures on chemical basis of heredity; cytogenetics, genetic ratios, methodology of human genetics, heredity and environment, and mutation and radiation. Genetic principles related to specific problems in dentistry.

### Division of Operative Dentistry

*Professor*

John W. Wakely, D.D.S., M.S.,  
*acting chairman*

Kenneth J. Buechele, D.D.S.

Peter S. Gregus, D.D.S.

Miles B. Hirschey, D.D.S.

Kenji Horita, D.D.S.

Carl J. Olson, D.D.S., M.S.D.

*Clinical Associate Professor*

Herman T. Aeziman, D.D.S.

William F. Braasch, D.D.S.

*Assistant Professor*

Richard H. Gordon, D.D.S., M.P.H.

*Clinical Assistant Professor*

William C. Bender, D.D.S.  
Thomas H. Rollin, D.D.S.  
Anthony D. Romano, D.D.S.  
Ralph B. Werner, D.D.S.  
George H. Winn, D.D.S.  
Alan L. Zabka, D.D.S.  
Edgar F. Ziegler, D.D.S.

*Instructor*

Mirdza Kaufmanis, D.D.S.

*Clinical Instructor*

Anthony F. Antoncich, D.D.S.  
Stephen H. Christensen, D.D.S.  
Perry W. Dungey, D.D.S.  
David W. Dvorak, D.D.S.  
William A. Gavin, D.D.S.  
Chester I. Hegstrom, D.D.S.  
Eugene F. Jasper, D.D.S.  
Donald G. McMillan, D.D.S.  
George J. Posavad, Jr., D.D.S.  
John W. Thibodo, D.D.S.  
John B. Vick, D.D.S.  
Carl B. Walden, D.D.S.  
Greg T. Walling, D.D.S.  
Arne R. Westerback, D.D.S.

**85-86 (5-150/5-151). OPERATIVE DENTISTRY.** (1 cr per qtr; 20 lect hrs) Wakely and staff

Lectures on the nomenclature of operative dentistry, cavity design and classification, composition of materials, instrumentation and the fundamental basis of the technics employed.

**85L-86L (5-152/5-153). OPERATIVE DENTISTRY LABORATORY.** (3 cr per qtr; 180 lab hrs) Wakely and staff

Instruction on the technics and principles of cavity preparation, manipulation of restorative materials, and instrumentation in operative dentistry in conjunction with the foregoing. Extracted teeth are sectioned, and also instruction in the technic of endodontics is employed. Use of broaches, reamers, and files is taught in the instrumentation of the canals.

**87 (5-155). DENTAL AUXILIARY UTILIZATION.** (1 cr; 10 lect hrs) Wakely and staff

Lectures and demonstrations on the practical use of dental auxiliaries. Instrument exchange, chair positioning, and indoctrination in various types of office equipment, along with routinized procedures, is stressed to improve efficiency and quality of dental practice.

**142 (5-160). OPERATIVE DENTISTRY.** (1 cr; 10 lect hrs) Wakely and staff

Advanced clinical technics with special concepts and modifications in cavity design, biological considerations in the application of operative dentistry; technical information on the use of materials adjunctive to restorative technics and treatment planning.

**140C-141C-142C (5-161/5-162/5-163). OPERATIVE DENTISTRY CLINIC.** (3 cr per qtr; 270 clin hrs) Wakely and staff

Preliminary indoctrination to clinical procedures, consisting of small group clinics demonstrating operative procedures on patients. During the remainder of junior year, students practice operative dentistry on assigned patients under the close supervision of staff.

**145C-146C-147C (5-165/5-166/5-167). CLINICAL OPERATIVE DENTISTRY.** (2-3-2 cr; 210 clin hrs) Wakely and staff

Upon evidence of satisfactory orientation into the operative clinic, the senior student engages in a clinical practice in which requirements for graduation are both qualitative and quantitative. Under direction of the staff, emphasis is placed upon efficiency and finesse in operating. Practical examinations are held during final week of each quarter to determine progress.

**129 (5-168). SEMINAR: RESTORATIVE DENTISTRY.** (1 cr; 10 lect hrs) Wakely, Folke, Morstad, Yock

Correlated series of lectures on the clinical approach to crown and bridge, operative, prosthetic, and periodontic dentistry which overlap in technical procedures and biological concepts.

## *School of Dentistry*

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### Division of Oral Biology

*Professor*

Burton L. Shapiro, D.D.S., M.S.D., Ph.D.,  
*chairman*

*Assistant Professor*

Clyde Schwartz, Ph.D.

*Associate Professor*

Robert S. Redman, D.D.S., M.S.D., Ph.D.  
Quenton T. Smith, Ph.D.

**165 (5-675). ORAL BIOLOGY: FUNDAMENTAL AND APPLIED. (2 cr; 20 lect hrs)**

Singer, Shapiro, and other basic science and clinical faculty members

Seminar-like discussions of the most current concepts of certain oral diseases and conditions with integration of the basic science and clinical aspects of these abnormalities. Discussions will be on topic basis with several faculty often participating at the same 2-hour session. Diseases and conditions will include caries, malignancies, malocclusion, periodontal disease, and pulpal disease.



*Instruction in Oral Histology and Embryology*

Division of Oral Pathology

Professor

Robert J. Gorlin, D.D.S., M.S., *chairman*  
Robert A. Vickers, D.D.S., M.S.D.

Assistant Professor

Heddie O. Sedano, D.D.S., Dr. O.

Clinical Assistant Professor

Carolyn D. Hudson, B.D.S., M.S.D.

51 (5-725). ORAL HISTOLOGY AND EMBRYOLOGY. (3 cr; 20 lect and 15 lab hrs)  
Sedano and staff

Lectures and laboratory sessions have been designed to aid the study of embryology and histology of human oral structures as well as other body parts of the head and neck region. The histology and embryology of teeth, mandible, maxillae, palate, tongue, salivary glands will be stressed and, when possible, correlation to abnormalities of development discussed.

80 (5-700). ORAL DIAGNOSIS I. (1 cr; 10 lect hrs) Staff

Oral examinations, methods of investigation, recording of clinical data, and use of diagnostic laboratory aids.

130 (5-701). ORAL DIAGNOSIS II. (2 cr; 20 hrs) Staff

Series of lectures on the clinical appearance, natural history, and treatment of oral lesions. Oral manifestations of systemic and local diseases are also discussed.

135 (5-702). ORAL MEDICINE. (2 cr; 20 hrs) Staff

Internal medicine for dental students. Systemic diseases as they affect the dental practice are discussed. Principles of physical diagnosis, history taking, diagnosis and management of office emergencies, and clinical pharmacology are also discussed. Small group conferences on procedures for physical diagnosis, respiratory and cardiac resuscitation, emergency medications and equipment, and ward rounds are arranged.

161-162 (5-251/5-252). ORAL PATHOLOGY. (3 cr per qtr; 40 lect and 40 lab hrs)  
Gorlin and staff

Lectures and laboratory work covering the histopathology of the teeth and related oral tissues including embryologic considerations. Special pathology of the oral region as well as the relation of local pathologic findings to systemic conditions and to general pathology is emphasized. Microscope required; use of microscope may be obtained by purchasing \$3 microscope card from bursar.

Division of Oral Surgery

Professor

Daniel E. Waite, D.D.S., M.S., *chairman*  
Mellor R. Holland, D.D.S., M.S.D.  
Norman O. Holte, D.D.S., M.S.

Associate Professor

Emil W. Steinhauser, M.D., D.D.S.

Clinical Associate Professor

Theodore H. Dedolph, D.D.S., M.S.D.

Assistant Professor

Clyde H. Wilkes, D.D.S., M.S.D., Ph.D.

Clinical Assistant Professor

William P. Frantzich, D.D.S., M.S.D.  
Dean S. Brandsness, D.D.S.  
George W. Carrol, D.D.S., M.S.  
William C. Randall, D.D.S., M.S.D.  
Franklin R. Stickel, D.D.S., M.S.D.  
James F. Kline, D.D.S.  
Daniel A. Larson, D.D.S., M.S.D.  
Kenneth J. Richter, D.D.S., M.S.D.  
Harrie T. Shearer, D.D.S., M.S.

Clinical Instructor

Paul R. Morgan, D.D.S.

90 (5-305). ANESTHESIA AND PAIN CONTROL. (2 cr; 20 lect hrs) Holte and staff  
The principles of local and general anesthesia are discussed and illustrated.

91 (5-307). ORAL SURGERY I. (1 cr; 10 lect hrs) Holland and staff  
Introductory principles and practice of oral surgery. Armamentarium, diagnostic procedures, and the indication for tooth removal are presented.

## School of Dentistry

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- 150-151-152 (5-310/5-311/5-312). ORAL SURGERY II.** (3 cr; 30 lect hrs) Waite and staff  
The technic for removal of erupted and unerupted teeth and alveolectomy procedures presented by lectures, slide, and motion pictures. Surgical procedures in relation to systemic disease, hospital operating room, and the correlation of the basic sciences are important considerations. The diagnosis and treatment of infections and injuries are covered in detail.
- 152C (5-313). ORAL SURGERY CLINIC FOR JUNIORS.** (No cr; 15 hrs) Waite and staff  
Provides primary observation and assisting experience in oral surgery for the junior students. However, the screening and examining of patients, and performing minor oral surgical procedures may also be a part of this experience.
- 153 (5-315). ORAL SURGERY III.** (1 cr; 10 lect hrs) Waite and staff  
Senior seminar in oral surgery. Covers special conditions relating to oral surgery such as fractures of the jaws, cysts, benign tumors, jaw deformities, and affections of the nerves of the face and oral cavity.
- 153C (5-316). ORAL SURGERY CLINIC FOR SENIORS.** (2 cr; 60 hrs) Waite and staff  
Clinical experience in oral surgery in the School of Dentistry and the University Hospitals are provided for the senior student. The time is devoted to the practice of exodontia, including alveolectomy, alveoplasty, and biopsy procedures. The treatment of infections and general postoperative conditions will be a part of this experience. The regular use of medications, intravenous intramuscular injections, and local anesthesia are an accepted part of the clinic.

### Division of Orthodontics

#### Professor

Robert J. Isaacson, D.D.S., M.S.D., Ph.D.,  
chairman

#### Clinical Professor

Sherwood R. Steadman, D.D.S., M.S.  
Theodore T. Edblom, D.D.S., M.S.D.

#### Clinical Associate Professor

Frank W. Worms, D.D.S., M.S.D.

#### Assistant Professor

T. Michael Speidel, D.D.S., M.S.D.  
Richard R. Bevis, D.D.S., Ph.D.  
Robert H. Ervin, D.D.S., M.S.

#### Lecturer

Walter M. Jacobsen, D.D.S., M.S.

- 100 (5-375). DEVELOPMENT OF OCCLUSION.** (4 cr; 30 lect and 30 lab hrs) Isaacson and staff  
Factors contributing to the normal and abnormal development of the deciduous, mixed, and permanent dentitions.
- 105 (5-380). ORTHODONTICS.** (2 cr; 20 lect hrs) Staff  
Principles and procedures in preventive, interceptive, and corrective orthodontics. Analysis of cases and treatment planning.

### Division of Pediatric Dentistry

#### Associate Professor

Michael J. Till, D.D.S., Ph.D., chairman

#### Assistant Professor

Louise B. Messer, M.D.Sc.  
Freeman N. Rosenblum, D.D.S., M.S.D.  
Kurt J. King, D.D.S., M.S.D.

#### Clinical Assistant Professor

Robert J. Boller, D.D.S., M.S.D.  
Carolyn M. Hudson, M.S.D.

#### Instructor

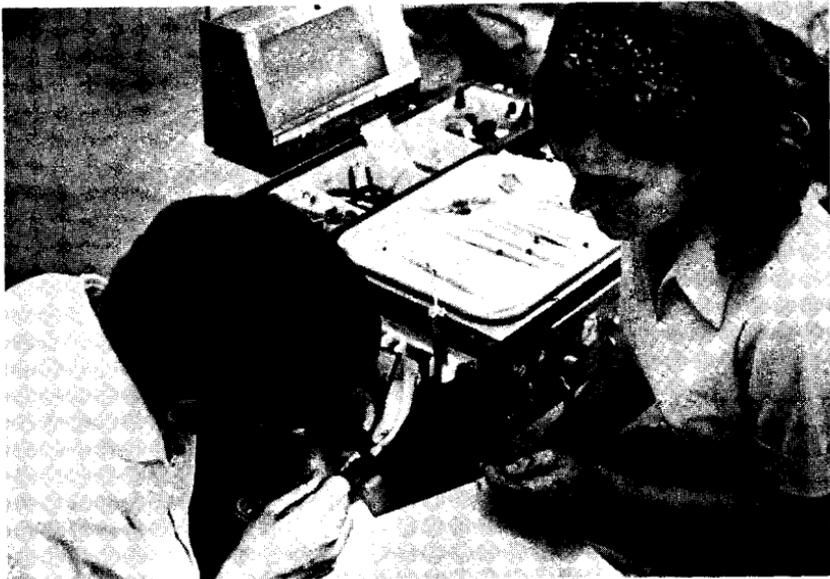
Jay T. Cline, D.D.S.  
Elliot B. Karpeles, D.D.S.

#### Clinical Instructor

Carl D. Bauer, D.D.S.  
Carter F. Johnson, D.D.S.  
Edward V. Kuch, D.M.D.  
Lennard R. Lindquist, D.D.S.  
Thomas J. McCarter, D.D.S.

- 170 (5-401). PEDIATRIC DENTISTRY.** (1 cr; 10 lect hrs) Till and staff  
Lecture course dealing with the physical and emotional development of the child and management of patient behavior; principles of preventive dentistry.

- 171 (5-402). **PEDIATRIC DENTISTRY.** (1 cr; 10 lect hrs) Till and staff  
Lecture course dealing with principles of diagnosis and therapy of periodontal and endodontic problems; roentgenographic procedures and interpretation; management of traumatized teeth in children.
- 171L (5-403). **PEDIATRIC DENTISTRY LABORATORY.** (1 cr; 12 lab hrs) Till and staff  
Instruction in the principles and techniques of dental restorative procedures in children.
- 172 (5-404). **PEDIATRIC DENTISTRY.** (1 cr; 10 lect hrs) Till and staff  
Lecture course dealing with the clinical aspects of interceptive orthodontics; review of behavioral management; introduction to hospital pediatric dentistry and panel discussions on clinical problems.
- 173C-174C-175C (5-410/5-411/5-412) **CLINICAL PEDIATRIC DENTISTRY.** (1 cr per qtr; 90 clin hrs) Till and staff  
Students perform diagnosis, treatment planning, and operative procedures on children aged between 2 and 12 years. Careful patient selection and allocation is attempted in order to ensure that each student acquires a broad experience in all phases of pediatric dentistry. Supplementary elective programs are available.



*Team Approach to Pediatric Dentistry*

### **Division of Periodontics**

*Professor*

Erwin M. Schaffer, D.D.S., M.S.D.

*Associate Professor*

Lars E. A. Folke, D.D.S., M.S.D., Ph.D.,  
*chairman*

Carl L. Bandt, D.D.S., M.S.D., M.S.,  
*clinical director*

James H. Butler, D.D.S., M.S.,  
*coordinator of occlusion*

*Clinical Associate Professor*

William L. Hartwick, D.D.S.

Norman A. Korn, D.D.S., M.S.D.

Ronald E. LaBelle, D.D.S., M.S.D.

George C. Lawther, D.D.S., M.S.D.

Eric E. Stafne, D.D.S., M.S.D.

*Assistant Professor*

Joyce H. LeFebvre, D.D.S., M.S., M.S.D.

Albert M. Weissman, D.D.S., M.S.D.

Hussain A. Zaki, B.D.S., M.P.H., M.S.D.

## School of Dentistry

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### *Clinical Assistant Professor*

George E. Fischer, D.D.S., M.S.D.  
Kent A. Hove, D.D.S., M.S.D.  
Willis B. Iron, D.D.S., M.S.D.  
Millard J. Kimery, D.D.S., M.S.D.  
Patrick J. Murphy, D.D.S., M.S.D.

### *Clinical Instructor*

James A. Swenson, D.D.S.  
Robert V. Shelton, D.D.S.

- 95 (5-451). **PERIODONTOLOGY I.** (2 cr; 10 lect and 20 clin hrs) Bandt and staff  
Introduction to periodontology emphasizing the basic principles of periodontal anatomy, physiology, and pathology. Epidemiology will also be discussed in association with clinical instruction in preventive periodontal therapy.
- 96 (5-452). **PERIODONTOLOGY II.** (2 cr; 10 lect and 20 clin hrs) Zaki, Folke, and staff  
Continuation of Dent 95.
- 180-181-182 (5-455/5-456/5-457). **PERIODONTOLOGY III.** (1 cr per qtr; 30 lect hrs)  
LaBelle, Folke, and staff  
Etiology, diagnosis, treatment, and prevention of periodontal disease will be discussed in detail. Microscopic analysis of the structures involved will be studied in reference to various clinical manifestations.
- 186C (5-465). **CLINICAL PERIODONTOLOGY.** (4 cr; 120 clin hrs) Bandt and staff  
Clinical practices in the treatment of diseases affecting the investing tissues of the teeth.

## Division of Prosthodontics

### *Professor*

Andrew T. Morstad, D.D.S., M.S.,  
*chairman*  
E. Severn Olsen, D.D.S., M.S.D.

### *Clinical Professor*

Roy M. Jernall, D.D.S.

### *Associate Professor*

Maurice W. Meyer, D.D.S., Ph.D.

### *Clinical Associate Professor*

Edward E. Anderson, D.D.S., M.S.  
Lee A. Harker, D.D.S.  
Robert J. Jacobsen, D.D.S.  
Allan D. Petersen, D.D.S.  
Clarence N. Reierson, D.D.S.

### *Assistant Professor*

Richard J. Goodkind, D.D.S., M.S.D.

### *Clinical Assistant Professor*

David G. Anderson, D.D.S.  
Leonard H. Arndt, D.D.S.  
Donald O. Erickson, D.D.S.  
John F. Erickson, D.D.S.  
Edward H. Lechner, D.D.S.  
Imants R. Niels, D.D.S.  
Walter S. Warpeha, D.D.S.

### *Clinical Instructor*

Patrick A. Cady, D.D.S.  
George J. Hayano, D.D.S.  
Jerome H. Kleven, D.D.S.

- 60-61 (5-550/5-551). **DENTAL PROSTHETICS I.** (3-2 cr; 90 lab and 20 lect hrs)  
Morstad, Petersen, and staff  
Lectures, demonstrations, and laboratory instruction covering the various phases of complete denture prosthetics; the manipulation and use of prosthetic dental materials, fundamental principles of complete denture construction including primary and final impressions, pouring casts, establishing jaw relationships, the arrangement of denture teeth, and principles of occlusion; prescription writing and the student relationship with dental laboratories.
- 70 (5-555). **DENTAL PROSTHETICS.** (1 cr; 10 lect hrs) Anderson  
A lecture series presents an introduction to designing of partial dentures by coordinating the laboratory instruction with the knowledge the student is acquiring in the basic science courses.
- 70L (5-556). **DENTAL PROSTHETICS LABORATORY.** (2 cr; 60 lab hrs) Anderson and staff  
Instruction includes the construction of cast removable partial dentures on models.
- 110-111 (5-560/5-561). **DENTAL PROSTHETICS.** (1 cr per qtr; 20 lect hrs) Morstad and Anderson  
Lectures on complete and partial denture prosthesis correlating the student's accumulated knowledge in the fundamental sciences and dental technics to enable

him to carry out procedures and solve problems associated with removable denture prosthesis.

**110C-111C-112C (5-562/5-563/5-564). DENTAL PROSTHETICS CLINIC.** (2 cr per qtr; 180 clin hrs) Morstad, Anderson, Petersen, and staff

Clinical practice in removable complete denture prosthesis. Patients are assigned to seven students with one instructor. Through the use of demonstrations and seminars, complete upper and lower dentures are made for each patient. An integral part of the program is to develop an understanding of the biomechanical aspects of dental prosthesis and also to teach the proper and efficient use of auxiliary dental personnel such as the laboratory technician. As the student advances through the year, less supervision is given.

**115C-116C-117C (5-565/5-566/5-567). DENTAL PROSTHETICS CLINIC.** (2 cr per qtr; 180 clin and lab hrs) Morstad, Anderson, Petersen, and staff

Clinical practice in removable denture prosthesis continuing the work of the junior year. In addition, immediate denture prosthesis, three partial dentures, and prosthesis for an abnormal mouth condition are required. Practical examinations are given encompassing clinical practices taught in the course.

**128 (5-570). SEMINAR: RESTORATIVE DENTISTRY.** (1 cr; 10 lect hrs) Morstad, Jensen, Yock, Folke

Correlated series of lectures on the clinical approach to crown and bridge, operative, periodontic, and removable prosthetic dentistry which overlap in technical procedures and biological concepts.

### Nondivisional Courses

*Professor*

Anna T. Hampel, D.D.S., M.S.D.,  
chairman

*Associate Professor*

Maurice W. Meyer, D.D.S., Ph.D.

*Clinical Associate Professor*

Robert J. Jacobsen, D.D.S.

*Assistant Professor*

Richard H. Gordon, D.D.S., M.P.H.

Odin M. Langsjoen, D.D.S.

Heddie O. Sedano, D.D.S., M.S.

*Clinical Assistant Professor*

James R. Folske, D.D.S.

Peter M. Holm, D.D.S.

Eric G. Schleder, D.D.S.

*Clinical Instructor*

Cory H. Kruckenberg, D.D.S.

**5-635. GERODONTICS.** (1 cr; 10 lect hrs) Gordon and staff

Lectures on the dynamics of the human aging process and the anticipation and treatment of dental problems of geriatric patients. The sociological, psychological, economic, and physiological changes that accompany human aging will be presented as the basic information upon which dental and general health judgments must be made in planning and delivering health services for older people. This course is the background for clinical geriatric dentistry requirements and field and seminar course to be taken later in the curriculum schedule.

**50 (5-650). ORAL ANATOMY.** (4 cr; 40 lect and 40 lab hrs) Langsjoen and staff

Lecture course includes classification, identification, and method of charting the human dentition, primary and permanent; detailed study of tooth morphology together with terminology used in describing same; rudimentary study of pulp cavity design and periodontium; calcification and eruption sequences as they pertain to the growth and development of the oral cavity. Laboratory exercises are designed to reinforce lecture material as well as to develop the manual skills necessary to reproduce fine tooth detail. They include: outline drawings of representative teeth—five aspects per tooth; sectioning of actual tooth specimens followed by replacement with wax of contours removed in sectioning; wax reproduction of complete crown forms in proximal contact with emphasis on geometric shape, alignment, contact placement, and embrasure form.

**51 (5-651). INTRODUCTION TO OCCLUSAL ANATOMY.** (2 cr; 20 lect and 20 lab hrs; prereq 50) Langsjoen and staff

## *School of Dentistry*

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A series of lectures and slide presentations designed to correlate tooth morphology with the functional demands of the complete masticatory system. Laboratory includes a "wax-added" exercise designed to reinforce the student's grasp of the lecture material as well as introduce him to a new method of reproducing tooth form. Two quadrants of functional occlusal anatomy are developed on stone casts mounted in a semi-adjustable articulator.

- 52 (5-600). **BIOMATERIALS.** (2 cr; 20 lect hrs) Hampel and faculty members from Crown and Bridge, Operative Dentistry, Oral Anatomy, and Prosthodontics.

Lectures on the physical, chemical, and mechanical properties of materials used in dentistry with emphasis on their biological effects on the dental and oral tissues.

- 52L (5-601). **BIOMATERIALS LABORATORY.** (2 cr; 60 lab hrs) Hampel and faculty members from Crown and Bridge, Operative Dentistry, Oral Anatomy, and Prosthodontics

Laboratory projects to illustrate principles involved in the successful manipulation of dental materials.

- 65 (0-100). **ORIENTATION TO ORAL HEALTH SCIENCE.** (No cr; 10 clin hrs) Staff  
Prior to the beginning of fall classes, the freshman students will be given a series of special lectures on the science of dentistry as part of their general orientation program. In these lectures, faculty will bring the curriculum and the profession into a proper perspective for the first-year student. Philosophy and responsibility of the dental profession to practice preventive dentistry and comprehensive dental care will be stressed. During fall quarter, the freshman students will find this information useful as they observe the rendering of oral health care in the dental clinics of the School of Dentistry.

- 72 (5-750). **OCCCLUSION I.** (2 cr; 10 lect and 20 lab and clin hrs) Butler and staff on an interdisciplinary basis

Principles of occlusion with consideration of the history of occlusion, anatomy of the masticatory system, articulators and articulation of models, and occlusal analysis.

- 73 (5-751). **OCCCLUSION II.** (1 cr; 10 lect hrs) Butler

Principles of occlusion with emphasis on neurology and physiology of occlusion, muscle physiology, mandibular movement and concepts or philosophies of occlusion.



*Auto-Tutorial Instruction*

- 74 (5-752). **OCCLUSION III.** (1 cr; 10 lect hrs plus an opt clin) Butler  
Principles of occlusion especially concerned with the pathology of occlusion, bruxism, traumatic occlusion and occlusal trauma, temporomandibular joint dysfunction syndrome, occlusal adjustment and the examination, diagnosis, and treatment planning of such patients.
- 75 (5-753). **OCCLUSION IV.** (Cr and clin elective) Butler and staff  
Principles of occlusion discussed in a seminar format with reading from the literature in occlusion. Clinical application of principles of occlusion with a continued interdisciplinary approach.
- 149 (5-802). **TREATMENT PLANNING.** (Cr and lect ar) Hampel and staff  
Principles and deciding factors in treatment planning. Outlining sequence and estimating time in rendering comprehensive oral treatment. Concepts of diagnosis selection, and presentation of ideal and acceptable treatment plan.
- 149C (5-800). **TREATMENT PLANNING CLINIC JUNIOR.**
- 149C (5-801). **TREATMENT PLANNING CLINIC SENIOR.**

## **Nondivisional Activities and Programs**

### *Cleft-Palate — Maxillofacial Clinic*

Ralph B. Kersten, D.D.S., Coordinator and Associate Professor

### *Dental Section of the University Community Health Care Clinic*

T. Michael Speidel, D.D.S., M.S.D., Director and Assistant Professor  
Elliot B. Karpeles, D.D.S., Instructor

### *Electronmicroscopy*

Donald D. Hickman, Ph.D., Assistant Professor

### *Endodontic Program*

James R. Jensen, D.D.S., M.S., Professor  
William A. Gavin, D.D.S., Instructor  
Eugene F. Jasper, D.D.S., Clinical Instructor  
Donald G. McMillan, D.D.S., Instructor  
Carl J. Olson, D.D.S., M.S.D., Clinical Associate Professor

- 144 (5-625). **ENDODONTICS.** (2 cr; 20 lect hrs) Jensen and staff  
Diagnosis and treatment of pulp and periapically involved teeth supplemented with demonstrations on clinical cases.
- 145 (5-626). **ENDODONTICS CLINIC.** (2 cr; 60 clin hrs) Jensen and staff  
Clinical experience in endodontic procedures including pulpotomy, root canal therapy, periapical curettage, apicoectomy, retro fillings, and hemisections.

### *Hospital Dentistry Program*

E. Severn Olsen, D.D.S., M.S.D., Chief and Professor  
Kurt J. King, D.D.S., M.S.D., Assistant Professor

- 106 (5-640). **HOSPITAL DENTISTRY.** (1 cr; 10 lect and 12 clin hrs) Olsen, King, and staff  
Lectures on operating room protocol, hospital records, surgical and restorative dentistry in the hospital, general anesthesia and supportive therapy for the hospitalized patient, and other matters pertaining to the care of dental patients in the hospital. Clinical laboratory exercises deal with nutrition and diet, hospital rounds, scrubbing and grooming, conduct in the operating room, interpretation and preparation of charts, and clinical pathological conferences.

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- 106C (5-641). HOSPITAL DENTISTRY CLERKSHIP.** (1 cr; minimum of 30 hrs) Olsen, King, and staff  
Orientation to and experience in management of hospitalized patients, including diagnosis and treatment planning, station visits, tumor conferences, assisting staff on dental procedures in the operating room at community hospitals, and treatment procedures in the hospital emergency room.
- 5-642. CLINICAL HOSPITAL DENTISTRY.** (Cr and hrs as; elective) Olsen, King, and staff  
Clinical dental treatment of assigned patients both in the outpatient clinics and in the operating room of the University and community hospitals. The student will select the area of special interest or elect a rotating clinical experience in two or more areas.

### *Maxillofacial Prosthetics*

Arthur H. Bulbulian, D.D.S., Clinical Professor

### *Oral Radiology Program*

James O. Beck, Jr., D.D.S., M.S.D., Assistant Professor

- 81 (5-776). ORAL RADIOLOGY.** (2 cr; 20 lect hrs) Beck  
Lectures and demonstrations cover the following topics: roentgenographic quality evaluation; geometry of image formation; interpretation of roentgenographic anatomy, caries, and periodontal pathology; nature of particulate and electromagnetic radiations; production and control of X rays; characteristics of roentgenographic film and image; mathematics of exposure; chemistry of processing; intra-oral roentgenographic techniques; and radiation protection.
- 132C (5-778). CLINICAL ROENTGENOGRAPHY.** (1 cr; 24 clinic and 6 seminar hrs) Beck  
Students observe and participate in demonstrations of various roentgenographic procedures, including panoramic roentgenography, develop the ability to produce acceptable full-mouth periapical-bitewing series on mounted skulls and phantoms, process exposed films and qualitatively evaluate the results, produce full-mouth roentgenographic records of patients, mount and interpret the films, receive instruction in extra-oral techniques, and discuss topics relevant to oral radiology.
- 138 (5-780). RADIATION BIOLOGY.** (1 cr; 10 lect hrs) Beck  
Lectures include an introduction to the principles and data in the areas of radiation physics, radiation biology, radiation dosimetry, radiation protection and radiological health.

## CONTRIBUTING DEPARTMENTS

### Anatomy

#### *Professor*

Arnold Lazarow, M.D., Ph.D., *head*  
Anna-Mary Carpenter, Ph.D., M.D.  
Padmakar K. Dixit, Ph.D.  
Carl B. Heggstad, M.D., Ph.D.  
R. Dorothy Sundberg, Ph.D., M.D.  
Morris Smithberg, Ph.D.

#### *Assistant Professor*

David Kvistberg, Ph.D.  
Joseph L. Rigatuso, Ph.D.  
Donald W. Robertson, Ph.D.  
Robert L. Sorenson, Ph.D.

#### *Instructor*

H. David Coulter, Ph.D.

#### *Associate Professor*

Dean E. Abrahamson, M.D., Ph.D.  
G. Eric Bauer, Ph.D.

#### *Lecturer*

Lars Folke, L.S.D., Ph.D.  
Robert J. Isaacson, D.D.S., Ph.D.

- Anat 105 (5-105). DENTAL MICROSCOPIC ANATOMY.** (6 cr; 100 hrs; prereq regis in School of Dentistry) Bauer and staff  
Minute structure of cells, tissues, and organs of the human body.

- Anat 108 (5-108). GROSS HUMAN ANATOMY FOR DENTAL STUDENTS.** (6 cr; 120 hrs; prereq #) Sorenson and staff  
Lectures and dissection of thorax, extremities, abdomen, and pelvis.
- Anat 109 (5-109). GROSS HUMAN ANATOMY FOR DENTAL STUDENTS.** (6 cr; 120 hrs; prereq #) Sorenson and staff  
Lectures and dissection of head and neck.
- Anat 110 (5-110). HUMAN NEUROANATOMY FOR DENTAL STUDENTS.** (3 cr; 20 lect and 20 lab hrs; prereq 105 or #) Abrahamson and staff  
Devoted to a study of the gross and microscopic structure of the central nervous system with emphasis on structure related to function. Laboratory demonstrations include gross anatomy of the brain stem.

### Biochemistry

*Professor*

Wallace D. Armstrong, Ph.D., M.D., *head*  
Robert W. Bernlohr, Ph.D.  
Charles W. Carr, Ph.D.  
Leon Singer, Ph.D.  
Frank Ungar, Ph.D.  
Donald B. Wetlaufer, Ph.D.  
Finn Wold, Ph.D.

James F. Koerner, Ph.D.  
Quenton T. Smith, Ph.D.  
C. Roberto Umana, M.D., Ph.D.

*Assistant Professor*

James W. Bodley, Ph.D.  
Donald D. Edstrom, Ph.D.  
Charles F. Schachtele, Ph.D.  
Venkateswarlu Pothapragada, Ph.D.

*Associate Professor*

Mary E. Dempsey, Ph.D.  
Ernest D. Gray, Ph.D.

- MdBc 104 (5-200). BIOCHEMISTRY FOR DENTAL STUDENTS.** (6 cr; 50 lect and 30 lab hrs; \$5 physiological chemistry card must be purchased from the bursar... cost of special chemicals, nonreturnable equipment, and breakage chargeable against deposit) Singer, Bernlohr, Pothapragada, Smith
- MdBc 105 (5-201). BIOCHEMISTRY FOR DENTAL STUDENTS.** (6 cr; 50 lect and 30 lab hrs) Singer, Gray, Umana, Smith

### Microbiology

*Professor*

Dennis W. Watson, Ph.D., *head*  
Robert W. Bernlohr, Ph.D.  
K. Gerhard Brand, M.D.  
Martin Dworkin, Ph.D.  
Robert A. Good, M.D., Ph.D.  
Wendell H. Hall, M.D., Ph.D.  
Robert K. Lindorfer, Ph.D.  
Charles F. McKham, M.D.  
Louis H. Muschel, Ph.D.  
Palmer Rogers, Ph.D.  
Edwin L. Schmidt, Ph.D.  
Henry M. Tsuchiya, Ph.D.  
Louis W. Wannamaker, M.D.

Yoon B. Kim, M.D., Ph.D.  
Gerald M. Needham, Ph.D.  
Peter G. W. Plagemann, Ph.D.  
James T. Prince, M.S.

*Assistant Professor*

Beulah H. Gray, Ph.D.  
Dolph Klein, Ph.D.

*Instructor*

David E. Peterson, B.A.

*Lecturer*

Henry Bauer, Ph.D.  
Donna J. Blazevic, M.S.  
Peter Chapman, Ph.D.  
Grace M. Ederer, M.S.  
Henry Gewurz, M.D.  
Alfred G. Karlson, D.V.M., Ph.D.  
John M. Matsen, M.D.  
Richard L. Simmons, M.D.

*Associate Professor*

Dwight L. Anderson, Ph.D.  
S. Stephen Chapman, Ph.D.  
Velvl W. Greene, Ph.D.  
Howard M. Jenkin, Ph.D.  
Russell C. Johnson, Ph.D.

- MicB 100 (5-201). MICROBIOLOGY FOR DENTAL STUDENTS.** (6 cr; 50 lect and 40 lab hrs; microscope required...use of microscope may be obtained by purchasing \$3 microscope card from bursar) Anderson and staff  
Morphology; methods of staining; culture media; methods of identification; principles of sterilization and disinfection; antibiotics; fundamentals of immunology; patho-

## School of Dentistry

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genic bacteria, fungi, and viruses; oral flora; bacteriology of oral infections, dental caries, and periodontal disease; relationship of oral infections to other focal and general infections.

### Pathology

#### Professor

Franz Halberg, M.D. (Experimental Pathology)  
Robert Hebbel, M.D., Ph.D.  
Paul H. Lober, M.D., Ph.D.  
Lee W. Wattenberg, M.D.

#### Associate Professor

John I. Coe, M.D.  
Donald F. Gleason, M.D., Ph.D.  
Kenneth Osterberg, M.D.

#### Assistant Professor

W. Robert Anderson, M.D.

Richard D. Estensen, M.D.

Walter J. Runge, M.D. (Experimental Pathology)

Robert E. Rydell, M.D.

#### Instructor

Kathy Belgea, M.D.  
Erhard Haus, M.D.  
David J. Lakatua, M.D.  
Wayne H. Schrader, M.D.  
Verne Schulberg, M.D.  
Charles E. Weigent, M.D.  
Bertram F. Woolfrey, M.D.

**Path 100 (5-100). PATHOLOGY FOR DENTAL STUDENTS.** (8 cr; 50 lect and 80 lab hrs; microscope required...use of microscope may be obtained by purchasing two \$3 microscope cards from bursar) Staff

Approximately half of the course deals with capillary disturbances, metabolic change in cells and tissues, pigment deposits, inflammations and tumors. The remainder is devoted to a consideration of specific diseases of various organ systems. The material is presented by lectures, demonstrations, and laboratory work.

### Pharmacology

#### Professor

Frederick E. Shideman, M.D., Ph.D.,  
*head*

Norman O. Holte, D.D.S.  
Gilbert J. Mannering, Ph.D.  
Jack W. Miller, Ph.D.  
Akira E. Takemori, Ph.D.  
Travis I. Thompson, Ph.D.  
Lawrence C. Weaver, Ph.D.

#### Associate Professor

Marion W. Anders, Ph.D.  
Nelson D. Goldberg, Ph.D.  
Bernard L. Mirkin, M.D., Ph.D.  
Ben G. Zimmerman, Ph.D.

#### Assistant Professor

Faruk S. Abuzzahab, M.D., Ph.D.  
James F. Cumming, M.D., Ph.D.  
Patrick E. Hanna, Ph.D.  
Donald B. Hunninghake, M.D.  
Harvey J. Kupferberg, Ph.D.  
Roy W. Pickens, Ph.D.  
Aloysius J. Quehbemann, Ph.D.  
Norman E. Sladek, Ph.D.  
Sheldon B. Sparber, Ph.D.

#### Instructor

James I. Ausman, M.D., Ph.D.

**Phcl 101-102† (5-101/5-102). GENERAL PHARMACOLOGY.** (7 cr) Kupferberg and staff

Lectures and laboratory exercises on the action and fate of drugs. Limited to students of dentistry and pharmacy.

**Phcl 108 (5-108). DENTAL THERAPEUTICS.** (1 cr; prereq 101 and 102) Holte and staff

### Physiology

#### Professor

Eugene D. Grim, Ph.D., *head*  
H. Meade Cavert, M.D., Ph.D.  
John A. Johnson, M.D., Ph.D.  
Nathan Lifson, M.D., Ph.D.  
Victor Lorber, M.D., Ph.D.  
Carlo A. Terzuolo, M.D.  
Maurice B. Visscher, M.D., Ph.D.

#### Associate Professor

J. S. Lee, M.D., Ph.D.  
Marvin Bacaner, M.D.  
Irwin J. Fox, M.D., Ph.D.  
Rodney B. Harvey, M.D., Ph.D.  
Aldo Rescigno, Laurea in Physics

*Assistant Professor*

Richard E. Poppele, Ph.D.  
Richard L. Purple, Ph.D.  
David Levitt, M.D., Ph.D.  
Gordon Kepner, Ph.D.  
Richard Stish, B.E.E.

*Lecturer*

John Love, Ph.D.  
Maurice W. Meyer, D.D.S., Ph.D.

**Phsl 101 (5-101). HUMAN PHYSIOLOGY.** (8 cr; 5 lect hrs, 2 conf hrs, 3 lab hrs per wk) Staff

Principles of physiology for dental students and others. Physiology of cells, muscle, nerve, central nervous system, senses, blood, circulation, respiration, digestion, metabolism, endocrines, excretion.

## Section II

# GRADUATE EDUCATION

### GENERAL INFORMATION

Graduate work through the School of Dentistry and the Graduate School of the University of Minnesota is offered at both the master of science and doctor of philosophy levels.

The M.S. program is designed to meet dentistry's need in two areas. The first concerns the preparation of qualified teachers and investigators in the various branches in dentistry. The second is for the preparation of fully trained specialists for the different dental fields. The major is in some special phase of dentistry and usually the minor is in a basic health science.

The Ph.D. program has been developed to educate competent teachers and research workers. In this program, the major is in a basic health science and the minor is in a special area of dentistry. The Ph.D. can be earned in postsophomore and postdoctoral programs supported by grants that provide stipends and free tuition for qualified students.

The course of study leading to the degree of M.S. in dentistry is a combination of the normal work for the M.S. degree plus achievement of proficiency in some phase of clinical dentistry. Hence, a minimum of 2 academic years in residence is required, though most students probably will need 3 years.

Graduate study related to dentistry and leading to the M.S. and Ph.D. degrees may also be pursued through majors in such allied sciences as anatomy, biochemistry, microbiology, pharmacology, and physiology. A program leading to the Ph.D. degree with a major in one of the above-mentioned basic sciences and a minor in dentistry is offered to qualified dental graduates.

Graduate courses in dentistry are offered in the fields of endodontics, oral biology, oral medicine, oral pathology, oral surgery, orthodontics, pedodontics, periodontics, prosthodontics, and restorative dentistry.

**Application for Enrollment** — Application to pursue the course of graduate study should be initiated by a letter to the dean of the Graduate School, requesting an application form and the appropriate bulletin. This form, completely filled out, should be submitted to the dean of the Graduate School for evaluation.

**Prerequisites** — A degree from an accredited school of dentistry with an average of B or better or a standing in the top fourth of the applicant's graduating class.

**Notification of Acceptance** — Acceptance for graduate study is contingent upon the applicant's qualifications, facilities available for the course of study requested, and upon vacancies in the area indicated. Notification of acceptance or rejection will come from the Graduate School office.

**Major or Minor Work** — The aim of the program of study is mastery of the major subject, in which a minimum of 18 credits must be earned with a grade of B or better. The minimum acceptable grade in the minor field is C.

**Language Requirement** — Although reading knowledge of German is highly desirable, candidates for the Master's degree in dentistry are exempted from the foreign language requirement. Oral pathology, however, requires German.

**Master of Science Degree** — Offered only under Plan A.

**Registration** — Each student will choose an adviser, normally that faculty member whose scholastic and research interests most closely parallel his own. He will secure registration forms in the School of Dentistry or Graduate School office each quarter during the periods scheduled for registration, have them signed by his adviser, and present them at the Graduate School office for the approval of the dean of the Graduate School.

**Tuition** — The tuition fee for graduate work in dentistry is \$168 per quarter for residents and \$380 per quarter for nonresidents.

### Programs for the Degree of Doctor of Philosophy

In the Graduate School, one Doctor's degree, the doctor of philosophy (Ph.D.), is conferred by the University of Minnesota. Work toward this degree in conjunction with the School of Dentistry is offered for the purpose of training teachers and research workers for the various areas of dentistry. In these programs the student selects a major field of study in one of the basic health sciences. Study in the major field is identical to the required work in the major of Ph.D. programs offered through the Graduate School in conjunction with the various basic health science departments. The minor field of study, however, is in dentistry and usually in an area of a recognized dental specialty. Work in the minor field is similar to the requirements of programs leading to board eligibility and/or the degree of master of science in dentistry offered through the Graduate School in conjunction with the School of Dentistry.

This training is offered under two separate programs. In the first program, qualified dental students enroll in the Graduate School at the end of the sophomore year of dental school. For a minimum of the next 3 full years these students register concurrently in both the School of Dentistry and the Graduate School. At the end of 3 years, work toward the D.D.S. degree is completed. Work toward the Ph.D. degree and M.S.D. training and board eligibility is completed at the end of a minimum of 3 additional years. A stipend of \$2,200 per year plus dependency allowances is available for the first 3 years. Stipends ranging from \$6,500 to \$7,000 per year plus dependency allowances are available for the second 3 years and tuition is paid throughout the program.

In the second type of program, graduates holding a D.D.S. or D.M.D. degree also may work toward a Ph.D. degree. The major field of study also is selected in one of the basic medical health departments and the minor is in dentistry as described above. Stipends ranging from \$6,000 to \$7,000 per year plus dependency allowances are available and tuition is paid in this program.

Further information regarding these programs may be secured from the

## *School of Dentistry*

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School of Dentistry or the Graduate School and by referring to bulletins of the Graduate School.

### **Programs for the Degree of Master of Science in Dentistry**

#### *Requirements for Enrollment*

**Eligibility** — To be eligible for enrollment in this program the applicant must be a graduate of an accredited school of dentistry and must have achieved in both pre dental and dental requirements a superior scholastic record, which shall be demonstrated by a standing in the top fourth of his graduating class, or by an average of B or better.

**Major** — The aim of the program of study is to achieve mastery of a specific field of knowledge. This field is designated the major subject. Not less than 18 credits of the study program will be in the major subject. The minimum acceptable quality in these courses is indicated by a grade of B.

**Minor** — Each student must select an area of study in the basic sciences which is logically related to his major subject and his research project. Not less than 9 credits of the study program will be in the minor subject. The minimum acceptable quality in these courses is indicated by a grade of C.

**Research and Thesis** — The M.S. in dentistry is offered under Plan A, the plan which requires a thesis. Each candidate must submit a thesis. The thesis shall present evidence of ability and accomplishment in the planning and the prosecution of scientific research by the candidate and should demonstrate significant accomplishment on the part of the candidate in applying the scientific method. It is especially to be noted that the tabulation of data confirming earlier established observations is not acceptable. Statistical studies of clinical material may, however, be appropriate if through such studies new discoveries are made. The distinction between the Master's and the Doctor's dissertation shall be in the importance and extent of the studies in question. Both shall represent contributions to knowledge made by the candidate. The candidate himself shall make the majority of the original observations upon which the thesis is based, except in unusual cases where the problem would not permit.

No material which has been published prior to its approval by the thesis committee may be used to meet the thesis requirement. Candidates contemplating publication of any material that they expect to present for a thesis should therefore obtain approval through the Graduate School office.

The Master's thesis must be typewritten in quadruplicate, two copies on 20-pound linen stock of 75 percent rag content, the others on 13-pound bond paper. Samples of the paper required should be examined in the office of the dean of the Graduate School. The original and first copy must contain all illustrative material. Ample margins should be left for binding purposes. The body of the thesis should be double spaced, but footnotes may be single spaced. A copy of the thesis, certified by the adviser as complete, must be registered in the office of the Graduate School. Students should consult the Graduate School office for dates when their theses must be registered, but the thesis committee and Graduate School must have copies of the finished thesis at

least a full quarter before the oral examination. The thesis will be examined by a committee of not less than three appointed by the dean of the Graduate School on recommendation of the Dental Subcommittee of the Graduate School Medical Science Group Committee. Unanimous approval by the thesis committee is necessary for the acceptance of the thesis, and a record of this approval must be filed in the Graduate School office on the appropriate form before the candidate may be admitted to the final written and oral examinations. The Graduate School in any case should be informed, on the appropriate blank, of the action of the thesis committee.

In the event that a Rochester member is assigned to the committee of a Twin City student the Rochester member will read the thesis forwarded by the Graduate School. Prior to the date of the final oral examination the student will have arranged a personal appointment with the Rochester member, usually traveling to Rochester for this purpose. The student will bring the thesis approval form with him to Rochester. The Rochester member will have at this time an opportunity to discuss the thesis and suggest any improvements. If he approves the thesis, he will sign the thesis approval form which is returned by the student to the Graduate School. The Rochester member will also at this time have the option to elect to come to Minneapolis for the final oral examination or to agree to abide by the decision of the rest of the committee. The thesis will be returned with the student.

Conversely, a Rochester student who has a Minneapolis member appointed to his committee will arrange an appointment with this member prior to his oral examination and travel to Minneapolis for this purpose. In both instances, it will be the responsibility of the student to accomplish this approval sufficiently in advance of the final oral examination so as to allow for minor additions or alterations.

If the thesis is accepted, the candidate must deposit with the Office of Admissions and Records, at least 5 weeks before the commencement in which he wishes to take his degree, the sum of \$5 for binding two copies of the thesis, which will be catalogued and deposited in the University Library.

### *Course of Study Requirements*

**Program of Study** — Upon enrollment in the Graduate School, the student and his adviser will outline a tentative course of study, which must form a consistent plan of work pursued with a definite aim. The course of study leads to the degree of M.S. in dentistry, a combination of the conventional work for the master of science degree plus the achievement of proficiency in a special phase of dentistry. The different M.S. programs vary in length of time from 24 to 36 calendar months.

**Period of Trial** — The first period of study by a graduate student is a period of trial. Advancement toward the Master's degree will not be officially authorized until the student has completed 1 quarter of residence and has demonstrated competence in not less than 9 quarter credits of graduate work.

**Admission to Candidacy** — The student who expects to obtain a Master's degree must register his program and thesis title at least 2 full quarters before graduation for his adviser's recommendation and transmission to the Dental

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Subcommittee of the Graduate School Medical Science Group Committee. The Plan A forms are provided by the Graduate School. A transcript of all grades must accompany the program. Approval by the Dental Subcommittee of the Graduate School Medical Science Group Committee and the Graduate School indicates the student's admission to candidacy for the degree.

**Examinations** — In addition to the usual course examinations in all subjects where such are given, the candidate for the Master's degree must pass final written and oral examinations.

The final written examination will be held prior to the oral examination. It will cover the major field and may include any work fundamental thereto. It is given by the members of the graduate faculty in the major department, the adviser acting as chairman.

The final oral examination is held when all other requirements for the degree have been met, including the final written examination and certification of the thesis by the thesis committee. The examination will be administered by the student's thesis committee. If the student's name is to be included in the commencement program, the oral examination must be completed at least 5 weeks before the commencement in which he expects to take the degree.

The final oral examination will be a defense of the thesis, may cover all the work offered for the degree, and may include other work fundamental thereto. At the close of the examination, the committee will vote upon the candidate, taking into account all of his work. A majority vote is required for approval.

**Recommendation by the Faculty** — The dean of the Graduate School will report to the Executive Committee of the graduate faculty the names of those who have completed the requirements for the degree, and those duly approved will be recommended by the faculty to the Board of Regents of the University. Unless excused by the dean of the Graduate School on the basis of a petition to receive the degree *in absentia*, all candidates are required to be present at commencement when the degrees are conferred.

### Areas of Study Available

At present, graduate courses in dentistry are offered in the major fields of endodontics, oral biology, oral medicine, oral pathology, oral surgery, orthodontics, pediatric dentistry, periodontics, and restorative dentistry. The M.S.D. degree in one of these major fields can be earned in a program designed exclusively for this degree or as one step in a program leading to the Ph.D. in a basic medical science with a minor in a special area of dentistry.

**Standards** — Graduate work in the field of dentistry follows the same general policies and methods established for graduate work in other sciences. This work requires high standards of admission, qualified advisers to graduate students, adequate laboratories and clinical equipment, courses and examinations in residence, and evidence of the power of productive research on the part of the student.

**Method of Study** — The plan of graduate study at the University of Minnesota implies an entirely different level of educational discipline from under-

graduate course work. In the former, each student pursues his individual problem. While there will be ample consultation and guidance, the individual student's special interest in selection of subjects will be the basis for outlining the courses. The general principle of application of basic science to clinical problems is emphasized throughout.

## DESCRIPTION OF GRADUATE COURSES

### Dentistry

- Dent 295f,w,s (8-295). HOSPITAL PROTOCOL
- Dent 300w (8-400). OCCLUSION
- Dent 301s (8-401). OCCLUSION

### Endodontics

- Endo 270f,w,s,su (0-300, 0-301, 0-302, 0-303). ADVANCED CLINICAL ENDODONTICS
- Endo 271f,w,s,su (8-001). RESEARCH IN ENDODONTICS
- Endo 272f,w,s,su (8-310, 8-311, 8-312, 8-313). SEMINAR: ENDODONTICS
- Endo 273f,w,s,su (8-320, 8-321, 8-322, 8-323). ADVANCED ENDODONTIC LECTURES
- Endo 330 (8-330). ENDODONTIC DIAGNOSIS AND TREATMENT PLANNING
- Endo 331 (8-331). TOPICS IN ENDODONTICS

### Oral Biology

- OBio 8-001. RESEARCH IN ORAL BIOLOGY. (Cr ar)
- OBio 8-010. BIOLOGICAL BASIS OF DENTISTRY I. (3 cr)  
Basic concepts of cell biology and human biology for dental specialist and/or oral research trainees. Discussions include considerations of cell structure and metabolism, human development and evolution, and biological variation in modern populations.
- OBio 8-011. BIOLOGICAL BASIS OF DENTISTRY II. (3 cr; prereq 8-010 or #)  
Application of fundamentals discussed in 8-010 to structure and function of oral tissues. Subjects include: growth development and aging, immune mechanisms, calcification and decalcification, regeneration and repair, tissue attachments, secretion and adsorption, sensory motor and psychogenic mechanisms.
- OBio 8-021, 8-022, 8-023, 8-024. TOPICS IN ORAL BIOLOGY. (1-3 cr [may be repeated for cr]; prereq #)  
A different topic or subject area in oral biology is considered in depth each quarter the seminar series is offered; e.g. saliva and salivary glands, pain and sensation, aging, biomaterials, hard tissue metabolism, etc.; topics will be announced in advance.
- OBio 8-030. SEMINAR: ORAL BIOLOGY. (1 cr [may be repeated for cr])  
Oral biology faculty and student participation in discussions of current issues in oral biology.

### Oral Medicine

- OMed 230 (8-100). ADVANCED ORAL DIAGNOSIS
- OMed 231 (8-101). ADVANCED CLINICAL ORAL DIAGNOSIS

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- OMed 232 (8-001). RESEARCH PROBLEMS IN ORAL MEDICINE
- OMed 233 (8-003). TOPICS IN ORAL MEDICINE AND ORAL ROENTGENOLOGY
- OMed 234 (8-200). ADVANCED ORAL ROENTGENOLOGY
- OMed 235 (8-201). ADVANCED CLINICAL ROENTGENOLOGY
- OMed 236 (8-002). RESEARCH IN ORAL ROENTGENOLOGY
- OMed 237 (8-300). ADVANCED TREATMENT PLANNING SEMINAR

### Oral Pathology

- OPat 222A (8-300). HUMAN DEVELOPMENT GENETICS I
- OPat 222B (8-301). HUMAN DEVELOPMENT GENETICS II
- OPat 223 (8-009). EMBRYOLOGY OF THE HEAD AND NECK
- OPat 260-261 (8-002/8-003). ORAL PATHOLOGY
- OPat 262 (8-001). RESEARCH IN ORAL PATHOLOGY
- OPat 264 (8-008). CLINICAL ORAL PATHOLOGY CONFERENCE
- OPat 265 (8-004). HISTOPATHOLOGY
- OPat 266 (8-005). ADVANCED ORAL PATHOLOGY
- OPat 268 (8-006). CURRENT LITERATURE REVIEW
- OPat 269 (8-007). SPECIAL ORAL PATHOLOGY
- OPat 270 (8-010). ORAL PATHOLOGY — TOPICS
- OPat 271 (8-011). SURGICAL ORAL PATHOLOGY
- OPat 272 (8-012). MEDICAL CYTOGENETICS
- OPat 302 (8-302). SEMINAR: HUMAN DEVELOPMENTAL GENETICS



*Graduate Student Working with Undergraduate  
Student in Oral Surgery*

### Oral Surgery

- OSur 250 (8-250). ADVANCED ORAL SURGERY  
OSur 251 (8-251). ORAL SURGERY SEMINAR  
OSur 252 (8-252). RESEARCH IN ORAL SURGERY  
OSur 253 (8-253). PROBLEMS IN ORAL SURGERY

### Orthodontics

- Otho 200, 201, 202, 203 (8-200, 8-201, 8-202, 8-203). GROWTH AND DEVELOPMENT  
Otho 204, 205, 206, 207 (8-204, 8-205, 8-206, 8-207). ORTHODONTIC DIAGNOSIS AND TREATMENT PLANNING  
Otho 208, 209, 210, 211 (8-208, 8-209, 8-210, 8-211). ORTHODONTIC SEMINAR  
Otho 212, 213, 214, 215 (8-001). RESEARCH IN ORTHODONTICS  
Otho 216, 217, 218, 219 (8-216). TOPICS IN ORTHODONTICS

### Pediatric Dentistry

- Pedo 290 (8-290). PEDIATRIC DENTISTRY  
Pedo 291 (8-291). CLINICAL PEDIATRIC DENTISTRY  
Pedo 292 (8-292). SEMINAR: PEDIATRIC DENTISTRY  
Pedo 293 (8-293). RESEARCH IN PEDIATRIC DENTISTRY  
Pedo 294 (8-294). DENTAL PEDIATRICS

### Periodontics

- Pero 280f,w,s,su (8-000). ADVANCED CLINICAL PERIODONTOLOGY  
Pero 281f,w,s,su (8-200). LECTURES IN PERIODONTOLOGY  
Pero 282f,w,s,su (8-100). RESEARCH IN PERIODONTOLOGY  
Pero 283f,w,s,su (8-300). SEMINARS IN PERIODONTOLOGY  
Pero 284w,s (8-250). SUPPORTING STRUCTURES OF THE TEETH  
Pero 286su (8-450). BACTERIOLOGY AND IMMUNOLOGY OF PERIODONTAL DISEASES

### Prosthodontics

- Pros 240 (8-003). ADVANCED TECHNICAL RESTORATIVE DENTISTRY  
Pros 241f (8-010). SEMINAR: ADVANCED RESTORATIVE DENTISTRY  
Pros 241w (8-012). TOPICS IN PROSTHODONTICS  
Pros 241s (8-020). APPLIED GNATHOLOGY  
Pros 243f (8-005). ADVANCED CLINICAL PROSTHODONTICS I  
Pros 243w (8-006). ADVANCED CLINICAL PROSTHODONTICS II  
Pros 245 (8-015). SEMINAR: PROSTHODONTICS I  
Pros 246 (8-016). SEMINAR: PROSTHODONTICS II  
Pros 247 (8-001). RESEARCH IN PROSTHODONTICS  
Pros 248 (8-017). SEMINAR: ADVANCED PROSTHODONTICS

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- Pros 249 (8-018). SEMINAR: ADVANCED PROSTHODONTICS
- Pros 290 (8-030). INTRODUCTION TO COMPREHENSIVE MAXILLOFACIAL CARE
- Pros 291 (8-032). PRINCIPLES OF MAXILLOFACIAL CARE
- Pros 292 (8-034). ADVANCED CLINICAL MAXILLOFACIAL PROSTHETICS
- Pros 296 (8-025). SEMINAR: APPLIED BIOMATERIALS I

### Section III

## **PROGRAM IN DENTAL HYGIENE**

### **GENERAL INFORMATION**

The Program in Dental Hygiene was established at the University of Minnesota in 1919. It is fully accredited by the Council on Dental Education of the American Dental Association. This health science and liberal arts program may be completed in 2 academic years. The degree of graduate dental hygienist, G.D.H., is granted. Credits earned in the Program in Dental Hygiene may be applied toward a Bachelor's degree.

A dental hygienist must secure a license to practice in the state in which she chooses to locate by passing a state board examination. A National Board Examination (written) is available and is currently accepted by all but three states. In all instances the dental hygienist practices with a dentist or a director of a public health program. The state of Minnesota requires a minimum number of hours of continuing education each 5 years to maintain licensure.

The broad and general objectives of this program are to encourage the student to be a productive, useful, dependable citizen; to prepare the student to live comfortably with himself (or herself); and to prepare the student to assume professional responsibilities and obligations for the betterment of human welfare. The dental hygiene graduate should have the knowledge, skills, and attitudes necessary to practice dental hygiene in public schools, health departments, hospitals, industrial institutions, and private dental offices where she may provide preventive dental services and dental health education.

### **Admission**

Students are admitted to the Program in Dental Hygiene only at the beginning of each fall term. Men and women are considered for this program. All applicants must be at least 18 years of age. Enrollment is limited and Minnesota residents are given preference. Applicants for admission should be in the top 25 percent of their high school class. MSAT and ACT scores must be made available upon application (MSAT scores are not required for non-resident students). A college preparatory course with 1 year of high school chemistry is required. Biology, geometry, and typing are recommended.

Students entering the Program in Dental Hygiene with previous college may enter with advanced standing but must have a "C" average or better to be considered. High school records must be presented with a college transcript.

### **Combined Program for a Bachelor of Arts or a Bachelor of Science Degree with Dental Hygiene**

#### *University College Program*

All credits earned in the Program in Dental Hygiene may be applied toward a B.A. or B.S. degree from University College. These credits will be Lower Division credits. Through this program it is possible to place emphasis on hospitals, public schools, public health, dental office management, or dental

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hygiene education. Currently there is a great need for teachers in dental hygiene programs and advanced courses in these areas are available. A total of 190 credits (75 credits in Upper Division courses) is required for graduation. The liberal arts distribution requirements established by the College of Liberal Arts must also be fulfilled. This program may be completed within 4 years.

### College of Liberal Arts Program

Those students interested in acquiring a complete major outside of the field of dental hygiene may select this program leading to a bachelor of arts degree. All the liberal arts courses that are a part of the dental hygiene curriculum may be applied toward this degree. A major and minor sequence of courses must be completed and liberal arts distribution requirements must be met. A minimum of 180 credits (75 Upper Division) is required for graduation. This program may be completed in 5 years.

### Application Procedure

All inquiries, credentials, and applications for admission should be addressed to the Office of Admissions and Records, University of Minnesota, Minneapolis, Minnesota 55455.

Application blanks may be obtained at any Minnesota high school or from the Office of Admissions and Records at the University of Minnesota. Applications should be submitted after January 1 and before June 1 of the desired year of entry. A \$10 fee must accompany the application. Applicants will be required to appear for a personal interview with a member of the Dental Hygiene Admissions Committee.

An admission certificate will be mailed to each student who has met the requirements. In addition, students entering from other colleges or universities will receive a statement of advanced standing. Instructions for the orientation-registration period will be enclosed with the admission certificate or will be mailed later—about 1 month before the opening of fall classes. Students must present their admission certificates when they report for registration.

### Fees

Tuition fee (per quarter)	
Residents of Minnesota .....	\$133.00
Nonresidents .....	380.00
Student services fee (per quarter) .....	41.00
(For privileges such as the Coffman Memorial Union, the Health Service, and the <i>Minnesota Daily</i> )	
Record service fee (applicable only to students new to the University of Minnesota)	3.00
Graduation fee .....	15.00
Special fees:	
Examination for credit (after first quarter in residence) .....	20.00
Special examination (may be taken only upon approval of appropriate committee) .....	20.00

**Part-time Fees**—Students not registered for the full course will be charged tuition at the rate of \$11.25 per credit for residents, \$31.75 for nonresidents. However, at least 3 quarters of residence at full tuition are required for graduation.

Additional information regarding fees may be found in the *General Information Bulletin*.

### Equipment

The University will furnish the larger pieces of equipment needed for the work in clinic and laboratories, but the student must furnish her own uniforms, caps, white shoes, lab coat, laboratory and clinical instruments, textbooks, and supplies. Lists of required materials and equipment are issued to the students the beginning of each academic year. The average cost per quarter is approximately \$125.

### Awards

**Louise C. Ball Scholarship and Prize Fund** — Annual scholarship assistance is made available to a qualified graduating senior of the Program in Dental Hygiene, or a graduate hygienist of the University of Minnesota, who wishes to further her education in some other department within the University.

**Minneapolis District Dental Society Auxiliary** — An annual cash award is presented to the highest ranking freshman dental hygiene student.

**Sigma Phi Alpha** — National Dental Hygiene Honor Society is represented at Minnesota by Eta Chapter. This society recognizes and honors scholarship, service, and character among dental hygiene students. Not more than 10 percent of the graduating class is eligible.

**American Dental Hygienists Association** — The association administers scholarships for well-qualified second-year dental hygiene students. These funds are awarded on a national competitive basis. Application may be made through the dental hygiene office in the School of Dentistry. The association also administers one or two postgraduate scholarships each year for graduates interested in becoming dental hygiene educators. Application may be made through the dental hygiene office.

**Minnesota Dental Hygienists Association** — This award honors outstanding students in the senior class.

## TWO-YEAR PROGRAM IN DENTAL HYGIENE

FIRST YEAR	Fall Qtr		Winter Qtr		Spring Qtr		Total	
	Cr	Hrs	Cr	Hrs	Cr	Hrs	Cr	Hrs
Engl 1-001, 1-002, 1-003 — Freshman English .....	3	30	3	30	3	30	9	90
MdBc 1-030 — Biochemistry .....	4	40	.....	.....	.....	.....	4	40
DH 1-010 — Dental Orientation .....	2	20	.....	.....	.....	.....	2	20
Biol 1-001, 1-002 — General Biology .....	5	60	5	60	.....	.....	10	120
DH 1-001 — Dental Anatomy .....	4	80	.....	.....	.....	.....	4	80
Phsl 1-002 — Human Physiology .....	.....	.....	4	50	.....	.....	4	50
MicB 1-101 — Elementary Microbiology .....	.....	.....	4	60	.....	.....	4	60
DH 1-050, 1-051 — Dental Pro- phyllaxis I, II .....	.....	.....	3	60	2	40	5	100
Anat 1-004 — Elementary Anatomy .....	.....	.....	.....	.....	4	60	4	60
GC 1-283 — Psychology of Human Development .....	.....	.....	.....	.....	3	30	3	30
Spch 1-102 — Communication in the Modern World .....	.....	.....	.....	.....	3	30	3	30
DH 1-002 — Head and Neck Anatomy .....	.....	.....	.....	.....	1	10	1	10
DH 1-226 — Health Ecology .....	.....	.....	.....	.....	1	10	1	10
DH 1-275 — Oral Radiology .....	.....	.....	.....	.....	2	20	2	20
Total — First Year .....	18	230	19	260	19	230	56	720

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SECOND YEAR	Fall Qtr		Winter Qtr		Spring Qtr		Total	
	Cr	Hrs	Cr	Hrs	Cr	Hrs	Cr	Hrs
Spch 1-101 — Fundamentals of Speech	5	50					5	50
PubH 3-600 — Human Nutrition	3	30					3	30
PubH 3-001 — Personal and Community Health			3	30			3	30
DH 1-075 — Dental Office Emergencies	1	10					1	10
DH 1-080, 1-081, 1-082 — Dental Health Education	2	20	2	20	2	20	6	60
DH 1-150, 1-151, 1-152 — Biomaterials	2	20	2	20	2	20	6	60
DH 1-200 — Lectures in Periodontology	1	10					1	10
DH 1-176 — General Pathology	1	10					1	10
DH 1-126, 1-127, 1-128 — Dental Assisting	1	42	1	15	1	14	3	71
DH 1-180 — Oral Pathology and Histology			2	20			2	20
Phcl 1-001 — Dental Therapeutics			1	10			1	10
DH 1-052, 1-053, 1-054 — Dental Prophylaxis	3	75	3	60	3	60	9	195
Soc 1-001 — Man in Modern Society					3	30	3	30
DH 1-250 — Office Management					1	10	1	10
DH 1-276 — Dental Roentgenology					2	60	2	60
DH 1-277 — Dental Roentgenology					1	10	1	10
DH 1-285 — Biostatistics					1	10	1	10
Total — Second Year	19	267	14	175	16	234	49	676

## DESCRIPTION OF COURSES

### Dental Hygiene

#### Assistant Professor

Donna S. Aker, G.D.H., B.A., *director*

#### Instructor

Barbara J. Bartholdi, G.D.H., B.A.  
Peggy A. Eifert, G.D.H., B.S.

#### Clinical Instructor

Katherine L. Britz, G.D.H.  
Kathleen M. Kielusiak, G.D.H.  
Carol A. Mason, G.D.H., M.S.  
Patricia D. Sander, G.D.H., B.A.  
Elizabeth M. Schendel, G.D.H., B.S.

- DH 7 (1-001). DENTAL ANATOMY.** (4 cr; 20 lect and 60 lab hrs) Langsjoen and staff  
Lectures: Dental nomenclature; special attention to definition, combining and application of terms used in the various divisions of dentistry; study of all deciduous and permanent teeth including calcification, eruption, decalcification, and shedding; tooth form, function, stress, occlusion, and investing tissues; anomalies. Laboratory: Drawings and carvings of teeth.
- DH 8 (1-002). HEAD AND NECK ANATOMY.** (1 cr; 10 lect hrs) Langsjoen  
The study of the structures of the head and neck as they are related to dentistry.
- DH 10 (1-010). DENTAL ORIENTATION.** (2 cr; 20 lect hrs) Staff  
Orientation to dental procedures, use of dental materials, instruments and equipment. Basic study of delivery of dental services and dental organizational structure.
- DH 21 (1-050). DENTAL PROPHYLAXIS I.** (3 cr; 10 lect, 20 lab, 30 clin hrs) Bartholdi and staff  
Lectures, demonstrations, and practice in scaling and polishing teeth; teaching of oral hygiene and home care of the mouth to patients. Work is introduced by practice on manikins followed by practice on patients in the dental clinic.



*Clinical Instruction in Dental Hygiene*

- DH 22 (1-051). DENTAL PROPHYLAXIS II.** (2 cr; 10 lect and 30 clin hrs) Bartholdi and staff  
Same course description as DH 1-050.
- DH 35 (1-075). DENTAL OFFICE EMERGENCIES.** (1 cr; 10 lect hrs) Sander  
Consideration of first aid principles and their application to emergencies in a dental office.
- DH 40, 41, 42 (1-080, 1-081, 1-082). DENTAL HEALTH EDUCATION.** (2 cr per qtr; 1 lect per wk, field visits, project labs each qtr for 3 qtrs...total 60 hrs) Schendel  
Lecture and recitation course in the preparation of oral hygiene material for various ages, groups, and occasions. Includes critical analysis of dental literature, audio-visual aids, display and unit projects, and field work in the public schools and community programs.
- DH 45, 46, 47 (1-126, 1-127, 1-128). DENTAL ASSISTING.** (1 cr per qtr; 71 clin hrs) Bartholdi  
Demonstrations and practical experience in surgical and dental assisting in operative dentistry, pedodontics, oral surgery, endodontics, periodontics, dental prosthetics, crown and bridge work, x-ray, and patient admissions.
- DH 53, 54, 55 (1-052, 1-053, 1-054). DENTAL PROPHYLAXIS.** (3 cr per qtr; 195 clin hrs) Bartholdi and staff  
(Continuation of DH 1-050, 1-051) Patient recall, and topical fluoride technique. Teaching of oral hygiene is emphasized. Approximately 195 hours of actual practice on all types of clinical cases must be completed.
- DH 56 (1-176). GENERAL PATHOLOGY.** (1 cr; 10 lect hrs) Gorlin and staff  
Elementary discussion of general pathology including circulatory disturbances, inflammation, and tumors. Special consideration of selected diseases with reference to those affecting the oral cavity.

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- DH 57 (1-150). BIOMATERIALS I.** (2 cr; 10 lect and 10 lab hrs) Staff  
Orientation to physical, chemical, and mechanical properties of materials used in dentistry. Laboratory: principles and practice in successful manipulation of dental materials.
- DH 58 (1-151). BIOMATERIALS II.** (2 cr; 10 lect and 10 lab hrs) Staff  
Same course description as DH 1-150.
- DH 1-152. BIOMATERIALS AND INTRODUCTION TO OCCLUSION.** (2 cr; 10 lect and 10 lab hrs) Staff  
Lectures, demonstrations, and clinical practice in the manipulation of impression materials. Pouring of casts, establishing jaw relationships, and practice in mounting casts in an articulator is included.
- DH 60 (1-180). ORAL PATHOLOGY AND HISTOLOGY.** (2 cr; 16 lect and 4 lab hrs) Gorlin and staff  
Résumé of histology of teeth and oral tissues to provide a background for a more detailed discussion of the special pathology of these tissues. Topics include: facial embryology, dental and periodontal development, dental caries, periodontal diseases, endodontics, and introduction to tumors of dental origin.
- DH 62 (1-275). ORAL RADIOLOGY.** (2 cr; 20 lect hrs) Beck  
The following areas are covered in this course: roentgenogram identification and quality evaluation, roentgenographic anatomy, film mounting, nature of radiation, production and control of X rays, characteristics of roentgenographic film and image, mathematics of exposure, chemistry of processing, intra-oral techniques, and radiation protection.
- DH 63 (1-276). CLINICAL ROENTGENOGRAPHY.** (2 cr; 60 lab and clin hrs) Beck and staff  
Students observe demonstrations of intra-oral roentgenographic technique, produce acceptable full-mouth periapical-bitewing series on mounted skulls and phantoms, process exposed film and qualitatively evaluate the results, produce full-mouth roentgenographic records of patients and mount roentgenograms.
- DH 64 (1-200). LECTURES IN PERIODONTOLOGY.** (1 cr; 10 lect hrs) Bandt and staff  
A review of the anatomy, histology, and physiology of the supporting structures of the teeth; physiotherapy; classification, etiology, and treatment of periodontal diseases.
- DH 65 (1-226). HEALTH ECOLOGY.** (1 cr; 10 lect hrs) Staff  
Lecture, discussion, group projects regarding health behavior of people in all socio-economic groups. Application of communication skills to identify cultural, psychological, social, environmental determinants of health behavior, and to plan and design educational programs.
- DH 67 (1-250). OFFICE MANAGEMENT.** (1 cr; 10 lect hrs) Eifert  
Professional ethics and jurisprudence, reception of patients, management of recall systems, fees and collections.
- DH 1-277. ROENTGENOGRAPHIC ANALYSIS.** (1 cr; 10 lect hrs) Beck  
Intensive study of discrepancies and technical errors responsible for them, roentgenographic anatomy, and roentgenographic evidence of deviations from the normal spectrum of roentgenographic anatomic variations.
- DH 1-285. BIostatISTICS.** (1 cr; 10 lect hrs) Bandt  
Introduction to biostatistical principles used in the study of human disease with emphasis on the relationship of said principles to the interpretation of dental literature.
- DH 75 (3-125). DENTAL HYGIENE CURRICULUM DEVELOPMENT AND SEMINAR.** (3 cr; 3 lect hrs per wk) Mason  
The purposes and policies of a college curriculum with emphasis on dental hygiene issues to include accreditation, admissions, and testing.
- DH 76 (3-126). COURSE STRUCTURE AND EVALUATION.** (3 cr; 2 lect hrs; 1 hr observation) Mason  
Analysis of college teaching; preparing the student to develop, teach, and evaluate a dental hygiene course.

- DH 80 (3-150). SUPERVISED CLINICAL DENTAL HYGIENE PRACTICE TEACHING.** (2 cr; 10 lect; 10 lab)  
Observation, preparation, application, and evaluation of teaching materials in clinical dental hygiene science and techniques.
- DH 81 (3-151). PRECLINICAL DENTAL HYGIENE PRACTICE TEACHING.** (2 cr; 10 seminars; 20 lab or clin)  
Observation and teaching of manual skills in preclinical dental hygiene.
- DH 82 (3-152). DENTAL HYGIENE PRACTICE TEACHING AND COURSE DEVELOPMENT.** (Cr ar)  
Application of course development principles; practice in applying teaching and evaluation methods.
- DH 3-175. PRACTICUM IN TEACHING DENTAL ANATOMY.** (2 cr; 10 lect; 20 lab)  
Observation and participation in teaching dental anatomy laboratory.
- DH 3-176. PRACTICUM IN TEACHING BIOMATERIALS I.** (2 cr; 10 lect; 20 lab)  
Observation and participation in teaching manipulation of various materials used in dentistry.
- DH 3-177. PRACTICUM IN TEACHING BIOMATERIALS II.** (2 cr; 10 lect; 20 lab)  
Observation and participation in teaching the manipulation of impression materials, cast preparation, maxillary-mandibular relationship establishment and the mounting of study casts in an articulator.
- DH 90 (3-200). DENTAL HYGIENE HOSPITAL INTERNSHIP.** (Cr ar)  
Orientation to and experience in management of hospital patients, station visits, and clinical dental treatment.
- DH 3-201. DENTAL HYGIENE PUBLIC SCHOOL INTERNSHIP.** (Cr ar)  
The role of dental and medical advisers with other school personnel. Methods, materials, problems, and evaluations in dental health education.
- DH 3-202. DENTAL HYGIENE PUBLIC HEALTH INTERNSHIP.** (Cr ar)  
Participation and practical experience working with a community agency in a dental health project.

### Anatomy

- Anat 4 (1-004). ELEMENTARY ANATOMY.** (4 cr; 30 lect and 30 lab hrs; prereq 1 qtr biology) Anatomy staff  
Human gross anatomy including a brief introduction to histology, followed by a more detailed study of the head and neck. Lectures, laboratory studies, and demonstrations.

### Biochemistry

- MdBc 30 (1-030). PHYSIOLOGICAL CHEMISTRY FOR DENTAL HYGIENE AND NURSING.** (4 cr; 40 lect hrs) Biochemistry staff  
(a) Brief study of the physical and chemical laws of the composition of matter, chemical compounds, chemical and energy changes; ionic theory; gases and solutions.  
(b) Physiological chemistry of gases, water, salts, carbohydrates, fats, and proteins; nutritive media; digestive fluids and digestion; metabolism of excretion and excretory products.

### Biology

- Biol 1-2 (1-001/1-002). GENERAL BIOLOGY.** (5 cr per qtr; 60 lect and 120 lab hrs) Staff  
Study of plants, animals, and microbes. Includes introduction to ecology, physiology, classification, cytology, energetics, genetics, development, and evolution.

## School of Dentistry

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### English

- Engl 1-2 (1-001/1-002). FRESHMAN ENGLISH.** (3 cr per qtr; 90 lect hrs) Staff  
Course in composition in which literature serves both as reading material and as subject matter for writing.

### Microbiology

- MicB 1 (1-101). ELEMENTARY MICROBIOLOGY.** (4 cr; 30 lect and 30 lab hrs) Staff  
Principles of microbiology; general survey of pathogenic bacteria, molds, protozoa, and viruses; elements of immunity; sanitary analysis of water and milk; germicides; bacterial food poisoning.

### Pharmacology

- Phcl 1 (1-001). DENTAL THERAPEUTICS.** (1 cr; 10 lect hrs) Holte and staff  
Study of drugs relating to application in dental therapeutics.

### Physiology

- Phsl 2 (1-030). HUMAN PHYSIOLOGY.** (4 cr; prereq 1 qtr zoology or biology, 1 qtr chemistry; 30 lect and 20 dem hrs) Staff  
Covers the following subjects from the standpoint of function of the human: circulation, respiration, digestion, excretion, metabolism and nutrition, special senses, nervous system, and endocrines.

### Psychology

- Psy 1-2 (1-001/1-002). GENERAL PSYCHOLOGY.** (3 cr per qtr; 60 lect hrs) Staff  
General introduction to the study of human behavior with emphasis on the development of the individual. This course is advised, in place of GC 1-283, for those who are considering a Bachelor's degree.
- GC 2C (1-283). PSYCHOLOGY OF HUMAN DEVELOPMENT.** (3 cr; 30 lect hrs) Staff  
The growth and development of the individual from conception through adolescence. The aspects of development which are emphasized include physical, motor, social, emotional, and psychological growth. An integration of facets of development is made in order to understand the human being as a complex organism functioning in a complex environment. Since the individual is born into and grows up in a family, the discussion will sometimes be focused on the family as the main environmental factor in the early development of the individual.

### Public Health

- PubH 3 (3-001). PERSONAL AND COMMUNITY HEALTH.** (3 cr; 30 lect hrs) Thomson  
Fundamental principles of health conservation and disease prevention.
- PubH 95 (3-600). HUMAN NUTRITION.** (3 cr; 30 lect hrs; prereq courses in chemistry and biology or #) Stief  
Particular reference to public health. Nutritional values of foods, food utilization and requirements, food management, nutrition education.

### Sociology

- Soc 1 (1-001). MAN IN MODERN SOCIETY.** (3 cr; 30 lect hrs) McNall and staff  
Characteristics of human group life. Analysis of factors associated with development of human group life and man's social environment; structure of social environment and its influence upon individual's behavior.

Speech

- Spch 2 (1-101). **FUNDAMENTALS OF SPEECH.** (5 cr; 50 lect hrs) Staff  
Development of basic skills in meeting variety of speech situations; extemporaneous speaking, oral reading, discussion. Development of basic understanding of speech processes and forms.
- Spch 5 (1-102). **COMMUNICATION IN MODERN WORLD: INTERPERSONAL COMMUNICATION.** (3 cr; 30 lect hrs)  
Description of structure of acts of communication and of factors influencing occurrence, form, and effects of such acts. Analysis of relationship of communication forms in social structure.
- Spch 61 (3-401). **PROCESS OF INTERPERSONAL COMMUNICATION.** (3 cr; prereq 5 or 6 or #, Psy 1-002; 30 lect hrs) Piché, Shapiro, D. H. Smith  
Basic orientation on place of speech and language in human behavior; discussion and nature and function of communication process.



## Section IV

# PROGRAM IN DENTAL ASSISTING

## GENERAL INFORMATION

The Program in Dental Assisting, established at the University of Minnesota in 1953, is offered jointly by the School of Dentistry and the General College. The aim of the curriculum is to give training in the basic principles underlying the many duties of a dental assistant, with the objective that the student will adapt her knowledge to the needs of the dentist for whom she will be later employed. The program permits the student to accomplish three major objectives all in 1 year: (a) a general education, (b) supervised training as a dental assistant, (c) educational requirement for certification.

This program has been accorded full approval by the American Dental Association Council on Dental Education. Therefore, the successful completion of this course of study provides the educational requirement necessary to qualify for the national certification examination sponsored by the American Dental Assistants Association.

Credits earned during this year may be applied toward requirements for the 2-year associate in arts (A.A.) degree offered through General College. This additional year may be taken either before or after the year in dental assisting. If a 2-year program is preferred, it is suggested that students attend General College their first year on campus and spend their second year in the dental assisting program.

## Admission

Applicants for the Program in Dental Assisting will register in General College. Application blanks are available through the local high school of the applicant or from the Office of Admissions and Records, Morrill Hall, University of Minnesota, Minneapolis, Minnesota 55455. Admission is open to students who are graduates of an accredited high school or achieve satisfactory scores on special entrance examinations. Applicants will be accepted on the basis of interest and general suitability for the work. A personal interview must be arranged with the dental assisting office in the School of Dentistry before final acceptance into the program. A typing requirement must be met and all entering students will be tested for their typing ability. If the student does not qualify, GC 14A (Beginning Typing) and GC 14B (Intermediate Typing) are available as a means to meet the requirement. One year of high school biology, general science, and bookkeeping is advantageous for admission.

**Tuition** — Resident student, \$133 per quarter; nonresident student, \$380. The cost of books, uniforms, and special fees will be approximately \$225 per year. The *General Information Bulletin* may be obtained from the Office of Admissions and Records at the University. This bulletin gives additional information about fees, housing, and recreational facilities.

The Program in Dental Assisting will be scheduled as an 11-month course and classes of dental assisting must be taken in sequence. The starting date for each course may vary so it is advisable to contact the dental assisting office or the General College for specific information before submitting applications.

## COURSE OF STUDY

DENTAL ASSISTING CLASSES	<i>Credits</i>	<i>Hours</i>
DA 1A (1-001) — Orientation to Dental Assisting .....	2	40
DA 1 (1-010) — Oral Anatomy and Biomaterials .....	2	40
DA 3 (1-050) — Clinic I .....	6	130
DA 4 (1-100) — Microbiology .....	1	10
DA 5 (1-110) — Oral Pathology .....	1	10
DA 6 (1-125) — Biomaterials Laboratory .....	2	40
DA 7 (1-051) — Clinic II .....	8	240
DA 8 (1-140) — Dental Therapeutics .....	1	10
DA 9 (1-150) — Oral Radiology .....	2	20
DA 10 (1-175) — Practice Management .....	1	10
DA 11 (1-052) — Clinic III .....	8	240
DA 12 (1-200) — Dental Office Emergencies .....	1	10
DA 14 (1-201) — Seminar: Dental Assisting .....	1	10
DA 1-155 — Clinical Roentgenography .....	1	30
 <b>GENERAL COLLEGE CLASSES</b>		
GC 2C (1-283) — Psychology of Human Development .....	3	30
GC 10A (1-131) — Principles of Biology .....	5	50
GC 10B (1-132) — The Human Body .....	5	50
GC 16A (1-540) — Accounting Fundamentals .....	3	40
GC 31A (1-421) — Writing Laboratory: Personal Writing .....	3	40
GC 31B (1-422) — Writing Laboratory: Organized Ideas .....	3	40
GC 31D (1-531) — Writing Laboratory: Business Writing .....	3	40
GC 32A (1-461) — Oral Communications: Basic Principles .....	3	30
GC 1-545 — Intermediate Typing .....	2	50
	67	1,210

## DESCRIPTION OF COURSES

### Dental Assisting

*Assistant Professor*

Helen M. Tuchner, CDA, B.A., *director*

*Teaching Specialist*

Lillie Englin, CDA, A.A.  
Louise Sorenson, CDA, A.A.

- DA 1A (1-001). ORIENTATION TO DENTAL ASSISTING.** (2 cr; 10 lect and 30 lab hrs) Tuchner and staff  
The role of the dental assistant, past and present. Basic study of dental procedures, including the various dental specialties as related to the chairside assistant. Introduction to dental instruments and equipment; their care and maintenance.
- DA 1 (1-010). ORAL ANATOMY AND BIOMATERIALS.** (2 cr; 10 lect and 30 lab hrs) Staff  
Study of the bones, muscles, nerves, and glands of the head and neck. Identification, development, and anatomical description of teeth. Classification, properties, and uses of restorative materials.
- DA 3 (1-050). CLINIC I.** (6 cr; 10 lect and 120 clin hrs) Englin and staff  
Assistant students will be assigned to assist dental students in the multiple clinic areas of the School of Dentistry. All phases of chairside assisting will be part of the clinical experience.
- DA 4 (1-100). MICROBIOLOGY.** (1 cr; 10 lect hrs) O'Neill  
Morphology, cultural characteristics, and laboratory differentiation of oral bacteria and viruses. Types and uses of disinfecting agents, methods of sterilization.



*Instruction and Team Concept  
of Dental Practice*

- DA 5 (1-110). ORAL PATHOLOGY.** (1 cr; 10 lect hrs) O'Neill  
Oral and dental anomalies, and classification of cavities. Diseases of the oral mucosa and periodontal tissue. Oral pathology and physiology of teeth.
- DA 6 (1-125). BIOMATERIALS LABORATORY.** (2 cr; 10 lect and 30 lab hrs) Sorenson and staff  
Basic laboratory procedures as used in the dental office. Properties and uses of impression materials, techniques of investing and casting, and basic prosthetic procedures.
- DA 7 (1-051). CLINIC II.** (8 cr; 240 lect, lab, and clin hrs) Tuchner, Englin, and staff  
Lectures, demonstrations, and clinical experience in advanced chairside assisting techniques. Fundamentals of and experience in expanded duties as delegated to the dental assistant.
- DA 8 (1-140). DENTAL THERAPEUTICS.** (1 cr; 10 lect hrs) Holte  
Lecture and laboratory study of drugs relating to their application in dental therapeutics.
- DA 9 (1-150). ORAL RADIOLOGY.** (2 cr; 20 lect hrs) Beck  
Roentgenogram identification and quality evaluation, roentgenographic anatomy, film mounting, nature of radiation, production and control of X rays, characteristics of roentgenographic film and image, mathematics of exposure, chemistry of processing, intra-oral techniques, and radiation protection.
- DA 1-155. CLINICAL ROENTGENOGRAPHY.** (1 cr; 30 lab and clin hrs) Beck and staff  
Students observe demonstrations of intra-oral roentgenographic technique, produce acceptable full-mouth periapical-bitewing series on mounted skulls and phantoms, process exposed film and qualitatively evaluate the results, produce full-mouth roentgenographic records of patients, and mount roentgenograms.

## Dental Assisting

- DA 10 (1-175). PRACTICE MANAGEMENT.** (1 cr; 10 lect hrs) Erickson and staff  
Concepts of the dental assistant's role in office management. Includes telephone techniques, appointment scheduling, office records, fees and collections. Purchasing supplies.
- DA 11 (1-052). CLINIC III.** (8 cr; 240 lect, lab, and clin hrs) Englin and staff  
Continuation of Clinic II.
- DA 12 (1-200). DENTAL OFFICE EMERGENCIES.** (1 cr; 10 lect hrs) Sander  
Concepts of first aid as applied to the dental office.
- DA 14 (1-201). SEMINAR: DENTAL ASSISTING.** (1 cr; 10 lect hrs and lab as arranged)  
Englin and staff  
The dental assistant in the office. Lectures and class projects on dental office procedures and manuals, patient relations, and oral health programs.

## General College

- GC 2C (1-283). PSYCHOLOGY OF HUMAN DEVELOPMENT.** (3 cr; 30 lect hrs)  
Human behavior in terms of its origins and unfolding; introduction to the methods and techniques applicable to the scientific study of growth and development. Designed to provide an objective view of the complex individual as he functions in and interacts with a complex environment at various stages during the continuous process of physical and psychological development from conception through maturity. Special attention is given to the implications for the young adult of research findings in such major areas of interest as physical, emotional, personality, and social developments.
- GC 10A (1-131). PRINCIPLES OF BIOLOGY.** (5 cr; 50 lect hrs)  
A study of the variety and relationships of living organisms illustrates the general principles of biology as they apply to man, animals, and plants. These principles are drawn from fields such as the study of cells, relationships of organisms in nature, heredity, chemical and physical properties of living organisms, evolution, and reproduction. Films and demonstration laboratories supplement the lectures.
- GC 10B (1-132). THE HUMAN BODY: STRUCTURE, FUNCTION, HEALTH.** (5 cr; 50 lect hrs)  
Problems of physical, mental, and social health are related to the structure, function, and needs of the human body. The anatomy and physiology of the systems which constitute the human organism are studied. In studying the heart, for example, the instructor shows what it is, how it works, its importance to the overall functioning of the body, what can go wrong with it, and summarizes what is known about keeping it on the job.
- GC 14B (1-545). INTERMEDIATE TYPING**
- GC 16A (1-540). ACCOUNTING FUNDAMENTALS.** (3 cr; 40 lect and lab hrs)  
In this introduction to accounting principles, the student works on the recording of business transactions, special journals, accounts and the ledger, financial statements, and summarizing at the close of the fiscal period, with emphasis on the single proprietorship. The course also serves to develop basic skills in keeping records for those students who may not pursue careers in business.
- GC 31A (1-421). WRITING LABORATORY: PERSONAL WRITING.** (3 cr; 40 lect and lab hrs)  
To increase his awareness of himself, his surroundings, and his relationships with his friends and his family, the student reads and writes descriptions, character sketches, and autobiographic and biographic narratives. He is encouraged to write clear, correct, and effective sentences and to overcome his own writing difficulties. He also learns about the dictionary and its resources, and briefly studies the history and development of language and its levels of usage and style.
- GC 31B (1-422). WRITING LABORATORY: ORGANIZING IDEAS.** (3 cr; prereq 31A; 40 lect and lab hrs)  
The student learns two things: how to organize ideas clearly and effectively in expository writing, and how to read at the level of comprehension required for

## *School of Dentistry*

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success in university courses. He learns to detect central ideas and discover supporting details in a piece of prose and to utilize such patterns of organization in his own factual writing. The reading also develops his vocabulary. He writes summaries, outlines, and various pieces of expository writing.

**GC 31D (I-531). WRITING LABORATORY: BUSINESS WRITING.** (3 cr; prereq 31A ...31B advised; 40 lect and lab hrs)

The student practices the writing of letters necessary for ordinary business transactions, such as letters of inquiry, order, complaint, adjustment, and application. Assignments stress acceptable business-letter form, clarity and economy of expression, and suitable tone. Final drafts of letters must be typed.

**GC 32A (I-461). ORAL COMMUNICATION: BASIC PRINCIPLES.** (3 cr; 30 lect hrs)

The student is introduced to the basic principles of speech. By means of such assignments as an introduction, a demonstration, an argument, and a group discussion, he is given an opportunity to apply these principles. Through these classroom projects the student is helped to develop confidence in himself, to express his ideas clearly and effectively, and to listen critically.

## Section V

# DEGREE PROGRAM FOR DENTAL ASSISTING EDUCATORS

A bachelor of science degree program for dental assisting educators has been established within the structure of the University College. The intent is to train a number of competent dental assisting educators who will be able to teach in dental assisting programs and who can organize and direct such programs.

The length of time for completion of this degree program is 2 calendar years. Candidates must have already earned an associate of arts degree including an accredited dental assisting course (or its equivalent).

The degree offered will be a bachelor of science through University College. Registration in this college allows the student to schedule classes across college lines. Students must satisfy distribution requirements in liberal arts, education, public health, dentistry, and advanced dental assisting.

Applicants desiring information or wishing to register as students with advanced standing in this program should contact the Department of Dental Assisting, School of Dentistry, 136 Owre Hall.

## DESCRIPTION OF COURSES

- DA 50 (3-025). DENTAL ASSISTING CURRICULUM DEVELOPMENT.** (3 cr; lect)  
A survey of various dental assisting course curricula; evaluation of existing programs; requirements and current problems in curriculum development.
- DA 51 (3-026). DENTAL ASSISTING LABORATORY CURRICULUM SEMINAR.** (2 cr; lect and lab)  
Analysis of criteria and established curricula of laboratory procedures in dental assisting education. Organization of units, courses, and curricula with laboratory projects and demonstrations in techniques of instruction.
- DA 55 (3-050). ADVANCED CHAIRSIDE ASSISTING.** (3 cr; seminar and lab)  
Development or analysis of a research project based on current studies and experiments in advanced dental assisting procedures.
- DA 58 (3-125). DENTAL ASSISTING HOSPITAL INTERNSHIP.** (4 cr)  
Orientation to and experience in management of hospitalized patients, station visits, and clinical dental assisting.
- DA 60 (3-150). CLINICAL INTERNSHIP-STUDENT TEACHING.** (4 cr; lect and clin)  
Observation and actual experience of teaching under supervision in clinical situations. Use of evaluation procedures and testing situations.
- DA 61 (3-151). LABORATORY INTERNSHIP-STUDENT TEACHING.** (4 cr; lab and seminar)  
Observation and actual experience of teaching under supervision in dental assisting laboratory situations. Testing and evaluation methods will be considered.
- DA 63 (3-175). DENTAL HEALTH EDUCATION.** (4 cr; lect and lab)  
Survey of dental health education, its concepts and objectives. Development of oral hygiene programs that can be carried out in private practice, clinic facilities, and school programs.
- DA 65 (3-200). ADMINISTRATION — DENTAL ASSISTING PROGRAMS.** (3 cr; seminar)  
Critique of administrative responsibilities including teaching staff, personnel, and student body. An overall review of curricula, funding, facilities, administrative policies, and selection of students.

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3. College of Medical Sciences
4. Mayo Auditorium
5. Main University Hospitals
6. Heart Hospital
7. Coffman Memorial Student Union
8. Comstock Hall for Women
9. Powell Hall for Nurses
10. Biomedical Library
11. Men's Dormitories
12. Pioneer Hall for Men and Women

