

**School of Public Health**

# University of Minnesota

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Administrative offices for the School of Public Health are located at 1260 Mayo Memorial Building (Box 197), 420 Delaware Street S.E., Minneapolis, MN 55455. Correspondence should be addressed to a specific center or office, in care of the School of Public Health.

# School of Public Health

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*Above:* Computers are an important part of students' curricula.

*Cover:* *Front,* the Mayo Memorial Building houses the school's administrative offices and many of its programs.

*Back,* Ph.D. student Steven Gordon extracts a toxic chemical for analysis during his study of the effects of sulfur dioxide on lung tissue.

## School of Public Health Directory

### TELEPHONE NUMBERS

Dean's Office .....	(612) 373-8060
Educational, Research, and Service Centers	
Center for Health Services Research .....	(612) 376-1895
Center to Study Human-Animal Relationships and Environments .....	(612) 373-8032
Midwest Center for Occupational Health and Safety ....	(612) 373-8080
Division and Program Offices	
Biometry .....	(612) 373-8042
Community Public Health Programs	
Dental Public Health .....	(612) 376-3537
Health Education .....	(612) 373-8106
Maternal and Child Health .....	(612) 373-8066
Public Health Administration .....	(612) 376-3537
Public Health Nursing .....	(612) 373-8055
Public Health Nutrition .....	(612) 373-8112
Environmental Health .....	(612) 373-8080
Epidemiology	
Epidemiology .....	(612) 376-4056
Veterinary Public Health .....	(612) 373-8032
Hospital and Health Care Administration .....	(612) 373-8052

#### Bulletin Use

The contents of this bulletin and other University bulletins, publications, and announcements are subject to change without notice. University offices can provide current information about possible changes.

#### Equal Opportunity

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities and employment without regard to race, religion, color, sex, national origin, handicap, age, or veteran status. In adhering to this policy, the University abides by the requirement of Title IX of the Education Amendments of 1972, by Sections 503 and 504 of the Rehabilitation Act of 1973, by Executive Order 11246, as amended; 38 U.S.C. 2012, by the Vietnam Era Veterans Readjustment Assistance Act of 1972, as amended; and by other applicable statutes and regulations relating to equality of opportunity.

Inquiries regarding compliance may be addressed to Director, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, 100 Church Street S.E., University of Minnesota, Minneapolis, MN 55455 (612/373-7969); to the Director of the Office of Civil Rights, Department of Education, Washington, DC 20202; or to the Director of the Office of Federal Contract Compliance Programs, Department of Labor, Washington, DC 20210.

#### Access to Student Educational Records

In accordance with regents' policy on access to student records, information about a student generally may not be released to a third party without the student's permission. The policy also permits students to review their educational records and to challenge the contents of those records.

Some student information—name, address, telephone number, dates of enrollment and enrollment termination, college and class, major, adviser, and degrees earned—is considered public or directory information. To prevent release of such information outside the University while in attendance at the University, a student must notify the records office on his or her campus.

Students are notified annually of their right to review their educational records. The regents' policy, including a directory of student records, is available for review at the Information Booth in Williamson Hall, Minneapolis, and at the records offices on other campuses of the University. Questions may be directed to the Office of the Coordinator of Student Support Services, 260e Williamson Hall (612/373-2106).



*To Prospective Students:*

*Thank you for your inquiry concerning the School of Public Health at the University of Minnesota. We appreciate your interest in the school and hope you will join us within this academic community.*

*The School of Public Health offers opportunities to motivated individuals who are concerned about the prevention of disease and the resolution of public health problems. Recognizing that a wide spectrum of knowledge and skills is needed if community health problems are to be dealt with properly, the school offers educational experiences in a variety of areas. In addition to the educational experiences offered through the school, students are encouraged to utilize curricular resources offered by other units of the University of Minnesota.*

*In the School of Public Health you will be joining a group of talented men and women who have the common goal of completing a high quality education to prepare for a career of service in the protection and improvement of the public's health. We welcome your application and trust that this bulletin will provide the information you need to know about the school. The directors of the programs of study offered through the school would be pleased to hear from you and will, upon request, forward additional information to you.*

A handwritten signature in cursive script, reading "Edith D. Leyasmeyer". The signature is written in dark ink and is positioned above the typed name.

*Edith D. Leyasmeyer, Ph.D.*  
**Acting Dean**

# General Information

The School of Public Health at the University of Minnesota has established a strong reputation for its educational programs as a result of more than a half century of teaching, research, and community service. The school's beginnings date to 1918, when the Program in Public Health Nursing—one of the first of its kind in the country—was established. Because of the increased need for health education and for trained leaders in public health, a separate Department of Preventive Medicine and Public Health was established in 1922. In 1935, health officers of adjacent states selected the University of Minnesota to train public health personnel under provisions of the Social Security Act. Curricula for the training of health officers and public health engineers were established at that time. The Board of Regents authorized expansion of the Department of Preventive Medicine and Public Health into the School of Public Health in 1944. The College of Medical Sciences was reorganized in 1970 into the health sciences, consisting of six units: the School of Dentistry, Medical School, School of Nursing, College of Pharmacy, School of Public Health, and University Hospitals.

The School of Public Health is located within the health sciences complex on the East Bank of the Twin Cities campus in Minneapolis.

## Mission

The mission of the School of Public Health is to preserve and enhance the health of the public through education, research, and service programs designed to discover and transmit new knowledge aimed at the prevention of disease and disability, the improvement of health, and the planning, analysis, management, and improvement of systems for delivering health services.

**Educational Objectives**—To receive an M.P.H. or M.S. degree in public health, students shall demonstrate the following knowledge, skills, and attitudes given a defined community setting:

1. Identify and define biological, chemical, physical, and other environmental factors that affect the health of persons in a community, and be able to identify and define measures for the detection and control of those factors.
2. Identify and define social, cultural, political, economic, behavioral, and other factors that affect the health of persons in a community, and be able to identify and define an appropriate method of changing those factors to achieve a higher level of health in that community.
3. Identify and describe components and operation of health services delivery systems as they affect prevention and health care for individuals and the community.
4. Identify, define, and demonstrate ability to apply methods, techniques, and procedures of information collection, storage, retrieval, analysis, reporting, and interpretation.
5. Identify and define factors that inhibit or facilitate cross-disciplinary cooperation, and through course work or field experience, demonstrate the ability to apply this knowledge in the solution of public health problems requiring cross-disciplinary participation.

6. Identify and evaluate health needs of the community; analyze plans proposed to meet such needs; prepare plans by which such needs can be met, including identification of resources to implement and methods to evaluate the effectiveness of such programs.

In addition to Graduate School and specific program requirements, candidates for Graduate School degrees in biometry and health information systems, environmental health, epidemiology, and hospital and health care administration are encouraged to demonstrate achievement of the school-wide objectives (1-6) prior to receiving the M.S. or Ph.D. degree. Fulfillment of these school-wide objectives shall be as recommended by the candidate's advisers and judged by the appropriate review and examining committees in accord with differing career objectives of candidates for these degrees.

To receive the M.P.H. or M.H.A. or M.S. degree in public health, students shall demonstrate knowledge and understanding in philosophy and general principles of public health and in their area of specialization in accord with additional educational objectives defined by faculty.

## **Accreditation**

The School of Public Health and its programs are accredited by the Council on Education for Public Health. Several of the school's programs are accredited by other appropriate organizations. The Program in Hospital and Health Care Administration is accredited by the Accrediting Commission on Education for Health Services Administration.

## **Degree Programs**

The school offers programs of study leading to the professional degrees of master of public health (M.P.H.) and master of hospital administration (M.H.A.). In addition, under the administration of the Graduate School but with the advising and teaching faculty of the School of Public Health, several programs leading to the academic degrees of master of science (M.S.) and/or doctor of philosophy (Ph.D.) are offered. All degree programs offered by the School of Public Health or through the Graduate School are fully accredited by the appropriate national accrediting agencies. The school does not offer the doctor of public health (Dr.P.H.) degree.

The decision to apply directly to the School of Public Health for study toward a professional degree (M.P.H. or M.H.A.) or to the Graduate School for study toward an academic degree (M.S. or Ph.D.) will depend upon a number of considerations, including the applicant's chosen program of study, long-term career needs and goals, prior experience and academic preparation, and future academic plans. It is recommended that applicants correspond with the director of the appropriate program in the School of Public Health before applying to the Graduate School.

## **MASTER OF PUBLIC HEALTH**

This advanced professional degree is granted in recognition of scholastic attainment in public health to individuals with suitable previous education and experience. The requirements for admission to the M.P.H. degree programs are guided by criteria established by the Council on Education for Public Health. Applicants should possess a graduate or baccalaureate degree from an acceptable institution in a discipline relevant to public health.

## General Information

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**Programs of Study**—Professional programs leading to the M.P.H. degree are offered in the areas of biometry, dental public health, environmental health, epidemiology, health education, maternal and child health, public health administration, public health nursing, public health nutrition, and veterinary public health. The length of time required to complete the degree may vary depending upon the program and the student's educational background and work experience. However, 11 months of approved study are generally regarded as a minimum.

**Adult Special Status**—Admission as an adult special student or the earning of adult special credits does not imply or guarantee acceptance into a degree program. Admission as a degree candidate must follow normal admission requirements and procedures.

All adult special students, like degree candidates, must plan their program of study in consultation with a faculty adviser. With approval of the program director, a maximum of 22 credits (or two quarters) completed while registered as an adult special student in the School of Public Health may be applied toward the M.P.H. degree, although individual programs may set lower limits. Additional credits can only be transferred by petition approved by the adviser, program director, and the dean. When adult special students transfer from another college within the University, both the program director and the dean must approve credits accepted for transfer when they are admitted to degree candidacy.

**Degree Requirements**—To receive the M.P.H. degree from the School of Public Health, students must complete the following requirements:

1. **Credits**—Completion of requirements specified by the individual program of study with a minimum of 45 credits. Credits transferred for courses taken outside the school must have been approved by the faculty of the program and shall not constitute more than 40% of the total credits required for graduation.
2. **Course Work**—Appropriate course work as selected by the student with approval by the adviser and in accordance with the requirements of the specific program of study and the educational objectives of the school.
3. **Master's Project**—Completion of at least one master's project, demonstrating familiarity with the tools of research or scholarship in the field, the capacity to work independently, and the ability to present the results of the investigation effectively. The program faculty specifies the nature and extent of the options available to satisfy this requirement and determines whether the requirement is to be satisfied in conjunction with or independent of the course work in the student's program.
4. **Comprehensive Examination**—Successful completion of a written or oral examination as provided for by the program of study.
5. **Study Plan**—Submission of a complete study plan two quarters prior to anticipated graduation.
6. **Grade Point Average**—Cumulative GPA of 3.00 for all courses required for graduation.
7. **Residency**—Completion of a minimum of two quarters in residence for a total of at least 16 credits while registered in the school.
8. **Time Frame**—Completion of all degree requirements within seven years from admission to degree candidacy.

## MASTER OF HOSPITAL ADMINISTRATION

This advanced professional degree is granted in recognition of scholastic attainment in health administration to individuals with suitable previous education and experience. The goal of the M.H.A. program is to prepare graduates for chief executive and other top-level administrative positions in health services organizations (after the requisite years of experience in responsible managerial positions).

The program consists of 21 months of study on campus including a three-month summer administrative residency. The academic program emphasizes organization and management, quantitative methods for decision making, human resources, public health, economics, finance, strategic planning, problem solving, and health policy analysis.

An alternative plan of study is available for students who successfully complete the Independent Study Program for Hospital and Health Care Administration, Mental Health Administration, Ambulatory Care Administration, or Long-Term Care Administration.

Requirements for the M.H.A. degree include satisfactory completion of a specified number of credits in required courses (presently 75 credits) and 12 credits of elective courses, an acceptable research thesis, and an overall grade point average of 3.00 for all courses taken on A-N basis. All degree requirements must be completed within five years of initial enrollment.

Hospital and health care administration programs are described under "Divisions and Programs of Study" in this bulletin.

### MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

Programs of study and research leading to the M.S. and Ph.D. degrees, administered through the Graduate School, may be elected with a major or minor in biometry and health information systems, environmental health, and epidemiology. Hospital and health care administration may be elected as either a major or minor at the doctoral level. The M.S. degree in public health is also offered. For additional information about degree programs, including a minor in public health for the Ph.D. degree, consult the appropriate program description in this bulletin as well as the *Graduate School Bulletin*.

Adult special students who wish to transfer to candidacy for the M.S. or Ph.D. degree may obtain information on current regulations governing transfer of credits by contacting the Graduate School, 322 Johnston Hall, University of Minnesota, 101 Pleasant Street S.E., Minneapolis, MN 55455.

### UNDERGRADUATE EDUCATION

The School of Public Health does not offer bachelor's degree programs. However, students may take courses in the school and apply credits earned to a number of bachelor's degree programs offered by other units of the University. Those interested in a bachelor's degree in biometry may enroll in the biometry program offered by the College of Liberal Arts (see the *College of Liberal Arts Bulletin*, available from the Information Booth in Williamson Hall or from Student Support Services, 110 Williamson Hall, University of Minnesota, 231 Pillsbury Drive S.E., Minneapolis, MN 55455). The School of Public Health participates in the Inter-College Program of the University College, which enables students to design an individual program of study for the bachelor's degree involving two or more areas of concentration. Public health and related course work can be used to fulfill one of these areas of concentration for students whose course work is approved by a School of Public Health adviser. Further information is available from University College, 317 Walter Library, University of Minnesota, 117 Pleasant Street S.E., Minneapolis, MN 55455.

The School of Public Health offers courses at the undergraduate level to meet requirements of other departments and colleges. Some graduate-level courses offered by the school are also open to upper division undergraduate students and may be used to satisfy distribution or elective requirements. Many of the school's courses are open to graduate students from other departments or colleges of the University. Some nondegree, special summer, independent study, and continuing education offerings may also be taken for credit and applied to degree programs. For more information about the applicability of credit, consult both the college and the director of the program to which credits are to be transferred.

## Nondegree and Continuing Education Programs

The School of Public Health, in cooperation with other units in the health sciences and various departments of the University, offers a number of credit and noncredit continuing education programs. In addition to the regularly offered programs described below, the school offers a variety of in-service courses on campus and elsewhere in the state. These courses, which vary in length from one- or two-day workshops to two- or three-week institutes, are offered for selected professional and paraprofessional groups in the health field. School and University faculty members as well as special lecturers are utilized.

Nondegree credential programs are regularly offered through the Programs in Public Health Nutrition (Nutrition Administration independent study program) and in Hospital and Health Care Administration (Hospital and Health Care Administration, Long-Term Care Administration, Nursing and Patient Care Administration, Ambulatory Care Administration, Mental Health Administration, and Health Care Trustees independent study programs). Further information about these programs can be found under "Divisions and Programs of Study" in this bulletin.

**Evening Classes and Independent Study**—Through the University's Continuing Education and Extension division, the school offers a number of courses in the evening and through independent study for the convenience of health professionals working toward degree programs part-time or supplementing their education. Degree credits earned through extension and independent study courses may be transferred to apply toward degrees offered by the school or by other units of the University when approved by the degree-granting unit. A complete listing of extension class and independent study offerings can be found in the *Extension Classes Bulletin* and the *Independent Study Bulletin*, available from Continuing Education and Extension, 101 Westbrook Hall, University of Minnesota, 77 Pleasant Street S.E., Minneapolis, MN 55455.

**Summer Session**—The summer session consists of two terms, each five weeks in length. In each of these terms, courses taught during the regular year are offered in a concentrated period of time. Special workshops or intensive programs of study are also offered during the summer. It should be noted that it is not possible for a student to complete the requirements for an advanced degree through summer session attendance only. Further information can be obtained from the *Summer Session Bulletin*, available through the Summer Session Office, 135 Johnston Hall, University of Minnesota, 101 Pleasant Street S.E., Minneapolis, MN 55455.

## Academic Policies

**Grading System**—The University of Minnesota offers two grading options to all students: the letter grade system (A-B-C-D-N, with the grade point average based on A=4.00, B=3.00, C=2.00, D=1.00) and the satisfactory-no credit system (S-N). The School of Public Health permits students to take no more than 20% of the credits applied to their degree S-N (excluding courses offered S-N only). Each student's record is reviewed at the end of every quarter to determine whether satisfactory progress is being made toward the degree.

Changes in grading systems after the first week of the term will be allowed in exceptional cases only and must be approved by both the instructor and the adviser.

Grades of incomplete carried for more than two quarters (excluding summer session) will be converted to a grade of N.

Programs may specify additional requirements concerning choice of grading systems by their majors within their own curricular areas.

## Admission Requirements and Procedures

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**Probationary Status**—Each program sends written notification to a student, by the middle of each quarter, when the student's cumulative grade point average has fallen below 3.00 at the conclusion of the preceding quarter.

**Course Evaluations**—Every course in the school, including seminars, field study, and independent study projects, is evaluated by students. Summaries of student evaluations of courses are available for student review in the program office.

**Human Subjects in Research**—All research projects involving the use of human subjects must be approved by the University Committee on the Use of Human Subjects in Research.

**Grievances**—A copy of the publication *School of Public Health Grievance Procedures and Policies* may be obtained from the Dean's Office, School of Public Health, 1260 Mayo (Box 197), University of Minnesota, 420 Delaware Street S.E., Minneapolis, MN 55455.

## Admission Requirements and Procedures

Each School of Public Health program has its own additional admission requirements, which are described under "Divisions and Programs of Study" in this bulletin, but the following requirements and procedures apply to *all* prospective M.P.H. and M.H.A. students:

### Admission Requirements:

1. Baccalaureate or higher degree from an accredited college or university.
2. Cumulative undergraduate grade point average (GPA) of not less than 3.00 based on a minimum of 90 quarter credits or a cumulative postbaccalaureate GPA of not less than 3.00 based on not less than 9 quarter credits as specified by the program  
or  
Minimum Graduate Record Examination (GRE) [or Graduate Management Admission Test (GMAT)] score of not less than 1500 based on the three sections and taken within the last five years or a minimum Miller Analogies Test score of not less than 40 taken within the last five years. International students must attain a minimum of 500 on the Test of English as a Foreign Language (TOEFL). Other tests are not required for international students.

### Procedures:

1. Describe in your letter of inquiry your present or previous professional experience; future career goals and educational needs including the professional role you see yourself performing; and, when possible, the type of agency, organization, or setting in which you plan to work.
2. Submit with your initial letter, or arrange to have forwarded to the program director, two certified transcripts of your complete academic record from all previous collegiate institutions attended.
3. Submit three letters of recommendation, or names and addresses of individuals who would be willing to write one, as required by the individual program. These letters should be from persons capable of assessing your ability to do graduate work and your past and potential success in the field for which you are applying. Letters should be addressed to the program director.
4. The admissions committee may require you to participate in an interview with faculty members or designated representatives.

## General Information

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5. Complete and return to the program director the application for admission along with a check, payable to the University of Minnesota, for the \$20 (U.S. currency) application fee. Former University of Minnesota students must also complete a change of college form but are not required to pay the \$20 fee.
6. Arrange to have the Miller Analogies, Graduate Record Examination, Test of English as a Foreign Language (TOEFL), or other requested test scores forwarded to the program director. Information about when and where such tests are administered may be obtained from the Student Counseling Bureau, 101 Eddy Hall, University of Minnesota, 192 Pillsbury Drive S.E., Minneapolis, MN 55455, or at a student testing office of a college or university near you. For information about TOEFL, contact the Educational Testing Service, Princeton, NJ 08541, USA.

After the application and all supporting documents have been received and reviewed, applicants are officially notified by the dean of the action taken and any conditions of admission. Questions regarding admission should be addressed to the program director.

## International Students

All prospective students from countries other than the United States must observe the following procedures to ensure consideration of their application. Foreign nationals already studying or working in the United States, unless they have been admitted for the purpose of establishing residency or have acquired such status under appropriate immigration regulations, are required to observe the same procedures as those still residing in their home country.

All international students must have earned a bachelor's degree or its equivalent, or a higher degree, from an acceptable institution. All applications must be for study in a specific program (see "Divisions and Programs of Study").

**Government Endorsement**—International students must secure a written endorsement of their training from the Ministry of Health or similar governmental unit of their home country. This endorsement must be submitted to the school as a part of the application and should include both a statement of the governmental unit's desire to have the student obtain training in a specific field of public health and the willingness of the government to employ or assist the student in securing employment upon return to his or her country. International students must obtain this endorsement even if they are already in the United States for other study. This endorsement does not apply to citizens of Canada.

**Assurance of Financial Support**—The School of Public Health does not have funds to assist international students, either on a planned or an emergency basis. All international students are required to give the school written assurance of their ability to provide full financial support for their entire period of study. This assurance must be from an official government agency in the student's home country or an international agency such as the World Health Organization, the Agency for International Development of the U.S. State Department, the AFRAD program (through the African-American Institute), or some other acceptable national or international agency or organization. Students planning to finance their education out of their own, family, or other private resources must also provide written assurance from an official agency that their financial resources are adequate for the entire period of study and that the agency giving such assurance is prepared to provide or otherwise secure appropriate assistance for the student in the event that an unforeseen emergency arises while studying in the United States.

**Proficiency in English**—The school requires that every international applicant whose native language is not English provide evidence of proficiency in English at the time of application. Prospective students must have attained a minimum of 500 on the Test of English as a Foreign Language (TOEFL) for admission to a degree program. Evidence of

proficiency in English usually is provided routinely when application is made through the World Health Organization, Agency for International Development, or other long-established international programs. In most cases, students must take the TOEFL and arrange to have the certified examination results forwarded to the school. Final action on an application for admission cannot be taken until official evidence of proficiency in English is received.

**Application Procedure**—International students should initiate their application procedures early due to delays in obtaining necessary clearances and assurances prior to formal application. Students are advised to contact their Ministry of Health or similar governmental agency by the first week in January of the calendar year in which they plan to enroll. Students are also encouraged to apply through their Ministry of Health, the World Health Organization, or a similar official agency because these agencies are usually able to expedite the necessary clearances. Direct application, while possible, is not encouraged. Students are encouraged, however, to correspond with the director of the program of study they wish to enter as early as possible and prior to initiating formal application procedures. Early correspondence that clearly articulates the student's educational and career needs and goals is essential.

## Expenses

**Tuition and Fees**—Tuition rates for the 1984-85 academic year, although subject to change, are expected to be as follows:

### *Students registering in the School of Public Health*

M.P.H., M.H.A., Adult Special—Resident (0-14 credits) . . . . .	\$ 49.71/credit*
M.P.H., M.H.A., Adult Special—Nonresident (0-14 credits) . . . . .	99.42/credit*

### *Students registering in the Graduate School*

M.S., Ph.D.—Resident (7-15 credits) . . . . .	\$720.00**
M.S., Ph.D.—Nonresident (7-15 credits) . . . . .	1,440.00**

\*For students registering in the School of Public Health there is a credit plateau from 14-18 credits where tuition rates remain at the 14-credit rate; the per-credit rate resumes at 19 credits.

\*\*For students registered in the Graduate School part time, there is a per-credit charge. Effective fall quarter 1984, students registered in the Graduate School who have completed the residency requirement of four quarters of full-time registration (7 or more credits per quarter) for the master's degree or nine quarters of full-time registration for the doctorate may register at half the rates listed above.

See the current *Class Schedule* or *General Information Bulletin* for detailed information on tuition and fees.

All students registered for 6 or more credits must pay a student services fee of \$84.11 per quarter. Consult the quarterly *Class Schedule* for information on other course or special fees that may be applicable.

**Financial Aid**—Opportunities for traineeships, loans, and other financial assistance may be available in the various fields of study. Applicants who need financial assistance or who would like specific information about qualifying and applying for traineeship support may write to the director of the program in which they plan to enroll. Since funds are limited and allocations usually must be determined in spring quarter for the following fall, early application, preferably by March 1, is urged.

For information on all-University scholarships, grants, and loans, contact the Office of Student Financial Aid, 210 Fraser Hall, 106 Pleasant Street S.E., Minneapolis, MN 55455.

## General Information

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### Student Organizations

The Public Health Student Senate represents the professional and graduate student body of the School of Public Health. It deals with issues that affect the student body. Primary concerns of the organization are the interdisciplinary approach to professional and graduate education and social activities of the school. Membership is composed of representatives elected from each division. Senate members also participate in major faculty committees of the school.

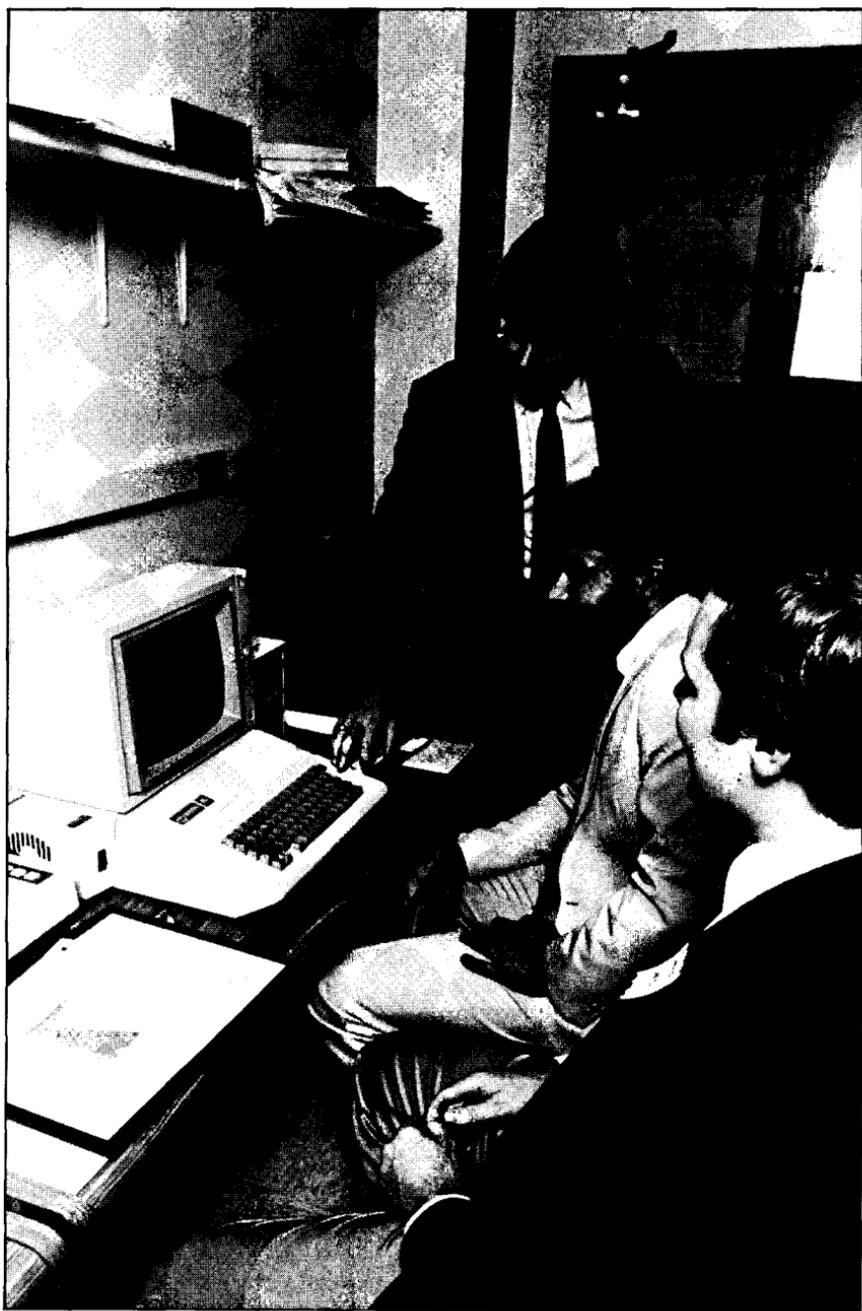
The Council for Health Interdisciplinary Participation (CHIP) is an organization for health sciences students that is dedicated to promoting the team approach to health care delivery through student services and community programs. CHIP offers educational and social activities.

### Alumni Society

The School of Public Health has established an Alumni Society, affiliated with the University of Minnesota Alumni Association. Membership is open to all students who have completed a minimum of 15 credits of course work while enrolled in the School of Public Health. For two years following completion of studies the rate is \$17 per year, after which it increases to \$22 per year. Members are entitled to all benefits of the school's Alumni Society, as well as those of the University's Alumni Association.



Professor Lee Stauffer discusses current issues in an environmental health administration class.



Hospital administration students use computers in their quantitative methods application course.

# Educational, Research, and Service Centers

## Center for Health Services Research

Director: John E. Kralewski, Ph.D.

The Center for Health Services Research is designed to conduct collaborative interdisciplinary studies focused on the organization, financing, and management of health services. Particular emphasis is devoted to policy relevant research dealing with the effectiveness and efficacy of alternate approaches to the provision of preventive and curative health services. Center faculty offer graduate course work through several academic units and are linked to the Hubert H. Humphrey Institute of Public Affairs, the Department of Economics, the School of Management, the Medical and Dental Schools, and the College of Pharmacy through research and teaching programs.

### CENTER FACULTY

Milo Brekke, Ph.D., Clinical Assistant Professor  
Thomas Choi, Ph.D., Assistant Professor  
Donald P. Connelly, M.D., Ph.D., Associate Professor and Director, Laboratory Data Division, Medical School  
Gestur B. Davidson, Ph.D., Assistant Professor  
Bryan E. Dowd, Ph.D., Assistant Professor  
Nancy Eustis, Ph.D., Professor, Humphrey Institute of Public Affairs  
Roger D. Feldman, Ph.D., Associate Professor  
Douglas A. Fenderson, Ph.D., Professor  
William R. Fifer, M.D., Clinical Professor  
Michael Finch, B.A., Instructor  
John E. Kralewski, Ph.D., Professor and Center Director; Assistant to the Vice President for Health Sciences  
Ira S. Moscovice, Ph.D., Associate Professor  
Laura Pitt, M.P.H., Research Fellow  
Cynthia Polich, M.S., Research Fellow  
Christopher Potter, Ph.D., Visiting Assistant Professor; Organizational Development Officer, London, England  
Deborah Shatin, Ph.D., Clinical Assistant Professor

## Center to Study Human-Animal Relationships and Environments

Director: Robert K. Anderson, D.V.M., M.P.H.

The purpose of the center, a cooperative effort of the School of Public Health and the College of Veterinary Medicine, is to provide a focus and stimulus for multidisciplinary research, education, and service on human-animal relationships and their environments. Goals include developing and maintaining research, teaching, and service on human-animal relationships and their environments; promoting and disseminating scientific findings to improve the quality of life for people through relationships with animals; assisting societies and institutions concerned with the care and well-being of people and welfare of animals; serving as a regional information clearinghouse; and acting as a resource in the development of college courses and community programs.

## *Midwest Center for Occupational Health and Safety*

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### **CENTER FACULTY**

Robert K. Anderson, D.V.M., M.P.H., Professor and Center Director, School of Public Health  
Raymond W. Carlaw, Dr.P.H., Associate Professor, Health Education, and Associate Dean, School of Public Health  
Robert H. Dunlop, D.V.M., Ph.D., Dean, College of Veterinary Medicine  
Phyllis L. Fleming, Ph.D., Assistant Professor, Public Health Nutrition, School of Public Health  
Geraldine M. Gage, Ph.D., Department of Family Social Sciences, College of Home Economics  
David A. Garloff, Ph.D., Assistant Professor, Health Education, and Director, Health Sciences Learning Resources  
Shirley D. Johnston, D.V.M., Ph.D., Assistant Professor and Center Deputy Director, Department of Small Animal Clinical Sciences, College of Veterinary Medicine  
Edith D. Leyasmeyer, Ph.D., Acting Dean, School of Public Health  
Paul E. Meehl, Ph.D., Regents' Professor of Psychology, Department of Psychiatry, Medical School  
Gail B. Peterson, Ph.D., Associate Professor, Department of Psychology, College of Liberal Arts  
Richard E. Phillips, Ph.D., Professor, Department of Ecology and Behavioral Biology, College of Biological Sciences  
Joseph S. Quigley, D.V.M., Instructor and Center Deputy Director, School of Public Health  
Marla E. Salmon, Sc.D., R.N., Associate Professor, Public Health Nursing, School of Public Health  
Robert W. ten Bonsel, M.D., M.P.H., Professor, Maternal and Child Health, School of Public Health

## **Midwest Center for Occupational Health and Safety**

Director: Robert O. Mulhausen, M.D.

The center is one of several national Educational Resource Centers funded by the National Institute for Occupational Safety and Health. It is a consortium of training programs offered through the School of Public Health; Department of Industrial and Technical Studies, University of Minnesota, Duluth; Department of Internal Medicine, St. Paul-Ramsey Medical Center, St. Paul; and Division of Preventive Medicine, Mayo Graduate School of Medicine, Rochester. The center offers graduate training at the master's and doctoral levels in the areas of industrial hygiene, industrial safety, occupational health nursing, and occupational medicine. Traineeships are available to support students.

### **CENTER FACULTY**

Melvin A. Amundsen, M.D., Program Director, Occupational Medicine and Assistant Professor of Medicine, Mayo Medical School, Rochester  
Paul B. Johnson, M.D., Program Director, Occupational Medicine and Assistant Professor of Medicine, St. Paul-Ramsey Medical Center, St. Paul  
Robert V. Krejcie, Ed.D., Program Director, Industrial Safety and Associate Professor, Department of Industrial and Technical Studies, University of Minnesota, Duluth  
Ruth K. McIntyre, Program Director, Continuing Education, St. Paul-Ramsey Medical Center, St. Paul  
Charles E. McJilton, Ph.D., Program Director, Industrial Hygiene and Assistant Professor  
Robert O. Mulhausen, M.D., Center Director and Professor of Medicine, St. Paul-Ramsey Medical Center, St. Paul  
Marla E. Salmon, Sc.D., R.N., Program Director, Occupational Health Nursing and Associate Professor  
Rexford D. Singer, M.S., Deputy Center Director and Associate Professor



Students and faculty conducting research on pollutants in the environment interpret results from a liquid chromatograph.

# Divisions and Programs of Study

The School of Public Health consists of five academic divisions: Biometry, Community Public Health Programs, Environmental Health, Epidemiology, and Hospital and Health Care Administration.

## Division of Biometry

Division Head: Marcus O. Kjelsberg, Ph.D.

This division provides instruction in quantitative methods to biometry, public health, and other health science students. It offers consultative assistance to health science investigators through its Biometry Consulting Laboratory, conducts collaborative biometric research in clinical and field studies, and supports biometric research by individual faculty members.

### Biometry

Program Director: Marcus O. Kjelsberg, Ph.D.

**Master of Public Health**—Biometry is the study of the analytical and quantitative aspects of biology, medicine, and public health. The M.P.H. program includes course work in public health, biomedical statistics, health computer sciences, demography, and health statistics. Students with at least two years of relevant professional experience should plan to be in attendance for at least 12 months, beginning in the fall quarter. Students with little or no professional experience should plan to attend for a period of 21 months, beginning in the fall.

**Master of Science and Doctor of Philosophy**—The M.S. and Ph.D. degrees with a major in biometry and health information systems are offered through the Graduate School. The course of study may be completed with a specialization in either biometry or health information systems. The M.S. program normally requires 21 months to complete, and the Ph.D. program usually requires four years after completion of the bachelor's degree. Further information about these programs is available in the *Graduate School Bulletin* under Biometry and Health Information Systems.

**Bachelor of Arts**—The B.A. degree with a major in biometry is offered through the College of Liberal Arts. Information about this program is available in the *CLA Bulletin*.

Biometry and other School of Public Health courses are described under "Course Descriptions" in this bulletin. In addition to these courses, students may select courses from a wide range of areas such as management sciences, computer science, epidemiology, mathematics, statistics, medical sciences, biophysics, and biomedical engineering.

#### ADDITIONAL ADMISSION REQUIREMENTS (see also "General Information")

1. College major in one of the social, biological, mathematical, or physical sciences.
2. Two years of college mathematics.

*Application deadline—August 15*

## *Divisions and Programs of Study*

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### **DIVISION FACULTY**

Glenn E. Bartsch, Sc.D., Associate Professor  
Jacob E. Bearman, Ph.D., Professor Emeritus  
James A. Boen, Ph.D., Professor and Head, Division of Community Public Health Programs  
I. Marilyn Buzzard, Ph.D., Research Associate  
John E. Connett, Ph.D., Assistant Professor  
Lynda B. Ellis, Ph.D., Lecturer; Associate Professor, Division of Health Computer Sciences, Medical School  
Stanley Finkelstein, Ph.D., Associate Professor, Division of Health Computer Sciences, Medical School  
David S. Fryd, Ph.D., Lecturer; Assistant Professor, Department of Surgery, Medical School  
Laël C. Gatewood, Ph.D., Associate Professor; Director, Division of Health Computer Sciences, Medical School  
Anne I. Goldman, Ph.D., Professor  
Paul Gunderson, Ph.D., Lecturer; Director, Minnesota Center for Health Statistics, Minnesota Department of Health  
Dorothy A. Jeffries, M.S., Assistant Professor  
Eugene A. Johnson, Ph.D., Professor  
Kathleen M. Keenan, Ph.D., Associate Professor; School of Dentistry  
Frederick L. King, B.A., Lecturer; Chief, Administrative Services, Minnesota Department of Health  
Marcus O. Kjelsberg, Ph.D., Professor and Head, Division of Biometry  
Chap Le, Ph.D., Associate Professor  
Ruth B. Loewenson, Ph.D., Associate Professor; Department of Neurology, Medical School  
John P. Matts, Ph.D., Assistant Professor; Department of Surgery, Medical School  
Richard B. McHugh, Ph.D., Professor

### **Division of Community Public Health Programs**

Division Head: James A. Boen, Ph.D.

The mission of this division is to prepare students to develop and manage programs that emphasize disease prevention and health promotion, thereby enhancing the health status of communities and population groups. The division includes programs in Dental Public Health, Health Education, Maternal and Child Health, Public Health Administration, Public Health Nursing, and Public Health Nutrition. The course offerings are interdisciplinary in nature and scope, emphasize the principles and concepts of public health, and focus on the development of organizational, political, behavioral, educational, and management knowledge and skills.

#### **Dental Public Health**

Program Director: Lester E. Block, D.D.S., M.P.H.

The Program in Dental Public Health offers master of public health and master of science degree programs for qualified dentists, dental hygienists, and dental assistants who wish to specialize in dental public health.

The program is designed to prepare dental professionals for responsible involvement and leadership roles in the dental health services system in health centers, health agencies, health care facilities, educational institutions, and research centers. Emphasis is placed on the relationship of the dental health services system to total community health.

The basic curriculum consists of dental public health and other public health courses. Students may select from a wide range of courses offered by the various programs of the school as well as of other academic units of the University, such as public affairs, business administration, industrial relations, social work, risk management and insurance, and management information systems. School of Public Health courses are described under "Course Descriptions" in this bulletin. Information about other University courses can be found in the *Graduate School Bulletin*.

Students may also concentrate on a special area of interest through course work, independent study, or field placements under the supervision of a faculty member with expertise in that area. Available areas of concentration include community dentistry, dental care systems, dental health education, dental health administration, dental insurance, dental human resources, oral epidemiology, teaching dental public health, program planning and evaluation, preventive dentistry, and dental policy analysis. Field placement

## Division of Community Public Health Programs

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opportunities include teaching dental public health in schools of dentistry, dental hygiene, or dental assisting; planning, conducting, and evaluating dental public health and dental care programs (including programs that focus on special population groups such as the aging, families, the handicapped, and the disadvantaged); conducting research in health care delivery settings and educational institutions; administration of dental care programs in HMOs, group practices, or health centers; and examination of alternative delivery systems, both domestic and foreign.

The program is designed to accommodate students with a diversity of career interests. Through individual counseling and planning of a course of study that takes into account each student's background and experiences, a program can be tailored to meet the student's professional career interests and objectives. The selection of specific areas of study and field placements allows students to specialize in areas of professional interest and to gain experience in settings similar to those in which they plan to work after graduation.

**Program for Dentists**—The course of study leading to the M.P.H. or M.S. degree for dentists consists of a minimum of 11 months of full-time attendance. Dentists may also be admitted on a part-time basis, completing the program over an extended period of time.

A two-year program that combines academic course work, as described above, and a related field placement is available for dentists interested in a more in-depth program. This program provides the two years of post-D.D.S./D.M.D. training required for recognition as a dental public health specialist by the Council on Dental Education.

**Master of Public Health**—The M.P.H. degree is offered through the School of Public Health. For students interested in administrative positions in health agencies and facilities, it is considered the most appropriate degree preparation.

**Master of Science**—For students who may desire to pursue a doctoral degree, the M.S. degree should be considered. This degree is offered through the Graduate School.

**Minor Concentrations**—Students interested in developing minor concentrations in other disciplinary areas within the school may select suitable elective courses and take advantage of joint advising to accomplish this goal. Minor concentrations may be completed in epidemiology, maternal and child health, health education, environmental health or nutrition. Further information can be obtained by writing to the program director.

**Joint Program With Public Affairs**—A joint program is offered with the Hubert H. Humphrey Institute of Public Affairs leading to the master of public health degree and either the master of arts in public affairs or master of planning degree. Students interested in this joint program must be eligible for and admitted to both schools. More information can be obtained by writing to the program director.

### **ADDITIONAL ADMISSION REQUIREMENTS** (see also "General Information")

1. D.D.S., D.M.D., or equivalent foreign degree for applicants who are dentists, and B.A. or B.S. degree for applicants who are dental hygienists or dental assistants. The degree must be completed at an accredited dental school or dental hygiene program.
2. An acceptable score on the Miller Analogies Test. Scores more than five years old are invalid, and the test must be retaken.

**Application deadline**—April 15. Applications received after this date are considered on a space-available basis.

## Divisions and Programs of Study

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### Health Education

Program Director: Raymond W. Carlaw, Dr.P.H.

The primary occupational goal of the health educator is to design innovative educational programs that will promote the health of the community, prevent disease, and assist citizens to utilize health services more effectively. Health educators work in a variety of settings including health departments, voluntary agencies, medical care organizations, and industrial settings. The curriculum focuses on motivation and community intervention, approaches to planned change, communication technologies, and evaluation methodologies.

**Master of Public Health**—The normal period of study is approximately five quarters of full-time study or 60 credits. The program is also designed to take into consideration the special needs of part-time students. Each student should have an area of specialization that interfaces with career goals. Among the areas of specialization frequently declared by students are community and family health education, planning and health policy formation, chemical substance use and dependency, and occupational health education.

**Options**—The Program in Health Education administers additional educational options whose focus and content are not exclusively health education:

*Interdisciplinary Studies* is an option designed to meet the individualized needs of public health professionals whose duties or career goals do not conform to a single program of study. Applicants will be screened to ensure that their professional needs are uniquely interdisciplinary. It is also intended to meet the needs of students in new public health careers or in fields for whom other appropriate study is not available. Specialized areas of concentration include Public Health Pharmacy (including a joint M.S./M.P.H. degree option with graduate studies in Social and Administrative Pharmacy); Physical and Occupational Therapy; and Gerontology and Long-Term Care.

Criteria for admission include high academic ability, appropriate and relevant experience, demonstrated leadership qualities, and a strong potential for marketing and successfully pursuing a unique career in public health. Since it is presumed that most students can meet their career training objectives through options offered within traditional programs of study, admission is limited to applicants who can demonstrate that their needs can be met only through an interdisciplinary option. The length of an individual program of study will vary according to a student's specific career needs and emphases as well as program and adviser's requirements. A minimum of 55 credits is required to earn the M.P.H. degree with an option in interdisciplinary studies.

The *Public Health Social Work Program* is an option offered in cooperation with the School of Social Work and presents an integrated program of study for both the M.P.H. and M.S.W. degrees. It is designed for experienced social workers currently employed in, or desiring employment in, public health or related health agencies. Students may concentrate their studies in such areas as mental health, chemical dependency, maternal and child health, public health administration and planning, chronic disease and aging, human services, or other areas of interest. The combined program is three years (nine academic quarters) in length. A minimum of 55 credits is applicable to the M.P.H. degree. Of the 55 credits, up to 18 credits may be applied also to the M.S.W. degree (these credits are applied to both degrees). Fieldwork experiences may also be applied to both degrees.

#### **ADDITIONAL ADMISSION REQUIREMENTS** (see also "General Information")

1. Bachelor's degree with minimum of 10 quarter credits in health, biology, or biochemistry, 5 quarter credits in measurement sciences, and 20 quarter credits in the social and behavioral sciences.
2. Acceptable score on the Graduate Record Examination, taken within the last 12 months. In some cases the Miller Analogies Test score may be substituted.

## Division of Community Public Health Programs

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3. A minimum of one year of voluntary or salaried work in health or social service settings.

*Application deadline—February 28. Applications received after this date are considered on a space-available basis.*

### Maternal and Child Health

Program Director: Robert W. ten Benschel, M.D., M.P.H.

**Master of Public Health**—This program is designed primarily to train health professionals to improve and protect the health of mothers and children, adolescents and youth, and their families, and to prepare students for leadership positions at national, state, or local levels working with maternal and child health projects or health programs. The program admits qualified physicians, nurses, social workers, occupational and physical therapists, and other health professionals to full- or part-time study.

Each student's program is planned individually with an adviser to take into account her or his previous experiences, special needs, and professional goals and the school's requirements. A program may emphasize education, research, or administration, but not clinical skills. Some established emphases are in adolescent and youth health, maternal health, school health, chronic and handicapping conditions of children, and child abuse and neglect.

The normal period of study is 11 months. A minimum of 45 credits of course work and a supervised field experience are required for the M.P.H. degree. Of the 45 credits, 16 are required in maternal and child health. In addition, faculty/student seminars and other special learning opportunities supplement the academic work.

#### **ADDITIONAL ADMISSION REQUIREMENTS** (see also "General Information")

1. Doctoral or master's degree in an appropriate health field. Occupational or physical therapists, educators, and nurses are not required to hold a master's degree.
2. Nurses must have earned the B.S. or B.S.N. from a nursing program accredited by the National League for Nursing.
3. Minimum of one year of clinical experience and preferably one year of public health experience. Priority will be given to prospective students with public health experience related to maternal and child health.
4. Results of the Miller Analogies Test (graduate level).

*Application deadline—May 15. Applications received after this date are considered on a space-available basis.*

### Public Health Administration

Program Director: Lester E. Block, D.D.S., M.P.H.

The public health administration program is designed to prepare individuals for planning and administrative positions in public and community health programs, agencies, and facilities. Graduates may work in health departments, disease prevention and health promotion programs, health systems agencies, HMOs, community health centers, or ambulatory care facilities.

The M.P.H. or M.S. program focuses on the role of the health agency and the health administrator within the total health environment and their impact upon the public's health. Public health administrators must have a knowledge and understanding of modern management concepts and skills. The program concentrates on knowledge and skills in the basic public health disciplines as well as in planning, management, financial management, evaluation, public policy, management information systems, and public health law.

## Divisions and Programs of Study

The program can accommodate students with a diversity of administrative career interests. Through individual counseling and planning, a program can be tailored to meet the student's career interests and objectives.

Students entering the program with limited administrative work experience are required to complete a supervised field placement at an approved health agency. The length of the field placement, which depends on the student's individual needs, varies from a minimum of the equivalent of one quarter of full-time experience to a maximum of 11 months in an administrative residency. The field placement site is selected in accordance with the student's career objectives. The field placement is designed to allow the student to gain experience in a setting similar to that in which she or he plans to work after graduation.

Courses offered by this program and by the Program in Hospital and Health Care Administration provide the health administration content for public health administration students. In addition, students may select from a wide range of courses offered by the various programs of the school as well as of other academic units of the University, such as public affairs, business administration, industrial relations, social work, management information systems, and risk management and insurance.

**Physicians and Other Applicants With Doctoral Degrees**—Physicians, health providers with doctoral degrees, and others with doctoral degrees in related areas can complete the program in 11 months. Physicians interested in specializing in preventive medicine and public health can complete the academic portion of their residency training while enrolled in the program.

**Minor Concentrations**—Students interested in developing minor concentrations in other disciplinary areas within the school may select suitable elective courses and take advantage of joint advising to accomplish this goal. For example, minor concentrations may be completed in epidemiology, maternal and child health, health education, environmental health, nutrition, or mental health administration. Further information can be obtained by writing to the program director.

**Preventive Medicine Residency Program**—A program jointly offered by the Minnesota Department of Health and the Program in Public Health Administration is open to physicians interested in specializing in preventive medicine and public health and in becoming eligible to take specialty boards. The academic portion of the program is completed at the school during the first year, and the residency training is completed at the health department during the second and third years.

**Joint Program With Public Affairs**—A joint program is offered with the Hubert H. Humphrey Institute of Public Affairs leading to the master of public health degree and either the master of arts in public affairs or master of planning degree. Students interested in this joint program must be eligible for and admitted to both schools. More information can be obtained by writing to the program director.

### **ADDITIONAL ADMISSION REQUIREMENTS** (see also "General Information")

1. Basic course (3 credits or equivalent) in the principles of accounting. Candidates lacking essential course work will be required to make up deficiencies before or during the course of study. 2. Basic courses in biology, economics, microbiology, political science, psychology, sociology, and statistics are recommended. 3. Experience relevant to the area of concentration is also needed. Candidates lacking experience, but well-qualified in other respects, will be given individual consideration.

*Application deadline—April 15. Applications submitted after this date are considered on a space-available basis.*

## Division of Community Public Health Programs

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### Public Health Nursing

Program Director: Marla E. Salmon, Sc.D., R.N.

This program prepares nurses to function effectively as public health practitioners and seeks to improve the health status of groups, communities and other populations through effective management of programs, institutions, organizations, and systems. Nurses who seek graduate preparation in public health nursing and meet the entrance requirements may pursue programs of study leading to either the M.P.H. or M.S. degree.

Students work closely with a faculty adviser for overall program direction and assistance. Graduates of the master's program are prepared to assume indirect service roles in public health and public health nursing. Knowledge and skills in the public health sciences, research, education, and management, coupled with a strong nursing professional base, allow flexibility and creativity in career options for graduates.

**Master of Public Health**—The four-quarter M.P.H. program is designed to provide advanced preparation in public health and public health nursing for nurses with experience in public and/or community health practice. Students choose an elective specialty focus from among the options available. The program places special emphasis on knowledge and skill development in the areas of management or education. A master's project, a written comprehensive examination, and practicum experience are required.

**Master of Science**—The M.S. program is designed to provide basic research skill development in public health and public health nursing for nurses with experience in public and/or community health practice. Students elect additional course work relating to their specific research area. A Plan A (thesis) is required.

**Areas of Study**—The broad areas of study included in both the M.P.H. and M.S. programs are *Public Health*: Philosophy and Concepts, Epidemiology, Environmental Health, Biometry and Vital Statistics, Management; *Public Health Nursing*: Philosophy, History, Theories and Concepts, Contemporary Practice, Program Planning, Political Processes, Research, Educational Interventions; *M.P.H. Elective Specialty Options*: Administration, Adult Health, Child Health, Community Systems, Education, Maternal and Child Health, Occupational Health.

**Annual National Public Health Nursing Leadership Institute**—The Program in Public Health Nursing sponsors a three-day leadership institute each June that addresses contemporary issues and practice, serves a national and international public health nursing audience, and meets the continuing education needs in the field.

#### ADDITIONAL ADMISSION REQUIREMENTS (see also "General Information")

1. Bachelor's degree from a program accredited by the National League for Nursing. Individual consideration will be given to other applicants. Deficiencies must be corrected before admission.
2. Scores from the following examinations: Miller Analogies Test (graduate level) and Graduate Record Examination.
3. An interview with a faculty member (not required for international students).
4. Nursing experience, evidence of community health involvement, and demonstrated leadership ability.
5. Current R.N. licensure. A copy of the applicant's license.
6. Applicants not actively engaged in nursing are required to update their professional competence through an R.N. refresher program, work experience, or post-bachelor's degree summer courses in public health nursing and community health.

**Application deadline**—February 1. Applications received after this date are considered on a space-available basis.

## Divisions and Programs of Study

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### Public Health Nutrition

Program Director: Judith Brown, R.D., M.P.H., Ph.D.

The primary function of this program is to prepare students for leadership roles in public health nutrition. The program's goal is to improve the health status of people, particularly of the high risk individuals and groups, through the delivery of nutrition services and programs. The course of study is designed to prepare students to apply principles of nutrition, administration, education, behavioral science, and health to the formulation of nutrition delivery systems that promote and maintain a healthy nutritional status.

**Master of Public Health**—A program of study is offered that includes strong maternal and child and adult nutrition components. Students have the option of concentrating their academic, field, and research work in an area of emphasis: health promotion (nutrition and behavior), nutrition education, and administration.

Students complete an average of 65 credits of course, field, and master's project work. Field courses are taken both concurrently with course work (minimum seven credits) and in a six- to eight-week block placement (minimum six credits). Field experiences are completed in public and private health, educational, social service, and other agencies. Students must successfully complete a master's research project.

Monitoring student achievement of program objectives begins with faculty advising on selection of specific nutrition course, fieldwork, and master's project research topics. Students are guided in following a curriculum that meets the School of Public Health's objectives. Educational objectives are evaluated by performance in courses, successful completion of the master's research projects, and a comprehensive examination, given near the end of the program, which covers principles of nutrition as well as public health. Competencies in the application of nutrition science to the solution of public health nutrition problems are evaluated by field faculty advisers during field experiences.

Students begin the program in the second summer term in July and generally complete the program the following August. The sequence includes an interim period of two to three weeks prior to the beginning of fall quarter.

**Independent Study Program in Nutrition Administration**—This two- to three-year program is for nutritionists and dietitians who desire advanced study in administration and management while maintaining active positions in the profession. The goal is to build a national network of effective nutrition administrators who incorporate principles of management in the allocation of resources and apply the latest nutrition knowledge to meet changing societal needs. The program, which includes on-campus sessions, regional seminars, independent study, and monthly meetings with preceptors, leads to an Advanced Credential in Nutrition Administration with an option to complete the M.P.H. in Nutrition.

**Doctor of Philosophy**—The Ph.D. program in nutrition with a minor in public health nutrition has been developed in conjunction with the Department of Food Science and Nutrition of the College of Home Economics and is offered through the Graduate School. For information, contact the Director of Graduate Studies, Department of Food Science and Nutrition, 160 Food Science and Nutrition, University of Minnesota, 1334 Eckles Avenue, St. Paul, MN 55108.

#### **ADDITIONAL ADMISSION REQUIREMENTS** (see also "General Information")

1. Registered dietitian or eligible for dietetic registration. Must include a verification statement indicating completion of academic requirements or evidence of registration as a dietitian.
2. Results of the Graduate Record Examination aptitude test.
3. Professional work experience.

*Application deadline—January 31. Applications received after this date are considered on a space-available basis.*

## Division of Community Public Health Programs

### DIVISION FACULTY

#### *Dental Public Health*

Myron Allukian, D.D.S., Lecturer; Assistant Deputy Commissioner and Director, Community Dental Programs, Boston Department of Health and Hospitals  
M. Bashar Bakdash, D.D.S., M.P.H., P.C.B., M.D.S., Associate Professor; Periodontics, School of Dentistry  
Lester E. Block, D.D.S., M.P.H., Associate Professor and Director, Programs in Dental Public Health and Public Health Administration  
David O. Born, Ph.D., Professor; School of Dentistry  
Anthony DiAngelis, D.D.S., M.P.H., Associate Professor; School of Dentistry  
P. Jean Frazier, M.P.H., Associate Professor; School of Dentistry  
Richard Hastreiter, Assistant Clinical Professor; Director, Dental Health Program, Minnesota Department of Health  
Alice Munkhoff Horowitz, M.D., Lecturer; National Institute of Dental Research, Bethesda, Maryland  
Mildred H. Jackson, Clinical Instructor; Dental Health Program, Minnesota Department of Health  
Brenda G. Johnson, R.D.H., B.S., Instructor  
Leslie V. Martens, D.D.S., M.P.H., Professor; Chair, Division of Health Ecology; School of Dentistry  
Richard Stallard, D.D.S., Ph.D., Adjunct Professor; Minndent Associates, Inc.  
Michael J. Till, D.D.S., Ph.D., Professor; Chair, Division of Pediatric Dentistry, School of Dentistry

#### *Health Education*

Neil Bracht, M.A., M.P.H., Professor; School of Social Work  
John Brantner, Ph.D., Professor; Department of Psychiatry, Medical School  
Raymond W. Carlaw, Dr.P.H., Associate Professor and Director, Program in Health Education; Associate Dean for Planning and Development  
Norman A. Craig, M.P.H., Associate Professor Emeritus  
Mariene Deschler, R.P.T., M.P.H., Lecturer; Chief, Technical Consultation and Training Section, Minnesota Department of Health  
David Garloff, Ph.D., Assistant Professor; Director, Health Sciences Learning Resources  
Judith Garrard, Ph.D., Associate Professor  
Nancy Goldstein, M.P.H., Clinical Instructor; Patient Education Specialist, Education Division of Nursing Services, University of Minnesota Hospitals  
C. David Hollister, M.S.W., Ph.D., Professor; Director, School of Social Work  
John Hung, Ph.D., Assistant Professor  
Bonita Janda, M.P.H., Clinical Instructor; Associate Administrator, Environmental Health and Safety, Boynton Health Service  
James C. Kincannon, Ph.D., Associate Professor; Department of Psychiatry, Medical School; Department of Psychology, College of Liberal Arts; Senior Clinical Psychologist, Hennepin County Chemical Dependency Program  
Lawrence Kutner, Ph.D., Clinical Assistant Professor; WCCO-TV  
Noel Larson, Ph.D., Clinical Assistant Professor; Meta Resources, St. Paul  
Harold Leppink, M.D., Adjunct Assistant Professor; School of Medicine, University of Minnesota, Duluth; Executive Officer, St. Louis County and Lake County Boards of Health  
James W. Maddock, Ph.D., Adjunct Associate Professor; Department of Family Social Science, College of Home Economics; Meta Resources, St. Paul  
Davis B. Leino-Mills, M.P.H., Clinical Assistant Professor; Director, Health Education Section, Minnesota Department of Health  
Richard A. Needle, Ph.D., Associate Professor; College of Education  
William A. O'Brien, M.D., Clinical Professor; Department of Medicine, Medical School  
Wentworth Quast, Ph.D., Professor Emeritus  
Lisa Roche, M.P.H., Adjunct Instructor; Health Planner, Hennepin County Community Health Department  
James H. Rothenberger, M.P.H., Instructor  
Rochelle Rutstein, M.P.H., Instructor  
Margaret Sandberg, M.S.W., A.C.S.W., M.P.H., Adjunct Assistant Professor, Program Planner, Minnesota Department of Health  
James M. Schaefer, Ph.D., Associate Professor; Director, Office of Alcohol and Other Drug Abuse Programming; Department of Anthropology, College of Liberal Arts  
Linda Schenck, M.D., Adjunct Instructor  
Robert W. Schwanke, M.P.H., Associate Professor; School of Social Work  
Theresa A. Seppala, Adjunct Instructor; Supervisor, Planning, Research and Evaluation Section, Chemical Dependency Division, Department of Public Welfare  
William R. Terrell, M.P.H., Adjunct Instructor  
Robert L. Veninga, Ph.D., Associate Professor  
Carolyn Williams, Ph.D., Assistant Professor

#### *Maternal and Child Health*

Michael L. Baizerman, Ph.D., M.S., M.S. (Hy), Professor; Center for Youth Development and Research, College of Home Economics  
Pauline H. Bamford, R.N., M.S.W., Lecturer; Supervisor, Clinical Social Work, Bureau of Maternal and Child Health, Minneapolis Health Department  
Paul B. Batalden, M.D., Clinical Assistant Professor; Head, Department of Pediatrics, St. Louis Park Medical Center

## Divisions and Programs of Study

- Colleen J. Berney, M.Ed., Clinical Instructor; Teacher, Mounds View School District, Roseville
- Robert W. Blum, M.D., Ph.D., M.P.H., Associate Professor; Department of Pediatrics, Medical School; Center for Youth Development and Research, College of Home Economics
- Ronald G. Campbell, M.D., Lecturer; Chief, Maternal and Child Health Section, Minnesota Department of Health
- Eunice A. Davis, M.D., M.P.H., Associate Professor; Department of Pediatrics, Medical School; Director, Child Development Section, Department of Pediatrics, St. Paul-Ramsey Medical Center
- Amos S. Deinard, M.D., Associate Professor; Department of Pediatrics, Medical School; Director, Pediatric Outpatient Program, University of Minnesota Hospitals
- John M. Dyer, M.D., M.P.H., Lecturer; Regional Medical Director, Maternal and Child Health Service, Region V, Public Health Service, Health and Human Services, Chicago
- Laura E. Edwards, M.D., Associate Professor; Department of Obstetrics and Gynecology, Medical School; Project Director, MIC Project, St. Paul-Ramsey Hospital
- Edward P. Ehlinger, M.D., Clinical Assistant Professor; Director, Bureau of Maternal and Child Health, Minneapolis Health Department
- Ann E. Ellwood, Lecturer; Executive Director, Minnesota Early Learning Design, Minneapolis
- Betty J. Flanigan, O.T.R., M.P.H., Lecturer; Supervisor, Screening Program, Minneapolis Health Department
- Delphie Fredlund, R.N., M.P.H., Professor Emerita
- Edward L. Hendricks, M.D., M.P.H., Clinical Associate Professor; Director, Division of Maternal and Child Health, Minnesota Department of Health
- John T. Kelly, M.D., M.P.H., Professor; Family Practice and Community Health, Psychiatry, Medical School
- James Kenney, Ph.D., Adjunct Associate Professor; Executive Director, Minnesota Coalition on Health Care Costs
- Margaret Kessell, M.S.W., Instructor
- Karen A. Knoll, R.N., M.P.H., Lecturer; Manager, Bureau of Maternal and Child Health, Minneapolis Health Department
- Eric G. Knox, M.D., Clinical Associate Professor; Medical Director, Perinatal Center, Abbott-Northwestern Hospital
- Barbara J. Leonard, R.N., M.S., P.N.A., Ph.D., Assistant Professor
- Betty Lia-Hoagberg, R.N., Ph.D., Assistant Professor
- Richard A. Needle, Ph.D., Professor; College of Education
- Richard P. Nelson, M.D., Adjunct Assistant Professor; Department of Pediatrics, Medical School; Chief, Developmental Disabilities Program, Gillette Children's Hospital
- Karen Olness, M.D., Associate Professor; Department of Pediatrics, Medical School; Minneapolis Children's Hospital
- Michael D. Resnick, Ph.D., Assistant Professor
- Ann St. Germaine, R.N., M.S., Clinical Instructor; School of Nursing
- Lee E. Schacht, Ph.D., Adjunct Associate Professor; Supervisor, Human Genetics Unit, Minnesota Department of Health
- John H. Shaffer, M.S.W., M.P.H., Clinical Instructor; Director, Minnesota Occupant Restraint Program
- Stanton B. Shanedling, M.P.H., Clinical Instructor; Assistant Director, Minnesota Occupant Restraint Program
- Jean H. Smeiker, M.D., Assistant Professor; Department of Pediatrics, Medical School; Director, Community University Health Care Center
- Linda G. Stein, O.T.R., M.P.H., Lecturer; Health Planner, Ramsey County Public Health Department
- Robert W. Ien Benschel, M.D., M.P.H., Professor; Department of Pediatrics, Medical School; Center for Youth Development and Research, College of Home Economics
- Robert W. Terry, M.A., Ph.D., Senior Fellow; Director, Reflective Leadership Program, Hubert H. Humphrey Institute of Public Affairs
- Theodore R. Thompson, M.D., Lecturer; Associate Professor, Department of Pediatrics, Medical School; Director, Newborn Intensive Care Unit, University of Minnesota Hospitals
- Mary Jo Thorsheim, Ph.D., Clinical Assistant Professor; Home Care Study, Abbott-Northwestern Hospital
- Trude Turnquist, O.T.R., M.P.H., Clinical Instructor
- Maurine H. Venters, R.N., M.P.H., Ph.D., Assistant Professor
- Homer D. Venters, M.D., M.P.H., Professor; Chief, Department of Pediatrics, Medical School; St. Paul-Ramsey Medical Center
- J. Pamela Weiner, M.P.H., Clinical Instructor; Center for Youth Development and Research, College of Home Economics
- Public Health Administration*
- Jonathan Balk, Lecturer; Chief Executive Officer, Anoka and Cambridge State Hospital
- Lester E. Block, D.D.S., M.P.H., Associate Professor and Director, Programs in Dental Public Health and Public Health Administration
- Pauline Bouchard, J.D., Clinical Assistant Professor; Division of Environmental Health, Minnesota Department of Health
- Ellen Z. Fifer, M.D., Clinical Associate Professor
- David Giese, Clinical Assistant Professor; Assistant Director, Minnesota Center for Health, Minnesota Department of Health
- Paul Gunderson, Clinical Assistant Professor; Director, Minnesota Center for Health, Minnesota Department of Health
- John R. Malban, M.S.H.A., Assistant Professor
- Daniel J. McInerney, Jr., J.D., M.P.H., Adjunct Assistant Professor; Assistant Director, Health Systems Division, Minnesota Department of Health
- Michael Moen, Ph.D., Clinical Assistant Professor; Assistant Director, Disease Prevention Control, Minnesota Department of Health
- Paul Rupperecht, Ph.D., Assistant Professor; Director, Boynton Health Service
- Margaret Sandberg, M.S.W., A.C.S.W., M.P.H., Adjunct Assistant Professor; Program Planner, Minnesota Department of Health
- Lee D. Stauffer, M.P.H., Associate Professor
- Robert L. Veninga, Ph.D., Associate Professor

## Division of Community Public Health Programs

### *Public Health Nursing*

Mary T. Absolon, M.S.N., Lecturer; Government Affairs Analyst, Minnesota Nurses Association  
Eleanor Anderson, M.P.H., Associate Professor Emerita  
Mila Aroskar, Ed.D., Associate Professor  
Janet Berkseth, M.S., Assistant Professor  
Raymond Cink, M.P.H., Lecturer; Director, Community Health Service, Ramsey County Health Department  
Francis Decker, M.P.H., Lecturer; Chief, Community Nursing Section, Minnesota Department of Health  
Marlene Deschler, R.P.T., M.P.H., Lecturer; Chief, Technical Consultation and Training Section, Minnesota Department of Health  
Delphie Fredlund, R.N., M.P.H., Professor Emerita  
Debra Froberg, Ph.D., Research Associate  
Susan Gerberich, Ph.D., Assistant Professor  
Harold Leppink, M.D., Adjunct Assistant Professor; School of Medicine, University of Minnesota, Duluth; Executive Office, St. Louis County and Lake County Boards of Health  
Isabel McGarry, M.S., Lecturer; Director, Home Health Services, Minneapolis Combined Nursing Service  
Marilee Miller, M.S., Ph.D., Adjunct Assistant Professor; Chairperson, Department of Nursing, Gustavus Adolphus  
Catherine J. Mossefin, M.S., Lecturer; Manager, Occupational Health Program, Columbia Park Medical Center  
Debra Olson, M.P.H., Research Specialist  
Sharon Ostwald, M.S., Assistant Professor  
E. Charlotte Pflug, M.P.H., Assistant Professor  
Elaine Richard, M.S., Adjunct Associate Professor; Private Consultant  
Marla E. Salmon, Sc.D., Associate Professor and Director, Program in Public Health Nursing  
Catherine M. Skovbroten, M.P.H., Lecturer; Occupational Health Consultant, Control Data Corporation  
Alma Sparrow, Associate Professor Emerita  
Barbara Spradley, M.N., Associate Professor and Assistant Director, Program in Public Health Nursing  
Ester B. Tatley, M.P.H., Lecturer; Director, Chisago County Public Health Nursing Service  
Patricia Lentsch Washick, M.S., Assistant Professor  
Mary Kay Zagaria-Sammond, M.S., Lecturer; Occupational Health Programs, Control Data Corporation

### *Public Health Nutrition*

Irene Alton, R.D., M.S., Lecturer; Nutritionist, Maternal and Infant Care Project, St. Paul  
Judith Brown, R.D., M.P.H., Ph.D., Associate Professor and Director, Program in Public Health Nutrition  
Katherine Cairns, R.D., M.P.H., Lecturer; Nutritionist, St. Paul Division of Health  
Katherine Clancy, Lecturer, Continuing Education and Extension; Assistant Professor, Syracuse University  
Francis Doring, R.D., M.P.H., Lecturer; Nutrition Consultant, Minnesota Department of Health  
Phyllis Fleming, Ph.D., Assistant Professor  
Marcine Hemming, R.D., M.P.H., Lecturer; Principal Dietitian, Boynton Health Service  
Elizabeth Holey, R.D., M.P.H., Lecturer; Senior Nutritionist, Maternal and Infant Care Project, Minneapolis  
Rebecca Mullis, R.D., Ph.D., Assistant Professor  
Karen Owens, Adjunct Instructor; K. A. Owens & Associates, Inc., Food/Nutrition Public Relations Consultant  
June Spencer, Lecturer, Continuing Education and Extension; Opinion Research Associates, Madison, WI  
Patricia Splett, R.D., M.P.H., Instructor  
Ruth Stief, M.P.H., Associate Professor Emerita  
Mary Story, R.D., Ph.D., Assistant Professor

## **Division of Environmental Health**

Division Head: Donald E. Barber, Ph.D.

This division is primarily concerned with disease prevention through the implementation of appropriate biological, chemical, engineering, and physical control measures. Focus is on agents responsible for acute and chronic diseases encountered in various environments and in products used and consumed by human beings. Studies include the movement of these agents through environments, the populations at risk, and control measures effective in minimizing internal and external exposure.

### **Environmental Health**

Program Director: Donald E. Barber, Ph.D.

This program is designed for general environmental health students and those with special interests in industrial hygiene, environmental toxicology, radiation protection, environmental chemistry, environmental and occupational epidemiology, biological aspects of

## Divisions and Programs of Study

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environmental health, and special institutional environmental health problems. Physicians interested in occupational health also may major in environmental health. Because environmental health has a number of interrelationships with other programs in the University, students plan a curriculum involving such areas as biochemistry, biology, biophysics, biometry, chemistry, epidemiology, geology, engineering, medical entomology, microbiology, physics, physiology, pharmacology, and toxicology as well as administration, labor relations, public relations, teaching, and philosophy. The course of instruction leading to the M.P.H. and M.S. degrees requires a minimum of 11 months of study. Students should plan to begin their work in the fall quarter and remain in attendance through the following summer session.

Majors in environmental health are required to satisfactorily complete a written comprehensive examination prior to earning their degree. Students who require longer than five years from the time of first registration to complete a master's degree will be required to repeat and satisfactorily complete the written comprehensive examination to satisfy degree requirements. The comprehensive examination to be repeated will be the examination offered to current students at a regular scheduled time.

**Master of Public Health**—The M.P.H. degree program, open to those with suitable advanced education or professional experience, is intended to prepare students for higher levels of responsibility by expanding their previous knowledge and experience.

**Master of Science and Doctor of Philosophy**—The M.S. and Ph.D. degrees with a major in environmental health are offered through the Graduate School. Information about these programs is available in the *Graduate School Bulletin*.

The M.S. program is designed for individuals preparing to enter careers in environmental health and requires no professional experience for admission. The Ph.D. program is a research program. A thesis research prospectus is required as part of the application for admission. Projects are then refined in collaboration with a faculty member. The program involves substantial, independent effort on the part of the student. The primary objective is a quality thesis that contributes to the body of knowledge in environmental health and withstands the scrutiny of the academic community. In addition, Ph.D. students are required to fulfill the requirements (or their equivalent) for the master's degree program.

**Faculty Research Interests**—Research interests are diversified, including such areas as health impact assessment in the mineral mining and processing industry; health effects of carcinogens in the work place; investigation of the mechanisms of toxicity of environmental contaminants such as trace metals, asbestos, pesticides, and SO<sub>2</sub>; control of microbiological contamination; health effects associated with long-term low level radiation exposure; identification and movement of substances in water supply and wastewater environments; production of contaminants during coal-conversion processes; and air quality assessment in industrial and public environments. Collaborative research involves several different programs, departments, schools, and institutes at the University. The ultimate research objective is to maintain and improve human health through preventive practices.

### ADDITIONAL ADMISSION REQUIREMENTS (see also "General Information")

1. Major in one of the biological, chemical, or physical sciences or engineering preferred.
2. For the M.P.H. program, appropriate professional experience (minimum of two years) or an advanced degree in a related discipline.
3. Résumé with a statement of career objectives.

**Application deadline**—March 1. Applications received after this date are considered on a space-available basis.

**DIVISION FACULTY**

- Donald E. Barber, Ph.D., Professor and Head, Division of Environmental Health  
Richard G. Bond, M.P.H., M.S., Professor Emeritus  
James L. Craig, M.D., Clinical Professor; Department of Medicine, Medical School  
William M. Draper, Ph.D., Assistant Professor  
Vincent F. Garry, M.D., Assistant Professor; Laboratory Medicine and Pathology, Medical School  
Veivl W. Greene, Ph.D., Professor; Department of Microbiology, Medical School  
Paul B. Johnson, M.D., Assistant Professor; Department of Medicine, Medical School; Associate Director, Occupational  
Medicine Residency Program, St. Paul-Ramsey Medical Center  
Walter H. Jopke, Sr., M.P.H., Assistant Professor Emeritus  
Jack S. Mandel, M.P.H., Ph.D., Associate Professor  
Charles E. McJilton, Ph.D., Assistant Professor  
George S. Michaelsen, M.S., Professor Emeritus  
Robert O. Mulhausen, M.D., Professor; Department of Medicine, Medical School; Director, Midwest Center for  
Occupational Health and Safety; Chief of Medicine, St. Paul-Ramsey Medical Center  
Theodore A. Olson, Ph.D., Professor Emeritus  
Harold J. Paulus, Ph.D., Professor Emeritus  
Irving J. Pflug, Ph.D., Professor; Department of Food Science and Nutrition, College of Home Economics, College of  
Agriculture  
Orlando R. Ruschmeyer, Ph.D., Assistant Professor  
Gustave L. Scheffler, B.S.C.E., Assistant Professor Emeritus  
Rexford D. Singer, M.S., Associate Professor; Deputy Director, Midwest Center for Occupational Health and Safety  
Jerome W. Staiger, M.S., Adjunct Instructor; Senior Health Physicist, Boynton Health Service  
Lee D. Stauffer, M.P.H., Associate Professor  
Jeffrey B. Stevens, Ph.D., Assistant Professor  
Conrad P. Straub, Ph.D., Professor Emeritus  
Fay M. Thompson, Ph.D., Assistant Professor; Assistant Director, Environmental Health and Safety, Boynton Health  
Service  
Donald Vesley, Ph.D., Professor; Director, Environmental Health and Safety, Boynton Health Service  
W. Dixon Ward, Ph.D., Professor; Communication Disorders-Otolaryngology, Department of Medicine, Medical School  
Paul W. Willard, Ph.D., Adjunct Professor; Manager, Product Regulatory Toxicology, 3M Company  
Ralph O. Wollan, M.P.H., Assistant Professor Emeritus

**Division of Epidemiology**

Division Head: Henry Blackburn, M.D.

This division, dedicated to teaching, research, and community service in epidemiology, the control and prevention of diseases, includes programs and course offerings in Epidemiology and Veterinary Public Health. Its research activities embrace a diversity of epidemiological investigations in both human and animal populations directed toward causes of diseases, their prevention, and their control. The division also provides consultative services in epidemiology to the school, health sciences departments, the University at large, and community agencies.

**Epidemiology**

Program Director: Henry Blackburn, M.D.

**Master of Public Health and Master of Science**—Both M.P.H. and M.S. degree programs are offered in epidemiology. These programs are designed to prepare students for careers in teaching; research; and program development, administration, and evaluation in health agencies, medical institutions, regulatory agencies, and industry.

The M.P.H. and M.S. programs are open to qualified individuals with a minimum of a baccalaureate degree from an acceptable institution. The two-year programs include advanced course work in the basic medical sciences and field experience in an approved health agency. Students who have a graduate degree in a health-related field or a professional degree such as an M.D., a D.D.S., or a D.V.M. may complete the program in one year.

## Divisions and Programs of Study

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**Doctor of Philosophy**—To be considered for admission to the doctoral program, candidates must have completed the equivalent course work of the M.S. or M.P.H. degree and provide evidence of acceptable research ability. Since enrollment in the program is relatively limited, selection of candidates is competitive with respect to academic background and experience. For details about requirements, consult the *Graduate School Bulletin*.

The doctoral program is designed to help students develop proficiency in epidemiologic investigation to prepare for careers in service, research, or teaching in health agencies and institutions. It includes instruction in basic courses, with latitude in choice of electives suitable to each student's background, interests, and needs. Students participate in ongoing field research designed to provide increasingly complex experiences commensurate with their development. For successful completion of the thesis requirement, candidates will design and execute an original field investigation of acceptable complexity and sophistication.

**Available Courses and Areas of Concentration**—Epidemiology and other public health courses are described under "Course Descriptions" in this bulletin. In addition, students may select courses from a wide range of areas such as anthropology, biochemistry, computer science, genetics, microbiology, pathology, physiology, political science, and sociology. A detailed description of the course of study and a more comprehensive list of elective courses may be obtained by writing to the program director.

Candidates may select areas of concentration appropriate to their academic interests and career objectives. Among the areas of concentration available are the epidemiology of cancer, epidemiology of cardiovascular diseases, epidemiology of infectious diseases, behavioral epidemiology, nutritional epidemiology, psychiatric epidemiology, occupational and environmental epidemiology, and epidemiologic approaches to health services research and evaluation.

**Graduate Summer Session**—An intensive program in epidemiology is offered by the School of Public Health and the Department of Conferences each summer for three weeks during the first term. This program, which carries graduate credit, is designed for teachers, postdoctoral fellows, graduate students, and residents in departments of preventive medicine and other medical areas and schools of public health, dentistry, and veterinary medicine as well as qualified personnel of health agencies. Registration is limited and cannot be made through regular Summer Session channels. Medical students who have completed their first year of study may register for introductory courses only.

### **ADDITIONAL ADMISSION REQUIREMENTS** (see also "General Information")

#### **M.P.H. AND M.S.:**

1. Minimum of a baccalaureate degree from an acceptable institution. Degree work should preferably demonstrate a strong background in biological and physical sciences and high scholastic achievement (i.e., a grade point average of 3.00 on a 4.00 scale).
2. Acceptable score on the Graduate Record Examination. The student is responsible for ensuring that a copy of the test results is forwarded to the program.

#### **PH.D.:**

1. Master's degree in epidemiology or related health science. In the latter instance, an acceptable number of approved courses in epidemiology and biostatistics must have been completed. Applicants who have not yet completed a master's degree are usually initially admitted to the master's degree program in epidemiology in order to demonstrate their research capability.

2. An acceptable score on the Graduate Record Examination is required of applicants who have not previously taken the test for admission to the master's program. The student is responsible for ensuring that a copy of the test results is forwarded to the program.
3. Demonstration of capability or potential for original research.

*Application deadline—March 31*

## **Veterinary Public Health**

Program Director: Robert K. Anderson, D.V.M., M.P.H.

This program, cooperatively offered by the School of Public Health and the College of Veterinary Medicine, provides unique resources for veterinarians interested in the field of public health. The University of Minnesota is the only university in the United States that has these academic units in close proximity and provides opportunities for students to interrelate learning and research in veterinary medicine and public health.

The program is designed to meet a broad range of individual student interests as well as the needs of a variety of sponsoring agencies. Students may choose special areas of emphasis in epidemiology, food hygiene, environmental health, preventive medicine, or administration. Students who do not wish to pursue special areas of interest may elect a more general program of study to meet their individual needs.

Candidates for the M.P.H. degree are expected to satisfy the degree requirements and educational objectives of the School of Public Health (see "General Information") as well as the requirements of the elective program selected. The program of instruction normally requires a minimum of 12 months of study, but may require up to two years, depending on the student's background, career objectives, and chosen program. In individual cases, a limited number of credits may be transferred from another institution.

Individualized programs of study are designed, in consultation between the adviser and student, to meet the special interests and objectives of the student and the sponsoring agency. With appropriate planning, these programs can meet the objectives of veterinarians interested in a variety of public health and animal health programs as well as the needs of local, state, national, and international agencies. Special programs for educators are also offered.

Students may select from a wide range of courses offered by any program of the School of Public Health as well as of other academic units of the University such as the College of Veterinary Medicine, Medical School, College of Biological Sciences, College of Liberal Arts, and Humphrey Institute of Public Affairs.

### **ADDITIONAL ADMISSION REQUIREMENTS** (see also "General Information")

1. D.V.M. degree from an accredited institution (or receipt prior to matriculation).
2. Two certified transcripts of academic work for the D.V.M. degree and any graduate study.

*Application deadline—June 1. Applications received after this date are considered on a space-available basis.*

### **DIVISION FACULTY**

#### *Epidemiology*

Joseph Anderson, Ph.D., Professor Emeritus

Robert K. Anderson, D.V.M., M.P.H., Professor and Director, Program in Veterinary Public Health

Henry Blackburn, M.D., Professor and Head, Division of Epidemiology; Department of Medicine, Medical School

Richard S. Crow, M.D., Associate Professor; Department of Medicine, Medical School

Aaron Folsom, M.D., M.S., Assistant Professor

Andrew Dean, M.D., Clinical Associate Professor; State Epidemiologist, Minnesota Department of Health

## *Divisions and Programs of Study*

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Läel Gatewood, M.S., Ph.D., Associate Professor; Laboratory Medicine and Pathology, Medical School; Director, Health Computer Sciences  
Robert W. Gibson, Ph.D., Associate Professor; Department of Behavioral Sciences, School of Medicine, and Department of Sociology-Anthropology, College of Letters and Science, University of Minnesota, Duluth  
Victor A. Gilbertson, M.D., M.S., Lecturer; Associate Professor, Department of Surgery, Medical School; Director, Cancer Detection Center  
Richard H. Grimm, M.D., Research Associate  
David R. Jacobs, Ph.D., Associate Professor  
Robert Jeffery, Ph.D., Assistant Professor  
Ansel Keys, Ph.D., Professor Emeritus  
Thomas E. Kottke, M.D., Assistant Professor; Department of Medicine, Medical School  
Arthur S. Leon, M.D., Professor; Department of Medicine, Medical School  
Russell V. Luepker, M.D., Associate Professor; Department of Medicine, Medical School  
Jack S. Mandel, M.P.H., Ph.D., Associate Professor  
Maurice Mittelmark, Ph.D., Assistant Professor  
Rebecca Mullis, Ph.D., Assistant Professor  
David M. Murray, Ph.D., Assistant Professor  
Michael T. Osterholm, M.P.H., Ph.D., Clinical Assistant Professor; Section Chief, Acute Disease Epidemiology, Minnesota Department of Health  
Terry F. Pechacek, Ph.D., Assistant Professor  
Cheryl L. Perry, Ph.D., Assistant Professor  
Phyllis L. Pirie, Ph.D., Assistant Professor  
Ronald J. Prineas, M.B., B.S., Ph.D., Professor; Department of Medicine, Medical School  
Leslie Robison, M.P.H., Ph.D., Research Associate; Assistant Professor, Medical School  
Leonard M. Schuman, M.D., M.S., Professor Emeritus  
David Stickle, Dr.P.H., Adjunct Assistant Professor; Assistant Director, Division of Medical Labs, Minnesota Department of Health

### *Veterinary Public Health*

Pedro N. Acha, D.V.M., M.P.H., Lecturer; Special Advisor to the Director General of Animal Health Program, IICA  
Robert K. Anderson, D.V.M., M.P.H., Professor and Director, Program in Veterinary Public Health  
Paul J. Cox, D.V.M., M.P.H., Lecturer; Director of Environmental Health, Division of Public Health, Department of Community Services, St. Paul  
Stanley L. Diesch, D.V.M., M.P.H., Professor; Department of Large Animal Clinical Sciences, College of Veterinary Medicine  
Charles E. Fuller, D.V.M., M.P.H., Lecturer  
Mylo M. Hagberg, D.V.M., M.S., Lecturer; Lieutenant Colonel, Veterinary Corps, United States Army, Europe  
Robert R. Jorgenson, D.V.M., M.P.H., M.S., Lecturer; Chief, Veterinary Sciences Division, Academy of Health Sciences, United States Army, Fort Sam Houston, Texas  
Janet Kranz, D.V.M., M.P.H., Lecturer  
James A. Libby, D.V.M., M.S., Lecturer; Director, South Highland Veterinary Hospital, Bloomington  
E. Hunt McCauley, D.V.M., M.S., Lecturer; McCauley Farms, Big Timber, Montana  
Thomas G. Murname, D.V.M., Lecturer; Inter-American Institute for Cooperation on Agriculture, Mexico City, D.F.  
Michael M. Pullen, D.V.M., M.P.V.M., M.S., Lecturer; Professor, Department of Large Animal Clinical Sciences, College of Veterinary Medicine  
Joseph S. Quigley, D.V.M., Instructor  
R. Ashley Robinson, D.V.M., M.P.H., Ph.D., Lecturer; Professor, Division of Epidemiology, Food Hygiene, and Veterinary Public Health, College of Veterinary Medicine

## **Division of Hospital and Health Care Administration**

Division Head: George O. Johnson, Ph.D.

The goals of this division are to prepare generalist and specialist administrators for the full range of health system organizations; prepare teachers and researchers; conduct health services research; and provide community service in order to improve health services in this state and nation. Faculty and student research is conducted under a cooperative relationship with the Center for Health Services Research.

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

Program Director: George O. Johnson, Ph.D.

The Program in Hospital and Health Care Administration offers courses of instruction at the master's and doctoral levels as well as selected intensive alternative studies programs.

**Master of Hospital Administration**—The objective of the M.H.A. program is to prepare individuals for high-level administrative positions after the requisite years of practical experience in responsible managerial positions. Qualified graduates of the program may become chief executives or senior administrators in hospitals, long-term care, mental health, prepaid health insurance, health maintenance, ambulatory care, health planning, government, or multi-institutional hospital and health care delivery organizations.

The M.H.A. degree may be earned through one of the following options:

1. Full-time academic study for 21 months including a summer administrative residency of three months, with successful completion of 87 quarter credits and an acceptable research thesis. Students may use electives to develop an emphasis in functional and contextual areas.
2. Dual degrees in public affairs and business administration for students who arrange an acceptable program of study and are formally accepted for admission to both units.
3. Alternative academic study in the Independent Study Program (ISP) for Hospital and Health Care, Long-Term Care, Ambulatory Care, or Mental Health Administration. Following completion of the ISP, students being admitted to the M.H.A. program need 15 additional quarter credits of full-time study, with completion of an acceptable research thesis. A minimum of 9 credits must be completed in full-time study in residence at the University of Minnesota.

**Master of Public Health**—Students who complete the two years of the Independent Study Program in Nursing and Patient Care Administration may apply to the MPH/Nursing and Patient Care Administration Option Program. To be admitted, the applicant must have acceptable GPA, MAT, and GRE or GMAT test scores, plus hold current nursing licensure and a baccalaureate degree. If accepted, the 50 credits earned in the Nursing and Patient Care Administration program may be applied toward the 65 required credits to complete the MPH course work. A minimum of 9 credits must be earned in full-time study in residence at the University of Minnesota. In addition, a research thesis and a final oral examination are required.

**Doctor of Philosophy**—The doctoral program is offered through the Graduate School and is designed for those interested in pursuing a career in teaching, research, and policy analysis in the health care field. The curriculum, multidisciplinary in nature, encompasses all the elements that affect the organization, financing, and delivery of health care services in society and is oriented around the application of quantitative methods to the problems of health and medical care. The program of study normally takes three years to complete depending on the student's prior academic training. For further information, contact the Director of Graduate Studies, Program in Hospital and Health Care Administration, C309 Mayo Memorial Building, Box 97, University of Minnesota, 420 Delaware Street S.E., Minneapolis, MN 55455.

**Alternative Studies Programs**—The *Office of Continuing Hospital and Health Care Education* provides a variety of educational programs as well as fee-for-service consultation to help meet the needs of managers and supervisors of health care organizations. Credits earned in some of these programs may be applied toward selected degrees. A credential of advanced study is earned upon successful completion of the Independent Study Programs for Hospital and Health Care, Long-Term Care, Mental Health, Ambulatory Care, and Nursing and Patient Care Administration. All of these programs require that the student be employed full time in an administrative position. On-campus sessions of one to two weeks are required with experiential adult learning methods used. The *Center for Long-Term Care Administration Education* offers two programs. One is a pre-licensure program designed for persons seeking licensure and career entry positions as nursing

## Divisions and Programs of Study

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home administrators, and the second is an executive program designed for employed administrators. For program publications or information about admission requirements, contact the Coordinator, Alternative Studies, Hospital and Health Care Education, School of Public Health, C-309 Mayo (Box 97), University of Minnesota, 420 Delaware Street S.E., Minneapolis, MN 55455.

### ADDITIONAL ADMISSION REQUIREMENTS (see also "General Information")

#### M.H.A.:

1. At least 3 credits of college-level basic principles of accounting, statistics, and microeconomics.
2. An acceptable score on the Graduate Record Examination or the Graduate Management Admission Test. These tests must have been taken within the last five years.
3. A personal interview with faculty and alumni.

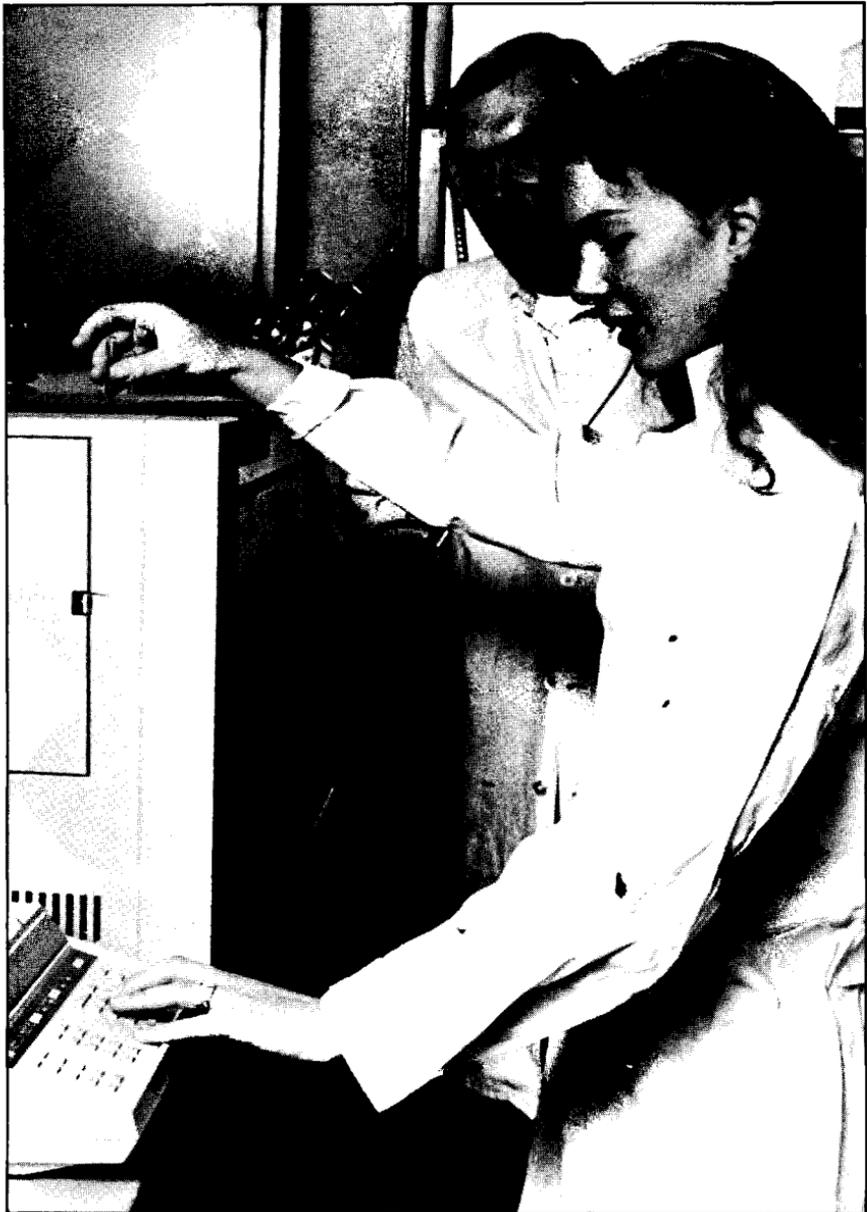
*Application deadline—April 1 (early application recommended)*

#### Ph.D.:

1. Undergraduate and graduate grade average of B or better.
2. Minimum score of 60 or higher on the Miller Analogies Test.
3. Statement indicating reasons for seeking the Ph.D.
4. Three letters of reference attesting to the applicant's academic ability and potential for a career in teaching and research.
5. Personal interview with members of the admissions committee.

### DIVISION FACULTY

Jerome Bieter, M.H.A., Adjunct Assistant Professor; Vice President, Hamilton Associates, Minneapolis  
Thomas Choi, Ph.D., Assistant Professor; Center for Health Services Research  
Richard Culbertson, M.H.A., Adjunct Associate Professor; Associate Director, St. Paul-Ramsey Medical Center  
N. tor Dahl, M.B.A., Adjunct Associate Professor; Private Consultant  
Gestur B. Davidson, Ph.D., Assistant Professor  
Bright M. Dornblaser, M.H.A., Professor  
Bryan E. Dowd, Ph.D., Assistant Professor  
Roger Feldman, Ph.D., Associate Professor; Center for Health Services Research  
G. Kenneth Gordon, Ed.D., Associate Professor  
James A. Hamilton, M.C.S., Professor Emeritus  
Gregory W. Hart, M.H.A., Clinical Assistant Professor; Senior Associate Director, University of Minnesota Hospitals and Clinics  
R. Edward Howell, M.A., Clinical Assistant Professor; Associate Director, University of Minnesota Hospitals and Clinics  
William F. Henry, M.A., Instructor; Administrator, Diabetes Education Center, St. Louis Park Medical Center Research Foundation  
George O. Johnson, Ph.D., Associate Professor and Head, Division of Hospital and Health Care Administration  
John E. Kralewski, Ph.D., Professor; Director, Center for Health Services Research  
Theodor J. Litman, Ph.D., Professor  
Mary Jane Madden, Ph.D., Assistant Professor  
Marie E. Manthey, M.N.A., Assistant Professor  
Daniel McInerney, J.D., M.P.H., Adjunct Assistant Professor; Assistant Director, Health Systems Division, Minnesota Department of Health  
Ira Moscovice, Ph.D., Associate Professor; Center for Health Services Research  
Richard Oszustowicz, B.A., Adjunct Associate Professor; Vice President for Finance, Abbott-Northwestern Hospitals, Minneapolis  
Michael Resnick, Ph.D., Assistant Professor  
James Rice, Lecturer; Vice President, Health Central, Inc., Minneapolis  
C. Edward Schwartz, M.H.A., Clinical Professor; Director, University of Minnesota Hospitals and Clinics  
Ruth P. Stryker-Gordon, M.A., Associate Professor  
John Sweetland, M.H.A., Adjunct Assistant Professor; President, Hamilton Associates, Minneapolis  
Terry Tranter, Ph.D., Assistant Professor; Department of Accounting, School of Management  
Vernon E. Weckwerth, Ph.D., Professor; Department of Family Practice and Community Health, Medical School  
Ronald C. Werft, M.H.A., Clinical Assistant Professor; Associate Director, University of Minnesota Hospitals and Clinics



Professor William Draper teaches an environmental health student how to operate a gas chromatograph (used for measuring trace levels of toxic chemicals).



Participants in a health education class hold a doorway discussion after a class on international health education issues.

# Course Descriptions

**Symbols**—The following symbols are used throughout the course descriptions:

† All courses preceding this symbol must be completed before credit is granted for any quarter of the sequence.

§ Credit will not be granted if the equivalent course listed after this symbol has been taken for credit.

¶ Concurrent registration is allowed (or required) in the course listed after this symbol.

# Registration Override Permit, completed and signed by the instructor, is required for registration.

A hyphen between course numbers (e.g., 3142-3143-3144) indicates a sequence of courses that must be taken in the order listed.

A comma between course numbers (e.g., 5121, 5122, 5123) indicates a series of courses that may be entered any quarter.

When courses that must be taken in sequence are prerequisites, only the last course of the sequence is listed.

## PUBLIC HEALTH (PubH)

### Biometry

- 3400. DIRECTED STUDIES IN BIOMETRY.** (Cr or; prereq #)  
Individual study or research under the guidance of a staff member.
- 5400. INTRODUCTION TO QUANTITATIVE METHODS IN THE BIOLOGIC AND HEALTH SCIENCES.** (4 cr; biological and health sciences students; prereq Biol 1009, Chem 1004 and 1005, Math 1111 or 1201 or #) Jeffries, Le  
Basic quantitative methods for the design and analysis of clinical and laboratory studies in biology and the health sciences.
- 5401. QUANTITATIVE METHODS IN THE HEALTH SCIENCES.** (3 cr; prereq medical or health science student, 5400 or #)  
Reliability in diagnosis and clinical laboratory measurement; logic of design in prevalence surveys, retrospective and prospective studies; clinical trials; measures of morbidity and mortality; life tables and survival after treatment; assays.
- 5403. COMPUTER APPLICATIONS IN HEALTH SERVICES ADMINISTRATION.** (4 cr; prereq non-biometry student, health science regis or #) Finkelstein  
Survey of current applications of digital computers for health services, clinical algorithms, and health-related information systems. Costs, benefits, and interrelationships between data acquisition, reduction, storage, interpretation, and dissemination for health services. Stress on administrative needs for planning, personnel, backup, and evaluation. Applications illustrated through use of the BASIC computing language and package computer programs.
- 5404. INTRODUCTION TO BIostatISTICS AND STATISTICAL DECISION.** (4 cr) 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.
- 5408. BIOMETRIC METHODS II.** (3 cr; prereq grade of B in 5414 or #) Goldman  
Continuation of basic statistical methods including correlation, regression, analysis of variance and nonparametric tests. Introduction to the use of the computer (SPSS) for data analysis.
- 5409-5410. BIOMETRY IN CLINICAL STUDIES I, II.** (3 cr per qtr; prereq DDS, MD, DVM, PharmD, clinical nursing student or #) Staff  
Introduction to numerical and graphical treatment of data from dental, medical, and veterinary research. Examples taken from recent literature. Design, conduct, and analysis of clinical studies. Validity and reliability of measurements and calibration studies for clinical settings. Evaluation of presentation, analysis, and interpretation of data in the clinical literature.

## Course Descriptions

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- 5413. VITAL AND HEALTH STATISTICS.** (1 cr) Kjelsberg  
Morbidity, mortality, fertility, health personnel and facilities, data sources; demographic characteristics and projections; rates; adjustment of rates; federal-state-local statistical programs.
- 5414. BIOMETRIC METHODS I.** (3 cr; prereq public health or grad school regis or #) Boen, Goldman  
Basic quantitative methods for public health students including descriptive statistics; graphic methods; measures of variation; estimation concepts and procedures; random sampling; confidence intervals for means and proportions;  $t$  and  $X^2$  tests of significance.
- 5430. BIOMEDICAL COMPUTING I.** (4 cr; prereq algebra or #) Ellis  
Introduction to digital computers and their use in biology and medicine through an interactive programming language such as BASIC. Simple algorithms for data processing and data quality assurance; using and modifying statistical and graphical library programs; elements of conversational programming.
- 5431. BIOMEDICAL COMPUTING II.** (4 cr; prereq 5430 or #) Ellis  
Additional health-related applications of digital computers using FORTRAN. Computer organization; magnetic disc and tape file processing; statistical and analytical package programs; sequential and hierarchical file management.
- 5432. BIOMEDICAL COMPUTING III.** (4 cr; prereq 5431 or #) Ellis  
Survey of health information systems for inpatient, outpatient, and clinical research use, including status of current systems, costs and benefits, and legal/ethical considerations. System 2000 used for class problems.
- 5433. COMPUTER METHODOLOGY IN THE DELIVERY OF HEALTH CARE I: PHYSIOLOGICAL MONITORING AND TESTING.** (3 cr, §LMed 5196; prereq 5432 or #) Ellis  
Role of the computer in monitoring and testing patients; hardware and software requirements for processing clinically significant signals; comparison and evaluation of currently available systems.
- 5434. COMPUTER METHODOLOGY IN THE DELIVERY OF HEALTH CARE II: INTRODUCTION TO MEDICAL DECISION-MAKING TECHNIQUES.** (3 cr, §LMed 5197; prereq 5432 and 5452 or #) Connelly  
Introduction to biometrical concepts and techniques that can be used to support the medical decision process including test efficacy, decision analysis, Bayes theorem, and multivariate analysis. Current studies of the medical problem-solving process, and computer-based medical decision support systems.
- 5435. COMPUTER METHODOLOGY IN THE DELIVERY OF HEALTH CARE III: DEVELOPMENT OF CLINICAL INFORMATION SYSTEMS.** (3 cr, §LMed 5198; prereq 5432 or #) Finkelstein, staff  
Selected topics in clinical information systems, with emphasis on systems development in clinical laboratory, pharmacy, nursing, and medical records systems.
- 5436. ANALYTICAL TECHNIQUES FOR HEALTH DELIVERY SYSTEMS.** (3 cr; prereq 5452 and FORTRAN or #)  
Gateway  
Operations research and systems analysis techniques applied to health service systems. Emphasis on applications of linear programming, theory of queues, activity networks, and inventory models in health care systems.
- 5446. BIOCOMPUTING CONSULTING SEMINAR.** (3 cr; prereq biometry major, 5432, 5452 or #) Gateway  
Overview of computer hardware, operating systems, languages, and program packages for health science applications. Roles and responsibilities of project manager in analyzing requirements of health science client, designing and specifying computer interfaces, and supervising development, training, documentation, and evaluation for implementation of effort.
- 5450. BIOMETRY I.** (4 cr; prereq familiarity with basic calculus or #) Jeffries  
Probability models, including the binomial, Poisson, and Gaussian, with applications in the biological and health sciences; hypothesis testing and interval estimation for the Gaussian model, using SPSS for computations.
- 5452. BIOMETRY II.** (4 cr; prereq 5450) Jeffries  
Inference for binomial and Poisson probability models, with health science applications; Chi square applied to frequency data; regression and correlation techniques, with applications in bioassay; one-way analysis of variance and multiple comparison techniques.
- 5454. BIOMETRY III.** (4 cr; prereq 5452 or #) Le  
Multiple regression and analysis of variance techniques for biological and health science data; including topics on: model selection, randomized blocks, covariance, the relationship of regression and ANOVA. Use of SPSS computer package for analysis.
- 5456. BIOMETRY CONSULTING SEMINAR.** (Cr ar; prereq biometry major) Boen  
Consultant and client interaction; communication and formulation of the biometric problem. Role and responsibilities of the biometrician. Robustness and relevance of frequently used analytical techniques. Internship experiences.
- 5459. INTRODUCTION TO MATHEMATICAL THEORY IN BIOMETRY.** (3 cr; prereq 2 qtrs calculus or #) Jeffries  
Generating functions, curve fitting, iterative estimation, tests, propagation of error, and related topics with illustrations from epidemics and population growth, bioassay, clinical trials, demography, and other bio-health science areas.

- 5460. DEMOGRAPHY AND HEALTH.** (3 cr, §Soc 5561; prereq biometry or epidemiology major or #) McHugh  
Demographic parameters of mortality, fertility, morbidity, and migration. Sources of demographic data in censuses, surveys, and registration systems. Refinement and adjustment of parameters by factor specification and standardization. Measurement of reproductivity and population change. Generation and current life tables. Stationary and stable population models. Population estimation and projection.
- 5461. BIOMETRIC TOPICS IN EPIDEMIOLOGY.** (3 cr; prereq biometry or epidemiology major or #) Staff  
Relative risk; summarization of rates; misclassification; matching designs; incidence as a function of several variables; selection; clustering; familial aggregation.
- 5462. CLINICAL TRIALS AND LIFE TABLE TECHNIQUES.** (3 cr; prereq biometry or epidemiology major or #)  
Kjelsberg  
Introduction to the methodology of large-scale collaborative clinical trials; case examples; operational aspects of a data center. Elementary life table techniques and application to follow-up studies in medicine and public health.
- 5470. TOPICS IN BIOMETRY.** (Cr ar; prereq #)  
Selected readings with discussion based on these readings.
- 5471. BIOMETRY LITERATURE SEMINAR.** (2 cr; biometry major or #) McHugh  
Basic journals and references of biometry. Orientation to current biometric research problems. Use of online literature retrieval methods and bibliographic references such as Index Medicus. Preparation and delivery of technical presentations.
- 8400. SEMINAR IN BIOMETRY.** (Cr ar)
- 8405-8406-8407. ADVANCED TOPICS IN HEALTH COMPUTER SCIENCE I, II, III.** (3 cr per qtr; prereq 5432, 5435, 5452, or #) Finkelstein, staff  
Selected topics that may include computer systems design for the health sciences, small computer concepts and utilization, computers for clinical services, computer-aided medical decision making, biomedical image processing and pattern recognition, and other areas of current interest. All discussions treat techniques and incorporate examples of case studies from the health sciences.
- 8420. ADVANCED BIOMETRIC METHODS I.** (3 cr; prereq 5455, 5459 or equiv. FORTRAN) Johnson  
General linear model approach to common designs; quantitative bioassay; nonlinear regression.
- 8421. ADVANCED BIOMETRIC METHODS II.** (3 cr; prereq 8420 or #) Johnson  
Classification techniques with discrete, continuous, or mixed variables with emphasis on quadratic discriminant function and nearest neighbor techniques; multivariate clustering algorithms.
- 8422. ADVANCED BIOMETRIC METHODS III.** (3 cr; prereq 5455, 5459 or equiv. FORTRAN) Staff  
Methods of quantal assay; topics in multifactor contingency table analysis; applications of stochastic processes in medicine and biology; problems in the design and analysis of observational studies.
- 8430-8431-8432. ADVANCED BIOMETRIC ANALYSIS I, II, III.** (3 cr per qtr; prereq 8422, advanced calculus, theoretical statistics) McHugh, staff  
Randomization theory in clinical and laboratory trials. Biometric theory of epidemiologic case-control and cohort studies. Nonparametric and parametric survivorship analysis, including censoring and competing risks. Biometric models in demography, medical genetics, and screening and detection of disease. Radioimmunoassay and generalized bioassay models.
- 8449. TOPICS IN BIOMETRY.** (Cr ar; prereq 5450, #)  
Studies in special topics for advanced students.
- 8450. RESEARCH IN BIOMETRY.** (Cr ar)  
Opportunities for qualified students to pursue research.

## Dental Public Health

- 5650. DENTAL HEALTH.** (1 cr; for non-dentists and non-dental hygienists; prereq #) Block  
Conditions resulting in tooth decay and loss; preventive and corrective measures; oral hygiene; community programs for dental health.
- 5651. PHILOSOPHY AND CONCEPTS OF PREVENTIVE DENTISTRY.** (Cr ar; prereq dental public health major or #)  
Stallard  
Basic concepts of preventive dentistry, etiology, and preventive procedures for dental diseases, relationship between oral and general disease processes, organizing and evaluating preventive dentistry programs.
- 5652. CURRENT ISSUES: DENTAL PUBLIC HEALTH.** (Cr ar; prereq dental public health major or #) Block  
Review and discussion of recent dental literature and current controversies involving dentistry and the public.
- 5653. DENTAL PROGRAM DEVELOPMENT.** (2-4 cr; prereq dental public health major, 5659 or #)  
Project design and proposal development for dental health programs. Review proposal writing process, examine information on funding sources and budget preparation, design a miniproject, and develop a proposal.

## Course Descriptions

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- 5654. TOPICS: DENTAL PUBLIC HEALTH.** (Cr ar; prereq dental public health major or #)  
Selected readings in dental public health with discussion based on these readings.
- 5656. DENTAL HEALTH ADMINISTRATION.** (Cr ar; prereq #)  
Management process in the delivery of dental services.
- 5657. INDEPENDENT STUDY: DENTAL PUBLIC HEALTH.** (Cr ar; prereq dental public health major or #) Block  
Independent study under tutorial guidance of selected problems and current issues in dental health and dental health services.
- 5658. ECOLOGY OF DENTAL HEALTH.** (Cr ar; prereq dental public health major or #) Block  
Role of dentistry in the health care system. Topics include dental epidemiology, dental health education, dental personnel problems, economic and political influences on dentistry, and sociocultural implications for dental health.
- 5659. ANALYSIS OF DENTAL HEALTH EDUCATION.** (2-4 cr; prereq student in dental public health or #) Frazier  
Examination of educational objectives, resources, barriers, methods, target populations, and outcomes of current programs in terms of effectiveness and practicality; development of priorities in planning dental health educational programs.
- 5660. FIELD EXPERIENCE: DENTAL PUBLIC HEALTH.** (Cr ar; prereq dental public health major or #) Block, staff  
Supervised field experience in selected community or public health agencies and institutions.
- 5662. COMMUNAL WATER FLUORIDATION: EFFICACY AND SAFETY.** (3 cr; prereq dental public health major, 5330, 5361, 5414 or #)  
Investigation of fluoridation issue from epidemiological perspective; biological efficacy and safety of fluoridation; analysis of literature with emphasis on statistical interpretations and research methodologies. Includes design of individual research projects.
- 5663. ADMINISTRATIVE RESIDENCY IN DENTAL PUBLIC HEALTH.** (2-4 cr; prereq #) Block, staff, clinical preceptors  
Eleven months of fieldwork in approved community or public health agency, delivery of dental services and implementation of programs, solution of management problems, and special projects. Preparation of formal report.

## Environmental Health

- 3151. INTRODUCTION TO ENVIRONMENTAL HEALTH.** (3 cr) Thompson, staff  
The role of environmental factors in injury and disease control.
- 5150. TOPICS IN ENVIRONMENTAL HEALTH.** (Cr ar; prereq #) Barber, staff  
Selected readings and discussions of problems in environmental health.
- 5151. ENVIRONMENTAL HEALTH.** (3 cr; prereq #) Staff  
Methods for promoting human health and comfort by controlling environment.
- 5152. ENVIRONMENTAL HEALTH.** (2 cr) Vesley  
General principles of environmental health relating to macro and micro environments and products consumed or used by people.
- 5156. ENVIRONMENTAL HEALTH I.** (2 cr; prereq environmental health student or #) Staff  
Biological, chemical, and physical aspects of natural and artificially produced environments. Mechanisms by which environmental components reach and affect people.
- 5157. ENVIRONMENTAL HEALTH II.** (2 cr; prereq environmental health student or #) Staff  
Environmental health prevention and control strategies, measurements, monitoring, surveillance, dose-response relationships, and remedial actions.
- 5158. HEALTH RISK EVALUATION.** (2 cr; prereq env health majors or #)  
General principles of health risk assessment and management; environmental pollutants; public domain and workplace, legislation and regulations.
- 5159. SEMINAR: ENVIRONMENTAL HEALTH.** (Cr ar; prereq environmental health student) Staff
- 5161. ADMINISTRATION OF ENVIRONMENTAL HEALTH PROGRAMS.** (3 cr; prereq environmental health student or #)  
Administrative organization of environmental health activities.
- 5171. ENVIRONMENTAL MICROBIOLOGY.** (3 cr; prereq MicB 3103 or #) Greene, Vesley, Ruschmeyer  
Survival, dissemination, transportation, and significance of microorganisms in the environment; application of principles to environmental health problems.
- 5172. ENVIRONMENTAL MICROBIOLOGY LABORATORY.** (2 cr; prereq 5171, #) Vesley, Greene  
Laboratory and field exercises in microbiological sampling, detection, enumeration, and control.

- 5177. PUBLIC HEALTH BIOLOGY.** (3 cr; prereq environmental health student or #) Ruschmeyer  
Introduction to plant and animal forms important in environmental health; biological aspects of water supply, waste treatment, stream pollution, and special phenomena related to human disease transmission.
- 5181. AIR POLLUTION.** (3 cr; prereq general chemistry or #) Draper  
Overview of current air pollution problems; chemistry of air pollutants and polluted atmospheres; potential human health effects; air pollution control technology; laws regulating air pollution.
- 5184. AIR ANALYSIS.** (3 cr; prereq 5211, #) Thompson  
Laboratory and field exercises involving air flow calibration, dynamic calibration of field equipment for analysis of air contaminants, respirable mass sampling, dust counting and sizing, and instrumentation for measuring physical environmental stresses.
- 5186. ENVIRONMENTAL CHEMISTRY.** (3 cr; prereq general chemistry and organic chemistry or #)  
Chemical and physical properties of pollutants which determine distribution and persistence; environmental fate testing; trace analysis of pollutants in the environment.
- 5194. OCCUPATIONAL SAFETY.** (2 cr) McJilton  
Occupational safety procedures, environmental controls to reduce injuries on and off the job, safety program development and administration.
- 5201. RADIATION PROTECTION AND MEASUREMENT.** (3 cr lect and lab; 2 cr lect only) Barber  
Ionizing radiation sources, detection and measurement, protection principles, health implications.
- 5202. NUCLEAR POWER AND THE ENVIRONMENT.** (2-3 cr; prereq 5201 or #) Barber  
Sources, measurement, evaluation, and control of environmental radioactivity; hazards to general population.
- 5203. RADIATION DOSIMETRY.** (3 cr; prereq #) Barber  
Radiant energy absorption in liquids, gases, and solids; absorption in biological systems.
- 5204. RADIATION DOSIMETRY LABORATORY.** (1 cr; prereq 5203) Barber  
Laboratory exercises involving principles discussed in 5203.
- 5209. SEMINAR: HEALTH PHYSICS.** (1 cr) Barber  
Review and discussion of current health physics problems.
- 5211. INDUSTRIAL HYGIENE ENGINEERING.** (3 cr) McJilton  
Concepts and techniques used in occupational health; emphasis on evaluation of potential hazards and preventive techniques.
- 5212. VENTILATION CONTROL OF ENVIRONMENTAL HAZARDS.** (3 cr; prereq 5211, #) McJilton  
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 hazards and process to ventilation design criteria.
- 5214. AGRICULTURAL OCCUPATIONAL HEALTH.** (3 cr) McJilton  
Occupational health problems of agricultural workers, practical and available preventive measures, educational and administrative needs.
- 5215. APPLIED OCCUPATIONAL TOXICOLOGY.** (3 cr; prereq 5261 or #) Stevens, Willard  
Basic toxicology and physiology with emphasis on environmental contaminants. Inhalation toxicology of the work environment and air pollution.
- 5218. FIELD PROBLEMS IN OCCUPATIONAL HEALTH.** (3 cr; prereq 5211, 5212 and #) McJilton  
Guided evaluation of potential occupational health problems; recommendations and design criteria for correction if indicated.
- 5219. SEMINAR: OCCUPATIONAL HEALTH.** (1 cr; prereq occupational health student, #) Johnson, McJilton  
Interdisciplinary discussions of current occupational health issues.
- 5231. ENVIRONMENTAL HEALTH AND SAFETY IN HEALTH CARE FACILITIES.** (4 cr; prereq #) Greene  
Environmental health concepts and problems related to isolation techniques; cleaning, disinfection, and sterilization; laundry processes; food service; critical care environments; interdepartmental relationships.
- 5233. BIOHAZARD CONTROL IN BIOMEDICAL LABORATORIES.** (2 cr; prereq #) Vesley  
Topics include assessment of risk; primary barriers; laboratory design criteria; safety devices and equipment; personnel practices; sterilization and decontamination; laboratory animals; and shipping and disposal of biohazardous agents.
- 5241. ENVIRONMENTAL HEALTH ASPECTS OF WATER SUPPLY.** (3 cr) Straub, Singer  
Role of water in human health; physical, chemical, and biological characteristics; evaluation of source, treatment, and distribution systems.
- 5242. ENVIRONMENTAL HEALTH ASPECTS OF GROUNDWATER SYSTEMS.** (2 cr) Singer  
Introduction to groundwater geology, quality, and treatment; well design, construction, and maintenance; special references to public and environmental health problems.

## Course Descriptions

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- 5243. WATER AND HEALTH.** (3 cr)  
Occurrences, health effects, and treatment of the physical, chemical, and biological agents in the transmission of waterborne diseases.
- 5244. ENVIRONMENTAL HEALTH ASPECTS OF WASTEWATER SYSTEMS.** (3 cr) Straub, Singer  
Role of liquid wastes in human health; physical, chemical, and biological characteristics; evaluation of source, treatment, and disposal facilities.
- 5253. INTRODUCTION TO HAZARDOUS WASTE MANAGEMENT.** (3 cr) Thompson  
Review of roles of public and private sectors as generators, disposers, and regulators of hazardous wastes. Includes definitions, sources, transportation, handling, treatment, recovery, disposal, and public health implications.
- 5261. GENERAL ENVIRONMENTAL TOXICOLOGY.** (3 cr) Stevens  
Application of basic biochemical, anatomical, and physiological principles, assessment of potential health hazards, approaches to solution of problems.
- 5265. APPLIED ENVIRONMENTAL TOXICOLOGY.** (3 cr; prereq 5261 or #) Stevens  
Application of basic toxicologic principles to the general environment; assessment of potential health hazards; approaches to environmental problems; environmental regulation of toxic chemicals.
- 5267. ENVIRONMENTAL AND OCCUPATIONAL TOXICOLOGY.** (3 cr; no prereq)  
Basic principles of toxicology (absorption, distribution, metabolism, excretion, and site of action); tissue specificity of chemical injury; risk assessment.
- 5268. SEMINAR: TOXICOLOGY AND HUMAN POPULATIONS.** (1 cr; prereq env health student or #)  
Scientific evaluation of epidemiological studies that deal exclusively with human exposure to toxic agents; classroom presentations.
- 8150. RESEARCH: ENVIRONMENTAL HEALTH.** (1-6 cr; prereq #) Staff  
Opportunities for qualified students to pursue research in the importance of environmental stresses on human health.
- 8211. HEALTH SURVEY OF MANUFACTURING PROCESSES.** (2 cr; prereq 5211, #) McJilton  
Survey of occupational disease problems and preventive measures in major industries and in operations common to many industries; field trips.
- 8261. MOLECULAR TOXICOLOGY FOR THE ENVIRONMENTAL SCIENTIST.** (3 cr; prereq 5261 or #)  
Toxic effects and mechanisms of environmental chemicals; emphasis on current animal model research.
- 8263. PATHOPHYSIOLOGY FOR THE ENVIRONMENTAL SCIENTIST.** (3 cr; prereq 8261 or #)  
General mechanisms of environmentally-induced tissue injury; compensatory mechanisms and repair processes; acute and chronic pathophysiology; tissue specificity of toxic agents; mutagenesis; teratogenesis.
- 8269. SEMINAR: ENVIRONMENTAL AND OCCUPATIONAL TOXICOLOGY.** (1 cr; prereq 8261 or #)  
Scientific evaluation of toxicological studies that deal exclusively with animal model research; classroom presentations.

## Epidemiology

- 5330. EPIDEMIOLOGY I.** (4 cr; prereq basic course in microbiology and statistics, preferably biostatistics) Schuman, staff  
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.
- 5331. FUNDAMENTALS OF BIOSTATISTICS.** (3 cr) Visiting lecturers  
Rates, probability methods, statistical inference, sampling distributions.
- 5332. FUNDAMENTALS OF EPIDEMIOLOGY.** (3 cr) Visiting lecturers  
Basic epidemiologic concepts and methods of investigation of diseases.
- 5333. PRINCIPLES OF EPIDEMIOLOGY.** (4 cr; prereq course in microbiology and a basic course in biostatistics) Anderson, Mandel, Schuman, staff  
Introduction to the basic concepts and methods of epidemiology related to the ascertainment of disease etiology and the development, implementation, and evaluation of disease prevention programs.
- 5334. BASIC EPIDEMIOLOGY FOR INFECTION CONTROL PRACTITIONERS.** (3 cr; prereq course in microbiology)  
Basic concepts and methods of epidemiology in relation to the ascertainment of etiology and the development and assessment of control programs for application in the description, investigation, and control of infectious diseases in institutional settings such as hospitals, nursing homes.

- 5335. EPIDEMIOLOGY OF INFECTIONS AND COMMUNICABLE DISEASE.** (3 cr; prereq basic epidemiology and biostatistics) Schuman  
Epidemiologic evaluation of host-agent-environmental factors in planning and implementing methods for surveillance, investigation, control, and eradication of infections and communicable diseases with public health significance.
- 5336. INFECTIOUS DISEASE EPIDEMIOLOGY.** (3 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Factors involved in epidemic occurrence, clinical response to infection, impact on humans of zoonoses, immunologic responses, vaccine evaluation.
- 5337. SEROLOGIC EPIDEMIOLOGY.** (3 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Applications of immunologic and biochemical methods to epidemiologic problems of disease.
- 5338. HOSPITAL EPIDEMIOLOGY AND INFECTION CONTROL.** (3 cr; prereq basic epidemiology) Visiting lecturers  
Application of epidemiologic methods to investigation and control of hospital risks (infections, drug reactions, accidents, excess costs). Review of collection and use of hospital data for patient care evaluation in the context of current regulatory efforts.
- 5339. EPIDEMIOLOGY OF DISEASES DUE TO DRUGS AND OTHER THERAPIES.** (2 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Methods of monitoring, detecting, and investigating diseases and reactions due to medical therapies; specific examples of epidemiologic investigations.
- 5340. EPIDEMIOLOGY II: STRATEGIES AND METHODS.** (3 cr; prereq 5330 or 5333 or #) Schuman, Stebbings, Mandel, staff  
Measures of disease occurrence and strategies and design principles for etiologic and evaluative studies. Measurement problems, interactions, sensitivity and precision, validity and the need for data specification and control of variables.
- 5341. HEALTH SURVEY METHODS.** (2 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Problems of sampling, sample size determination, interview and questionnaire development, and organization of community health research.
- 5342. PUBLIC HEALTH BACTERIOLOGY.** (Cr ar; prereq MicB 5232, 5234, 5216, #) Stickle  
Bacteriologic and serologic diagnosis, public health laboratory administration and methods.
- 5343. SURVEILLANCE AND CONTROL OF COMMUNICABLE DISEASES.** (3 cr; prereq basic epidemiology) Visiting lecturers  
Public health aspects of communicable diseases of importance in the United States. Emphasis on surveillance and control of reportable diseases.
- 5344. CLINICAL TRIALS—DESIGN, OPERATION, AND ANALYSIS.** (2 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
The design of preventive, interventional, therapeutic, and surgical trials, and the organization of collaborative studies; techniques for randomization, sample size determination, and data quality control.
- 5345. EPIDEMIOLOGY OF CANCER.** (3 cr; prereq basic epidemiology and biostatistics, 5357 or \*5357) Visiting lecturers  
Epidemiology of selected cancer sites. Emphasis on existing gaps in knowledge.
- 5346. EPIDEMIOLOGY OF CARDIOVASCULAR DISEASES.** (3 cr; prereq basic epidemiology and biostatistics, 5357 or \*5357) Visiting lecturers  
Epidemiologic aspects of various types of cardiovascular disease with emphasis on multivariate setting of etiologies.
- 5347. EPIDEMIOLOGY OF MENTAL DISORDERS.** (2 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Application of epidemiologic concepts and methods to psychiatric problems. Specific mental disorders.
- 5348. EPIDEMIOLOGY OF NEUROLOGIC DISEASES.** (2 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Epidemiologic approach to selected diseases of the nervous system including multiple sclerosis, Parkinsonism, cerebrovascular diseases, and malignant diseases and congenital deformities of the central nervous system.
- 5349. EPIDEMIOLOGY OF CHRONIC RESPIRATORY DISEASE.** (Cr ar; prereq epidemiology student or #) Stebbings  
Critical review of the current status of chronic respiratory disease epidemiology and methods. Design and analysis of longitudinal studies.
- 5350. EPIDEMIOLOGY AND HEALTH POLICY.** (2 cr; prereq fundamentals of epidemiology and fundamentals of biostatistics or equiv) Visiting lecturers  
Application of epidemiologic methods and principles to the workings of health services for the ultimate purpose of setting health policies.
- 5351. EPIDEMIOLOGY OF ALCOHOLISM.** (3 cr; prereq fundamentals of epidemiology and fundamentals of biostatistics or their equiv)  
Epidemiology, public health significance and prevention of alcohol-related health problems in context of North American society. Distribution and determinants of alcohol consumption and associated health consequences presented and implications for public policy discussed.

## Course Descriptions

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- 5352. EPIDEMIOLOGIC METHODS IN NUTRITION.** (2 cr; prereq 5330 or 5333, 5400, 5450-5451 or 5413, 5414, 5404)  
Epidemiologic evaluation of survey techniques used in large scale nutritional research. Review of methodologic advantages and disadvantages of major survey instruments.
- 5353. NUTRITIONAL FACTORS AND THE ETIOLOGY OF CHRONIC DISEASES.** (3 cr; prereq fundamentals of epidemiology and biostatistics or their equiv) Visiting lecturers  
Methods for estimating nutrient intake in individuals and groups. Role of nutritional factors in the etiology of selected chronic diseases such as arteriosclerosis, hypertension, cancer, and diabetes.
- 5354. ENVIRONMENTAL EPIDEMIOLOGY.** (3 cr; prereq 5331, 5332)  
Epidemiologic evaluation of potential community health effects of non-occupational environmental exposures. Data from recent studies regarding chemical wastes, radiation exposure, and natural disasters. Practical field approaches to conducting epidemiologic investigations in settings of great community concern. Acute and chronic health effects, with emphasis on dose-response relationships, latency, and multiple causation of disease.
- 5355. GENETICS AND EPIDEMIOLOGY.** (3 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Genetic methods of evaluating families; topics in population genetics.
- 5356. POPULATION DYNAMICS.** (2 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Historical and current levels and changes in rates of population growth, mortality, natality, migration.
- 5357. SELECTED STATISTICAL TOPICS IN EPIDEMIOLOGY.** (3 cr; prereq basic epidemiology and biostatistics)  
Kjelsberg, staff  
Rate adjustment, relative risk, measures of association, matched pair analyses, force of mortality, estimation of survivorship.
- 5358. RADIATION EPIDEMIOLOGY.** (2 cr; prereq basic epidemiology and biostatistics, advanced statistics) Visiting lecturers  
Critical review of epidemiological studies of biological effects of radiation exposure on human beings. Emphasis on methodological problems encountered.
- 5359. EPIDEMIOLOGY OF OCCUPATIONAL HAZARDS.** (3 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Epidemiologic approaches to occupational hazards. Selected disease examples.
- 5360. EPIDEMIOLOGY OF INJURIES.** (3 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Characteristics of accidents, homicide, suicide, and disasters, and application of epidemiologic principles to their control.
- 5362. EPIDEMIOLOGY OF OCCUPATIONAL HAZARDS.** (3 cr; prereq basic course in epidemiology and statistics)  
Epidemiologic methods for studying health effects associated with occupational exposures.
- 5363. EPIDEMIOLOGY OF ENVIRONMENTAL HAZARDS.** (3 cr; prereq basic epidemiology and biostatistics)  
Human health effects of pollutants in the ambient environment including air pollution, radiation, and toxic substances. Methodology of ecological correlation, cross-sectional, and time-series studies in epidemiology.
- 5368. ENVIRONMENTAL AND OCCUPATIONAL EPIDEMIOLOGY.** (3 cr; prereq PubH 5331 and 5332 or equiv)  
Epidemiologic evaluation of potential health effects arising from community-wide non-occupational environmental exposures. Conduct of epidemiologic investigations in settings of great community concern. Methodologic issues in epidemiologic studies of industrial populations. Design and analysis of cohort and proportionate mortality studies.
- 5369. PRINCIPLES OF OCCUPATIONAL EPIDEMIOLOGY.** (2 cr; prereq bachelor's degree, registration in special occupational health symposium)  
Basic concepts, principles, and methods of epidemiology related to the evaluation of health effects of occupational exposure.
- 5370. APPLIED EPIDEMIOLOGY.** (1-5 cr; prereq 5330 or 5333, basic course in biostatistics or #) Anderson, Diesch  
Application of epidemiologic principles and methods in field studies of outbreaks of zoonoses, in terms of planning investigations, collecting and analyzing data and evaluation.
- 5375. BIOLOGICAL BASES OF HEALTH AND DISEASE.** (3 cr; prereq microbiology course) Schuman  
Introduction to basic concepts and mechanisms of infectious and noninfectious disease and maintenance of the healthy state. Specific diseases utilized as examples or models.
- 5376. ADVANCED STATISTICAL METHODS IN EPIDEMIOLOGY—CATEGORICAL ANALYSIS.** (3 cr; prereq PubH 5331 and 5332 or equiv)  
General overview of epidemiologic research and role of case-control studies; measurement of relative risk, confidence limits and tests of significance; concepts of attributable risk; selection of controls and matching in case-control studies; multiple logistic models; other miscellaneous topics involving bias, reliability, and errors of misclassification.
- 5377. ADVANCED STATISTICAL METHODS IN EPIDEMIOLOGY.** (3 cr; prereq fundamentals of epidemiology and fundamentals of biostatistics)  
The fourfold table in applications to epidemiological and clinical studies. Significance versus magnitude of association; sample size determination; estimators, tests of hypotheses, and confidence intervals for the relative risk and the attributable risk; matching and stratification in case-control studies; effects, measurement, and control of misclassification errors.

- 5378. DEVELOPMENT OF AND PERSPECTIVES IN EPIDEMIOLOGY.** (2 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Historical development of epidemiological concepts and methods. Future potential of the application of these concepts and methods in a broad variety of applications.
- 5379. EPIDEMIOLOGY AND THE PRACTICE OF PUBLIC HEALTH.** (2 cr; prereq epidemiology student or #) Mandel  
Selected readings with discussion based on these readings.
- 5380. APPLIED HUMAN NUTRITION.** (4 cr; prereq biochemistry or equivand #) Leon  
Bioenergetics, physical activity and health; assessment of nutritional intake, clinical and biochemical assessment; food composition and requirements; food additives; food-drug interactions; physiological effects of starvation and dieting; anorexia nervosa; relationship of blood lipids and diet to coronary heart disease, cancer.
- 5385. PHYSIOLOGY OF EXERCISE.** (Cr ar; prereq Phsl 5101 or equiv. #) Leon  
Effects of exercise conditioning and deconditioning on body composition, metabolism, and function.
- 5386. THE PUBLIC HEALTH ASPECTS OF CARDIOVASCULAR DISEASES.** (3 cr; prereq basic epidemiology and biostatistics) Blackburn, Luepker, Pirie  
Evaluation of population studies and trials on cardiovascular diseases; modifiable risk factors for coronary heart disease; prevention of other types of heart disease.
- 5390. NUTRITION INTERVENTION.** (2 cr; A-N only; prereq 1 nutrition course or #)  
Examination of various nutrition intervention strategies presently utilized in health programs. The process of selecting appropriate strategies and evaluating their usefulness in relation to program objectives.
- 5391. INTRODUCTION TO BEHAVIORAL EPIDEMIOLOGY.** (3 cr; prereq public health or health science student, professional in health-related discipline, grad student in social or behavioral science or #)  
Theoretical, measurement, and research issues in behavioral epidemiology. Lifespan patterns in the development, change, and maintenance of behaviors related to major chronic diseases. Examines risk-related behaviors from an epidemiological perspective using the concepts of prevalence, incidence, risk, and trends.
- 5392. PUBLIC HEALTH APPROACHES TO HEALTH BEHAVIOR CHANGE.** (3 cr; prereq grad standing or approval of instructor)  
Introduction to public health approaches to health behavior change. Includes overview of major conceptual models and methods for promoting positive health practices or preventing the adoption of health-compromising behaviors.
- 5393. EVALUATION OF COMMUNITY HEALTH BEHAVIOR INTERVENTIONS** (3 cr; prereq grad standing or #)  
Introduction to evaluating community-based health behavior intervention programs. Includes outcome and process evaluation methodology, measurement of health behaviors, and design issues for evaluating field studies.
- 8330. RESEARCH IN EPIDEMIOLOGY.** (1-8 cr; prereq epidemiology major) Schuman, Mandel  
Opportunities for qualified students to pursue research through the School of Public Health and various cooperating organizations.
- 8331. FIELD PRACTICE IN EPIDEMIOLOGIC INVESTIGATIONS.** (1-8 cr; prereq epidemiology major) Schuman, Mandel  
Supervised participation in epidemiologic investigations in the field under the auspices of health agencies or faculty of the school.
- 8340. EPIDEMIOLOGIC ASPECTS OF CANCER.** (3 cr; prereq 5330) Schuman, staff  
Magnitude of problem, epidemiologic background for current research, examples from cancers of selected sites. Emphasis on studies of those factors offering the best potential for cancer prevention.
- 8341. EPIDEMIOLOGY OF SELECTED CHRONIC DISEASES.** (2 cr; prereq basic epidemiology and biostatistics)  
Visiting lecturers  
Application of epidemiologic concepts and methods to the study of selected chronic diseases other than cardiovascular and cancer; e.g., diabetes, arthritis, chronic respiratory disease.
- 8343. ADVANCED EPIDEMETRICS.** (3 cr; prereq 5330 or 5333, 5340, 5461) McHugh  
Mathematical modeling of parameters and research designs in observational and experimental epidemiology. Emphasis on logical problems of etiological inference from observational data in presence of bias and confounding.
- 8344. ANALYSIS OF QUANTITATIVE DATA IN EPIDEMIOLOGY.** (3 cr; prereq 5331, 5332)  
Methods for analyzing results of epidemiological studies when the response variable is quantitative. Multiple linear regression analysis, general data analytic strategy with analysis of variance and covariance, grouping of discriminate analysis for special cases. Strengths and weaknesses of matching and stratification.
- 8345. EPIDEMIOLOGIC BASIS FOR CANCER CONTROL.** (2 cr; prereq basic epidemiology and biostatistics, 5357 or f5357) Visiting lecturers  
Epidemiologic background and rationale for the development and application of programs for the control of cancer.

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- 8346. EPIDEMIOLOGY OF CARDIOVASCULAR DISEASE AND CANCER.** (3 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Epidemiologic aspects of various types of cardiovascular disease and cancer with emphasis on methodologic approaches to their study and the multivariate setting of their etiologies.
- 8356. EPIDEMIOLOGIC ASPECTS OF POPULATION CHANGE.** (2 cr; prereq basic epidemiology and biostatistics) Visiting lecturers  
Epidemiologic aspects and health implications of changes in population size, composition, and stability.
- 8378. ADVANCED SEMINAR IN EPIDEMIOLOGY.** (2 cr; prereq epidemiology major)  
Discussion of one or more major research areas of current epidemiology interest.
- 8379. SEMINAR IN EPIDEMIOLOGY.** (2 cr; prereq #) Schuman, Mandel  
Discussion of selected current epidemiologic problems.
- 8385. SEMINAR: PHYSIOLOGICAL HYGIENE.** (1 cr; prereq physiological hygiene major, #) Staff  
Nutrition, tests and measurements of human physical fitness; gerontology; adaptation in health and disease; body composition; circulatory dynamics; health behavior; related topics.
- 8386. READINGS IN PHYSIOLOGICAL HYGIENE.** (Cr ar; prereq physiological hygiene major and #) Staff
- 8387. RESEARCH: PHYSIOLOGICAL HYGIENE AND RELATED AREAS.** (Cr ar; prereq physiological hygiene major, #) Staff
- 8389. SEMINAR: TOPICS IN HEALTH BEHAVIOR SCIENCE.** (3 cr; prereq physiological hygiene major, #) Mittelmark, Jeffery  
Current theoretical measurement and research issues in behavioral medicine with emphasis on cardiovascular diseases. Topics drawn from physiological hygiene, psychology, sociology, anthropology, and medicine.

## Health Education

- 3001. PERSONAL AND COMMUNITY HEALTH.** (3 cr, §3004, §GC 3114) Greene, O'Brien, Rothenberger  
Fundamental principles of health conservation and disease prevention.
- 3003. FUNDAMENTALS OF ALCOHOL AND DRUG ABUSE.** (2 cr)  
Lecture, discussion, and special readings on the scientific, sociocultural, and attitudinal aspects of alcohol and other drug abuse problems, with special emphasis on incidence, prevalence, high risk populations, prevention, and intervention.
- 3004. BASIC CONCEPTS IN PERSONAL AND COMMUNITY HEALTH.** (5 cr, §3001, §3003, §GC 3114) Greene, Rothenberger  
Introduction to scientific, sociocultural, and attitudinal aspects of communicable and degenerative diseases, environmental and occupational health hazards, and alcohol and drug problems. Emphasis on role of education in health conservation, disease control, and drug abuse.
- 3008. WORKSHOP OR INSTITUTE IN PUBLIC HEALTH.** (Cr ar; prereq advance regis, #) Staff  
Special topics, nonregular program, or course in public health for preservice or in-service helping professionals.
- 3009. THE NATION'S HEALTH.** (3 cr)  
Exploration of selected issues surrounding the U.S. health care system, particularly the role of medical care in relation to the health of Americans.
- 3034. TOPICS IN ALCOHOL AND DRUG ABUSE.** (Cr ar; prereq #)  
Selected readings in alcohol and drug use and problems, and evaluation of student's mastery of the assigned study.
- 5001. PHILOSOPHICAL AND CONCEPTUAL BASES OF PUBLIC HEALTH PRACTICE.** (2 cr; prereq public health grad student or #) Stauffer, Eyer, Schwanke  
Socialization to public health. Multidisciplinary analysis of philosophical, conceptual bases and action components of problems, issues. Emphasis on legal, ethical, scientific, historical, economic, and social bases of public health principles, concepts, values, beliefs, and methods.
- 5002. PUBLIC HEALTH ISSUES IN HISTORICAL PERSPECTIVE.** (3 cr, §HMed 5002) Eyer  
The evolution of major recurring problems and issues in public health including the environment and health, food customs and nutrition, control of alcohol and drugs, venereal diseases and public policy, human resources regulation, and relationship of science to promotion of health.
- 5003. FUNDAMENTALS OF ALCOHOL AND DRUG ABUSE.** (2 cr; prereq sr or grad student) Schwanke, Cohn, Ayers  
Lecture, discussion, and special readings on the scientific, sociocultural, and attitudinal aspects of alcohol and other drug abuse problems, with special emphasis on incidence, prevalence, high risk populations, prevention, and intervention.

- 5004. FIELD INSTRUCTION IN PUBLIC HEALTH.** (Cr ar; prereq #)  
Generalized, function-oriented, or discipline-oriented community experience under academic and professional supervision. Emphasis on application of acquired knowledge and skills to relevant health issues and problems.
- 5005. TOPICS IN PUBLIC HEALTH.** (Cr ar; prereq advance proposal, #) Staff  
Individualized, directed instruction. Selected readings in public health with discussion based on these readings.
- 5006. INTRODUCTION TO COMMUNITY HEALTH.** (5 cr; §5016; prereq nursing student, pharmacy student, other health professional or #) Greene  
Lectures, discussions, seminars, and readings on critical and current issues in community health, emphasizing public health programs and controversies.
- 5007. HEALTH LEADERSHIP AND EFFECTING CHANGE.** (4 cr; prereq PubH, PubH grad student, # or §HSU 5007)  
Leadership qualities and their impact on organizational behavior. Identification of various theories of change and their practical application to the field of health. Discussion of the changing role of the health professional.
- 5008. WORKSHOP OR INSTITUTE IN PUBLIC HEALTH.** (1-2 cr; prereq 3035 or 5035)  
Special topics, nonregular program or course in public health for pre-service or in-service helping professionals.
- 5013. INTERDISCIPLINARY TEAM TRAINING IN HEALTH SERVICES DELIVERY.** (3 cr, §HSU 5001, §HSU 5003; prereq #) Schwanke, staff  
Interdisciplinary team development with application to public health, human service projects. Didactic content, experiential methods, activities to develop attitudes, skills essential for effective team goal setting, decision making, problem solving, and task accomplishment.
- 5015. TOPICS IN INTERDISCIPLINARY STUDIES.** (Cr ar; prereq #) Staff  
Individualized, directed instruction. Selected readings in interdisciplinary studies with discussion based on these readings.
- 5016. INTRODUCTION TO PUBLIC AND COMMUNITY HEALTH.** (3 cr, §5006, §SW 5131; prereq pharmacy, dental hygiene or public health grad student or #) Greene  
The historical evolution of public and community health, status of the organization and delivery of health services. Future organizational changes and innovative models for health services and for prevention. Emphasis on the epidemiology and prevention of communicable and chronic diseases, chemical dependency, mental health, and measurement of community health status. May include health problems and service needs of the poor, minorities, and women, and a group or individual project interview with community health professionals.
- 5020. PUBLIC HEALTH SOCIAL WORK INTEGRATIVE SEMINAR.** (2 cr, §SW 5020, sec 1; prereq beginning level MSW MPH student) Schwanke, Bracht, staff  
Assists students in dual-degree program to develop an integrated public health social work identity. Synthesizes from both fields the common historical and philosophical developments, roles and functions, trends, professional values, and knowledge and research bases.
- 5021. HUMAN SEXUALITY FOR HEALTH AND HELPING PROFESSIONALS I.** (3-4 cr, §HSU 5025, §FSoS 5240, §SW 5021; prereq enrollment in health sciences, public health, grad program in FSoS or #) Larson, Terrell, Maddock  
Multidisciplinary approach to human sexuality from perspective of public and social health and well-being of individuals, the community, and society. Develops personal skills for imparting sexual knowledge to other health professions and consumers. For 3 credits, complete regular course grading requirements. For 4 credits, do the above PLUS attend a 13-hour Sexual Attitude Reassessment workshop scheduled during the quarter.
- 5022. HUMAN SEXUALITY FOR HEALTH AND HELPING PROFESSIONALS II.** (3 cr, §HSU 5027, FSoS 5240, SW 5022; prereq 5021, SW 5021, HSU 5025, FSoS 5240 or #) Maddock, Terrell, Larson  
Examination of rationales for sexual health care and methods of intervention into sex-related problems of various publics. Focus on methods of assessment, creation of comfortable climate for exploration of sexual concerns, provision of sex-related information, techniques for behavior change, and treatment referrals.
- 5023. SEXUALITY FOR HEALTH AND HELPING PROFESSIONALS III.** (3 cr, §HS 5028, SW 5023, FSoS 5240; prereq PubH 5021, HSU 5025, SW 5021, FSoS 5240 or #) Maddock, Terrell, Larson  
Issues of health policy and preventive education in relation to human sexuality. Consideration of policymaking process and current controversial sexual issues. Discussions of sexual normalcy and variance/deviance; ethics and legal aspects of sexual behavior; public policies regarding sexual minorities; institutional policies regarding sexual health care; sex education programs for children and adults.
- 5040. DYING AND DEATH IN CONTEMPORARY SOCIETY.** (3 cr, §Hlth 5402, §Mort 5040, §HSU 5040; prereq health science major, public health grad student, education sr, certified teacher, mortuary science major or #) Slater, Rothenberger, Svendsen  
Background information on concepts, attitudes, ethics, and lifestyle management related to dying, death, grief, and bereavement. Emphasis on preparing community health and helping professionals and educators for educational activities in this area.
- 5042. EDUCATIONAL ASPECTS OF DRUG USE AND ABUSE.** (3 cr, §Health 5400; prereq education srs; certified teachers, school nurses, or #)  
Basic background information on alcohol and other drugs and chemicals with emphasis on curriculum concepts, teaching methodology, materials, and referral procedures appropriate for elementary, junior, and senior high school.

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- 5043. ANALYSIS OF ALCOHOL/DRUG PROBLEMS.** (3 cr; prereq sr, public health or grad student)  
Lectures and readings examine the scientific, sociocultural, and attitudinal aspects of alcohol and other drug problems focusing on nature, extent, high-risk factors, prevention, and intervention.
- 5044. TOPICS IN ALCOHOL AND DRUG PROBLEMS.** (1-4 cr; prereq advance proposal, #)  
Individualized, directed instruction. Selected readings in alcohol and drug problems with discussion based on these readings.
- 5045. CONTRIBUTORS TO ALCOHOL AND DRUG PROBLEMS.** (3 cr, §HSU 5035; prereq #) Kincannon  
Lectures and readings to help health professionals understand the various pharmacological, genetic, behavioral, psychological, sociological, and cultural contributors to alcohol and drug problems. Theories of drug problem causation.
- 5047. PUBLIC HEALTH STRATEGIES FOR CHANGING BEHAVIOR.** (3 cr, §HSU 5037; prereq sr, public health or grad student)  
Lectures, discussions, readings, and small group projects examine the cost effectiveness of various public health strategies designed to reduce health-compromising behavior such as excessive alcohol, nicotine, or other drug self-administration.
- 5049. ALCOHOL AND DRUG USE ASSOCIATED PROBLEMS: ASSESSMENT AND RESPONSE.** (3 cr, §HSU 5039; prereq PubH 5043 or HSU 5043 or other introductory course in alcohol and drug problems or #)  
Discussions, role playing, and readings to help the health professional assess and appropriately respond to the most common problems with alcohol/drug use.
- 5053. COMMUNICATION IN HEALTH EDUCATION.** (3 cr; prereq grad student in health education) Veninga, Carlaw  
The role of communication in health education practice. Students analyze communication models applicable to health education practice, develop skills in analyzing small group behavior, and examine the role of mass communication in health education programs.
- 5054. FOUNDATIONS OF PUBLIC HEALTH EDUCATION.** (3 cr; prereq students in health education only) Carlaw, staff  
Social, behavioral, and educational aspects of disease. Theoretical bases of health education. History of health education. Ethical issues related to planned change.
- 5055. HEALTH EDUCATION METHODS AND THE CURRENT EMPHASIS ON HEALTH AND WELLNESS.** (3 cr; prereq health education major or #) Carlaw, staff  
Educational strategies affecting behavior and their application to the individual and community. Recent approaches to and intervention points and strategies for promoting health and preventing disease.
- 5056. HEALTH EDUCATIONAL APPROACHES TO CHANGE THROUGH PLANNING.** (3 cr; prereq 5055, health science grad student or #) Mills, Carlaw  
Elements of comprehensive health health education planning; theory, process, models for educational planning and components in evaluating health services and their educational components.
- 5057. HEALTH EDUCATION ISSUES ARISING FROM PLANNED AND UNPLANNED SOCIETAL CHANGE.** (3 cr; prereq 5055, health science grad student or #) Carlaw, staff  
Analysis of major processes of change in society. Planned and unplanned change. Health education implications for individuals and communities.
- 5059. INTERPERSONAL BEHAVIOR IN HEALTH ORGANIZATIONS.** (4 cr; §HSU 5010) Veninga, Gordon  
Application of research and theory from the social sciences to organizational problems in hospitals and public health agencies. Focus on organizational behavior and what health professionals can do to improve organizational performance. Topics include leadership behavior, conflict resolution strategies, committee effectiveness, and management of change.
- 5060. HEALTH OPTIONS FOR THE INDIVIDUAL AND THE COMMUNITY.** (3 cr)  
Overview of current health education practice. Basic principles, methods, and techniques of health education.
- 5061. BEHAVIORAL COMPONENTS OF HEALTH PROBLEMS—PROCESSES OF DIAGNOSIS AND CHANGE.** (2 or 3 cr; prereq grad or professional student or #) Carlaw, staff  
Concepts in health education and their applications in local and national public health programs. Significant developments in health education in the last decade.
- 5062. ORGANIZATION DEVELOPMENT AND CHANGE: APPLICATIONS TO PUBLIC HEALTH AGENCIES.** (3 cr; prereq health science grad student) Veninga  
Focus on how employee productivity and morale can be improved in public health agencies. Review of current research in organizational development and application of this knowledge to human service agencies. Topics include strategies of planned organizational change (Beckhard), leadership and change (Blake), process consultation (Schein), and methods to evaluate organizational development (Likert).
- 5063. PATIENT EDUCATION IN REPRESENTATIVE HEALTH CARE SETTINGS.** (3 cr; prereq #) Carlaw  
Current theories, principles, methods, procedures, and techniques applicable to patient education in a variety of health care settings.
- 5064. THE TEACHING-LEARNING PROCESS IN THE HEALTH CARE SETTING.** (3 cr, §HSU 5011; prereq #) Garloff, staff  
Learning activities include lectures, discussions, written assignments, and projects. Activities designed to meet the professional needs of the student.

- 5065. HEALTH IN THE WORKPLACE: A HEALTH EDUCATION PERSPECTIVE.** (3 cr; prereq health science grad student or grad student) Veninga, McJilton  
Focuses on relationship of work and health. Includes examination of relationship of work to onset of disease, effects of stress (information overload and underload, shift work, role conflict, quality control mechanisms) and its effect on employee health, and health education programs designed to prevent occupationally related illnesses.
- 5067. APPROACHES TO PUBLIC HEALTH IN DEVELOPING COUNTRIES.** (3 cr; prereq health science major)  
Health patterns, etiology, and cultural interpretations of health and disease in selected countries, with attention to the WHO goal of health for all by year 2000.
- 5080. INTERNSHIP IN PATIENT EDUCATION STUDIES.** (Cr ar; prereq health education student) Goldstein  
One quarter of full-time supervised health education internship in a health or medical care setting with emphasis on aspects of patient education.
- 5081. INTERNSHIP IN FAMILY AND COMMUNITY STUDIES.** (Cr ar; prereq health education student) Carlaw, Needle  
One quarter of full-time supervised health education internship in community and family settings.
- 5082. INTERNSHIP IN OCCUPATIONAL HEALTH EDUCATION STUDIES.** (10 cr; prereq health education student) Veninga  
One quarter of full-time supervised health education internship in a workplace and/or occupational health.
- 5083. INTERNSHIP IN HEALTH POLICIES AND PLANNING.** (Cr ar; prereq health education student) Mills  
One quarter of full-time supervised health education internship in educational aspects of health planning and/or health policy development.
- 5089. COMMUNITY HEALTH EDUCATION LABORATORY.** (Cr ar; prereq health education student) Carlaw, Veninga  
Practical experience in community agencies and organizations; background studies in specific health service areas; supervised health education practice.
- 5090. RESEARCH TOPICS IN HEALTH EDUCATION.** (4-8 cr; prereq health education student) Carlaw, Veninga  
Scholarly review of health education research and experience in a selected area for a Plan B project.
- 5091. SEMINAR—HEALTH EDUCATION IN THE MEDICAL CARE SETTING.** (4 cr; prereq health education student) Goldstein, Carlaw  
Restricted to students specializing in this area. In-depth review of current practices and problems with practitioners and faculty members.
- 5092. SEMINAR—HEALTH EDUCATION IN THE FAMILY AND COMMUNITY.** (4 cr; prereq health education student) Carlaw, Needle  
Restricted to students specializing in this area. In-depth examination of role of family and community in forming health and disease patterns, and possible intervention strategies.
- 5093. SEMINAR—HEALTH EDUCATION IN THE WORKPLACE.** (2 cr; prereq PubH 5065 or #) Veninga  
Restricted to students specializing in this area. In-depth analysis of current practices and future directions of job-related education designed to improve health behavior.
- 5094. SEMINAR—EDUCATIONAL APPROACHES TO HEALTH POLICY AND PLANNING.** (4 cr; prereq health education student) Carlaw, Mills  
Restricted to students specializing in this area. In-depth analysis of current and potential practices by practitioners, students, and faculty members.
- 5095. RESEARCH AND PRACTICE IN HEALTH EDUCATION—ADVANCED SEMINAR.** (2 cr; prereq health education student) Carlaw, staff  
Current research in health and education related to the profession of health education. Site visits and data analysis when applicable.
- 5096. TOPICS—RESEARCH.** (Cr ar; prereq health education student) Carlaw, staff  
Original research in or secondary analysis of data sets related to health education.
- 5097. TOPICS—SELECTED READINGS.** (Cr ar; prereq health science grad student) Carlaw, staff  
Study of a topic in health education not covered in available courses.
- 5098. TOPICS—SELECTED READINGS.** (Cr ar; prereq #) Carlaw, staff  
Selected readings in health education for non-health science majors, both graduate and undergraduate.
- 5099. ADVANCED SEMINAR IN HEALTH EDUCATION II.** (Cr ar; prereq health education major)  
Seminar on current research in health and education related to the health education profession. Site visits and data analysis where applicable.
- 5803. MENTAL HEALTH PROMOTION AND THE PREVENTION OF MENTAL DYSFUNCTION.** (3 cr; prereq grad student in public health, social, behavioral, or health sciences or #) Anderson  
Specific mental dysfunctions, their causes and prevention, as well as factors likely to promote and enhance competency and positive mental health.
- 5804. FUNDAMENTALS OF HEALTH BEHAVIOR CHANGE.** (3 cr; prereq #) Hung, Williams  
Principles, applications, and translation of early and existing paradigms and theories of learning into principles of health behavior change. Role of motivation, specific behavior change approaches (e.g. self-reinforcement, contingency contracting, modeling, biofeedback, and self-regulation).

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- 5805. TOPICS: PROGRAM EVALUATION IN PUBLIC HEALTH.** (4 cr; prereq 5852, #) Garrard  
Seminar. Directed study and/or class project on selected problems and current issues in program evaluation research as applied to public health. For students in public health and social, behavioral, and health sciences program.
- 5806. PRINCIPLES OF PUBLIC HEALTH RESEARCH.** (3 cr; prereq #)  
Critical evaluation of public health research literature, planning of independent research projects, formulation of the research question, research design, sampling techniques, use of research concepts, and data analysis. Questionnaires, interviews and data analysis techniques.
- 5807. CROSS-CULTURAL PERSPECTIVES ON HEALTH BEHAVIORS.** (3 cr)  
Introduces cross-cultural issues (both international and sub-cultural) that influence the health behaviors of people. Consideration of what constitutes culture and how cross-cultural factors are studied.
- 5850. HEALTH SCIENCES EDUCATION IN THE 20TH CENTURY.** (3 cr, §HSU 5022) Garrard, staff  
Twentieth-century trends and developments in health sciences education. Focus on educational change and reform, funding of education, professional regulations (licensure and certification) and their impact on education, and specialization and professionalism and their effects on education. Medical education is major paradigm used to examine these issues; dental and nursing education also examined.
- 5852. PROGRAM EVALUATION IN HEALTH AND MENTAL HEALTH SETTINGS.** (4 cr, §HSU 5026; prereq 5806 and equiv basic statistics course) Garrard  
For advanced undergraduate and graduate students in fields related to health or mental health. Topics include an overview of evaluation, models of evaluation, objectives of an evaluative study, sampling of subjects, methods of data collection, methodological designs, interpretation of data, preparation of final report, and ethical and political considerations in conducting an evaluative study.
- 5853. BEHAVIORAL MEDICINE I: THEORY, RESEARCH, AND PRACTICE.** (3 cr; prereq psychology grad student, public health student or professional in health-related discipline) Hung  
Survey of the history of and current issues in behavioral medicine and health psychology. Emphasis on stress and its management, lifestyle intervention, preventive measures for public health, psychology of health and illness behaviors; self-management, and health education.
- 5854. BEHAVIORAL MEDICINE II: SELECTED TOPICS.** (3 cr; prereq 5853, #) Hung  
In-depth treatment of two or three of the following topics each quarter: prevention/management of cardiovascular diseases and coronary disease-prone behavior; biofeedback; lifestyle interventions for persons who are obese, smoke, or are chemically dependent; chronic pain; compliance with medical regimens. Guest lecturers.
- 5855. PSYCHOSOCIAL PROBLEMS OF HUMAN DEVELOPMENT: PREVENTION AND TREATMENT.** (4 cr) Staff  
Overview of common behavioral problems likely to be experienced by persons during the life span; adjusting to adolescence, prolonged illness, parenting, presumed disabilities, alcohol/drug problems, aging, relationship conflicts, work-related stress, and grief and loss. Practical knowledge about common problems of living and identifying ways of responding to these problems which may reduce their debilitating incidence and prevalence and make use of available but often overlooked resources.
- 5888. BEHAVIORAL MEDICINE.** (Cr ar [max 4]; prereq PhD candidate and 400 hrs clerkship experience or #) Hung  
Supervised experience in assessment and management of, and consultation regarding, psychological problems related to mental illness. Includes experience in the Headache Clinic, counseling in human sexuality for medical patients, psychotherapy to aid adjustment to physical illness and disability, and consultation to physicians regarding the behavioral management of problematic patients.
- 8001. SEMINAR: PUBLIC HEALTH.** (Cr ar)
- 8002. FIELD OBSERVATION OF SELECTED PUBLIC HEALTH PRACTICES.** (Cr ar)
- 8003. RESEARCH.** (Cr ar)  
Opportunities for qualified students to pursue research.

## Hospital and Health Care Administration

- 5740. ORGANIZATIONAL BEHAVIOR.** (3 cr; prereq #5742 and hospital administration student or #) Gordon  
Human behavior in organizations: motivation, leadership, influence of organizational structure, informal group behavior, interpersonal relations, supervision. Preventing and solving problems of individuals and groups in organizations.
- 5741. ORGANIZATIONAL THEORY.** (3 cr; prereq hospital administration student or #) Choi  
Application of organizational theory and methods of interorganizational relationships using the multihospital system as a focus.
- 5742. MANAGEMENT OF HEALTH CARE ORGANIZATIONS.** (3 cr; prereq MHA student or #) Johnson  
Role of the hospital in health services delivery and relationships with other elements of the health care system. Problems of achieving results with emphasis on governance, medical staff, and role of administrator.

## Hospital and Health Care Administration

- 5743. MANAGEMENT OF DEPARTMENTS WITHIN HEALTH SERVICES ORGANIZATIONS.** (2 cr; prereq 5742) Sweetland, staff  
Organization, operation, and control of selected departments of health services organizations, with emphasis on integration across various departments and role of department manager.
- 5744. PRINCIPLES OF PROBLEM SOLVING IN HEALTH SERVICES ORGANIZATIONS.** (3 cr; sec 1, prereq hospital administration students only; sec 2, prereq grad-level students and #) Dornblaser, Sweetland  
Lectures, seminars, and demonstrations on problem solving theory and technique. Management problem solving of cases. Solution of a management problem within a health services organization and presentation of report.
- 5745. ADVANCED PROBLEM SOLVING IN HEALTH SERVICES ORGANIZATION.** (3 cr; prereq 5744) Dornblaser, Sweetland  
Solution of specific administrative case problems.
- 5746. CLERKSHIP.** (3 cr; prereq 5744; hospital administration students) Bieter, staff  
Survey and solution of management problems within a local health services organization, preparation of formal management report.
- 5747. HUMAN RESOURCES MANAGEMENT.** (3 cr; prereq MHA student or #)  
Concepts in human resources management as applied to health services organizations. Relationship between human resources management and general management, nature of work and human resources, compensation and benefits, personnel planning, recruitment and selection, training and development, employee appraisal and discipline, and union-management relations.
- 5749. ADMINISTRATION OF SERVICES TO AN AGING CLIENTELE.** (3 cr) Stryker-Gordon  
Management within long-term care organizations, emphasis on institutional living in nursing homes. Lectures, field visits, and research papers.
- 5751. PRINCIPLES OF MANAGEMENT IN HEALTH SERVICES ORGANIZATIONS.** (3 cr; prereq grad student) Culbertson  
Lectures on and case studies in the role of health care services administrators, principles of management, and the administrative process.
- 5752. STRATEGIC AND FACILITIES PLANNING.** (3 cr; prereq MHA student or #) Sweetland, Bieter  
Aspects of institutional planning with emphasis on role of program and physical facilities planning.
- 5753. CORPORATE PLANNING.** (3 cr; prereq MHA student or #) Rice  
Seminar on corporate planning; what it is, how it should be used; strategic planning and objectives; creating action and contingency plans; environmental scanning—use of data, managing external forces; human side of planning.
- 5756. FINANCIAL ACCOUNTING IN HEALTH ORGANIZATIONS.** (4 cr; prereq MHA student or #) Oszustowicz  
Accounting principles and practices applicable to health care organizations, emphasis on hospitals and ambulatory care services; total financial requirements; cost finding methodologies; third-party payor negotiation; internal control; internal and external financial reporting.
- 5757. MANAGERIAL ACCOUNTING IN HEALTH ORGANIZATIONS.** (4 cr; prereq 5756, MHA student or #) Oszustowicz  
Budgeting for operational, capital, and cash flow requirements of hospitals and other health care organizations.
- 5758. HOSPITAL AND OTHER HEALTH CARE ORGANIZATION FINANCIAL STATEMENT ANALYSIS.** (4 cr; prereq 5757, hospital administration student or #) Oszustowicz  
Case studies and readings involving the review and analysis of actual hospital financial statements, third-party payor cost reports, and other documents. Applying key financial ratios to financial statement analysis; developing familiarity with basic financial statement documents.
- 5760. OPERATIONS RESEARCH AND CONTROL SYSTEMS FOR HOSPITALS.** (3 cr; prereq 5404 or #)  
Framework for decision making for both operating and control systems in the hospital environment. Basic modeling techniques and examples of actual hospital applications.
- 5761. QUANTITATIVE METHODS APPLIED TO HEALTH ADMINISTRATION PROBLEMS.** (4 cr; prereq basic statistics) Weckwerth  
Application of quantitative methods including analysis of cyclicities, PERT, data handling systems, simple ANOVA, linear programming, cost benefit analysis, and inventory control in the solution of health problems at administrative levels.
- 5762. EVALUATION CONCEPTS AND METHODS.** (3 cr; prereq hospital administration student or #) Moscovice  
Study of theory, practice, and politics of evaluation. All types of evaluative activities from simple feedback mechanisms to the evaluation of large-scale programs.
- 5763. QUALITY OF HEALTH CARE: EVALUATION AND ASSURANCE.** (3 cr; prereq MHA student or #) Fifer  
Characteristics of health organizations and current standards in health care field; implications for hospital and health care management, relationship of standards to health care evaluation.
- 5766. APPLIED FIELD RESEARCH I.** (1 cr; prereq hospital administration student or #) Litman, Weckwerth  
Under faculty supervision, students select a topic of importance in health care administration and formulate a research problem and approach for field study.

## Course Descriptions

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- 5767. APPLIED FIELD RESEARCH II.** (3 cr; prereq 5766) Litman, Weckwerth  
Under faculty supervision, students investigate alternative methodological approaches to the study of the topic selected in 5766 and carry out a field research project.
- 5768. APPLIED FIELD RESEARCH III.** (3 cr; prereq 5767) Litman, Weckwerth  
With the counsel of a faculty adviser, each student carries out research analysis of a selected topic and prepares a report on the findings.
- 5770. TOPICS: HOSPITAL AND HEALTH CARE ADMINISTRATION.** (Cr ar; prereq hospital administration student or #) Staff  
Selected readings in hospital and health care with discussion based on these readings.
- 5771. FINANCIAL MANAGEMENT IN HEALTH SERVICES ORGANIZATIONS.** (4 cr; prereq one prior college-level (3 cr) accounting course) Sattler  
Presentation of total financial requirements to meet legislative, employer, and/or community demand for health care services. Understanding the total financial requirements associated with such demand will prepare course participants for operational, capital, and cash flow budget management. Seminars to reinforce course lectures will be given when appropriate.
- 5773. MANAGEMENT AND ORGANIZATION WITHIN THE AMBULATORY CARE FACILITY.** (15 cr; [ISP] prereq current employment as ambulatory care administrator and #)  
A 12-month program of on-campus study (2 weeks) and independent study that includes periodic seminars and monthly sessions with clinical preceptors. Management, organizational behavior, problem solving, executive role, personnel management, financial management, governance, clinicians, productivity, and efficiency.
- 5774. ADMINISTRATIVE AND PROFESSIONAL RELATIONSHIPS WITHIN THE AMBULATORY CARE FACILITY.** (15 cr; [ISP] prereq 5773)  
A 12-month program of on-campus study (2 weeks) and independent study that includes periodic seminars and monthly sessions with clinical preceptors. Change theory, ethics, epidemiology, prepaid systems, legal aspects, planning.
- 5775. MANAGEMENT AND ORGANIZATION IN HOSPITAL AND HEALTH CARE FACILITIES.** (15 cr; prereq current employment as health care facility administrator or #) Weckwerth, staff  
A 12-month program consisting of on-campus residential (two weeks) and off-campus independent study that includes a seminar 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.
- 5776. ADMINISTRATIVE AND PROFESSIONAL RELATIONSHIPS WITHIN THE HEALTH CARE FACILITY.** (15 cr; prereq 5775) Weckwerth, staff  
A 12-month program consisting of on-campus residential (two weeks) and off-campus independent study that includes seminars and monthly classes under program preceptors. Board of trustees, medical staff, nursing, hospital law, medical records, planning, community health systems, continuing health education, change theory.
- 5777. EXTERNAL FORCES AFFECTING HEALTH CARE DELIVERY.** (25 cr; prereq 5774, 5776, 5786, 5788 or #) Weckwerth, staff  
A 10-month program consisting of on-campus residential (two weeks) and off-campus study that includes three seminars covering financing, human resources, organizing, social policy, and project planning and design. Requires a project that can be either a management study or a research thesis. Each student must present and defend the project at a week-long symposium at end of course.
- 5778. PATIENT CARE MANAGEMENT AND ORGANIZATION WITHIN THE HOSPITAL AND HEALTH CARE ORGANIZATION.** (25 cr; prereq present employment as administrator of patient care [director of nursing or equiv] or #) Weckwerth, staff  
A 12-month program of on-campus residential sessions (three weeks), independent study, monthly meetings with clinical preceptors, and one required seminar. Principles of management, organizational behavior, hospital development and organization, personnel management, administrative and professional relationships within the hospital, role of the patient care administrator, legal aspects, budget, policy development, continuing education.
- 5779. MANAGING MULTIPLE FORCES: INTERNAL AND EXTERNAL ASPECTS OF PATIENT CARE ADMINISTRATION.** (Cr ar; prereq present employment as administrator of patient care [director of nursing or equiv], 5778 or #) Weckwerth, staff  
A 12-month program of on-campus (three weeks) and independent study that begins with a one-week introductory residential session each August. Seminars on planning, organizing and staffing, and directing and controlling are scheduled during initial phase of course. Students return to campus the following summer to share and demonstrate their research projects with their peers.
- 5780. ADMINISTRATION AND LAW IN LONG-TERM CARE.** (2-6 cr) Staff  
A 12-week course combining five days of on-campus seminars with independent study. General principles of management, human resources management, and legal aspects of management.
- 5781. GERONTOLOGY AND SERVICES FOR LONG-TERM CARE PATIENTS.** (2-6 cr) Stryker-Gordon, staff  
A 12-week course combining five days of on-campus seminars with independent study. Psychosocial gerontology as base for planning and identifying services and programs in long-term care organizations.

## Hospital and Health Care Administration

- 5782. PRACTICUM IN LONG-TERM CARE ADMINISTRATION.** (6 cr; prereq 5780, 5781 or #) Gordon, staff  
A 300-hour practicum in a nursing home setting under the guidance of a preceptor. Includes a four-day seminar on campus.
- 5783. FINANCIAL MANAGEMENT AND PLANNING FOR LONG-TERM CARE.** (6 cr) Portnoy, staff  
Basic tools of financial management for the long-term care facility. Opportunity for practical application of these tools in class and at the work site for students working in long-term care facilities.
- 5784. ISSUES IN LONG-TERM HEALTH CARE.** (2 cr) Aroskar, staff  
A reading course in topics affecting long-term health care; changing delivery of acute care services, right-to-die issues, patient rights, patient responsibilities, and public financing dilemmas. Four written assignments and a final exam are required.
- 5785. INTERNAL OPERATIONS OF A MENTAL HEALTH FACILITY.** (15 cr; prereq one yr experience as mental health facility administrator or #) Weckwerth, staff  
A 12-month program of on-campus residential (two weeks) and off-campus independent study that includes periodic seminars and monthly classes under program preceptors; principles of management, organizational behavior, personnel, problem solving and decision making, financial management, mental health professionals and paraprofessionals, and mental health programs and services.
- 5786. EXTERNAL RELATIONSHIPS AFFECTING THE ROLE AND FUNCTION OF THE MENTAL HEALTH FACILITY.** (15 cr; prereq 5785) Weckwerth, staff  
A 12-month program of on-campus residential (two weeks) and off-campus independent study that includes periodic seminars and monthly classes under program preceptors; governance, legal aspects, public education and information, evaluation of mental health programs, prevention and primary treatment in mental health, current trends and concepts, biostatistics and quantitative methods.
- 5787. ADMINISTRATION OF THE LONG-TERM CARE ORGANIZATION.** (15 cr; prereq #) Gordon, Stryker-Gordon  
A 10-month program of on-campus classes and independent study.
- 5788. PROGRAM MANAGEMENT FOR LONG-TERM CARE.** (15 cr) Gordon, Stryker-Gordon, staff  
A 10-month program of on-campus classes and independent study.
- 5789. WORK-STUDY SEMINAR FOR LONG-TERM CARE ADMINISTRATORS.** (3 cr; prereq 5782 or licensed administrator or director of nursing) Gordon, staff  
On-the-job training designed for the less experienced administrator that includes project assignments and six monthly seminars. Financial management, personnel management, relationships with the community, residents, families, board. Program evaluation.
- 5790. SOCIOLOGY OF MEDICINE AND HEALTH CARE: AN INTRODUCTION TO MEDICAL SOCIOLOGY.** (4 cr, §Soc 5855) Litman  
Social and psychological components of health and medical care. Organization and delivery of health care services, their problems and perspectives; focus on the patient, care provider, and environment where health care services are dispersed.
- 5791. PUBLIC HEALTH AND MEDICAL CARE ORGANIZATIONS.** (3 cr; prereq grad student) Resnick  
Sociopolitical, economic, and moral-ethical issues confronting the public health and medical care system in the U.S. Trends and future directions in service provision, manpower, financing and health services organization, and implications for the public's health.
- 5792. HEALTH SERVICES ORGANIZATIONS IN THE COMMUNITY.** (1 cr; prereq MHA student) Henry  
Lectures about and on-site visits to health services organizations; emphasis on role of organization and administrator.
- 5793. ECONOMIC ASPECTS OF HEALTH CARE.** (3 cr; prereq hospital administration student or #) Feldman  
Economic analysis of American health care sector; problems of pricing, production, and distribution. Evaluating health care services as one factor contributing to nation's health.
- 5794. PUBLIC POLICY IN HEALTH CARE.** (3 cr; prereq MHA student or #) Kralewski, Greenberg  
Development and present status of selected public policy issues in social, economic, and political contexts. Alternative courses of possible public action review.
- 5795. PLANNING AND MARKETING HEALTH SERVICES.** (3 cr; prereq MHA student or #) Greenberg  
Planning for delivery of health services; dynamics of planning process at regional and community level, policy and values, and analytical measurement.
- 5796. LEGAL CONSIDERATIONS IN HEALTH SERVICES ORGANIZATIONS.** (3 cr; prereq MHA student or #) McInerney  
Laws affecting administration of hospitals and other health care organizations: administrative law, corporate and business law, labor law, civil liability and tax-related issues. Focus on legal issues relevant to administration, decision making and planning process.
- 5797. NURSING ADMINISTRATION: EXECUTIVE PRACTICE.** (1 cr [Sec 1], 2 cr [Sec 2]; prereq admission to ISP, PCA-MPH—nursing administration master's program or #)  
Examination of theories, models, and the nature of executive work relevant to nursing administration. Literature critique, practice principles, discussion and analysis that will culminate in the development of individual frameworks for administrative practice in patient care delivery.

## Course Descriptions

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- 5798. RESEARCH METHODS.** (3 cr; prereq admission to ISP/PCA/MPH—nursing administration master's program or #)  
Introduction to research processes and methods; processes of systematic inquiry based on scientific inquiry; building research skills. Nursing administration focus in applied administration research.
- 5799. THESIS RESEARCH.** (1-6 cr; prereq admission to ISP/PCA/MPH—nursing administration master's program or #)  
Research methods: tutorial applied to field research.
- 8750. SEMINAR: ALTERNATIVE PATTERNS OF HEALTH CARE.** (4 cr; prereq grad or hospital administration student or #) Litman  
In-depth examination of problems associated with alternative approaches to organization, financing and delivery of ambulatory care, long-term care, maternal and child care, mental health.
- 8752. SEMINAR: COMPARATIVE HEALTH CARE SYSTEMS.** (3 cr; prereq #: offered alt yrs) Litman  
Examination and comparison of the origin and development of various national systems of health care and their relationship to the social, political, economic, and cultural characteristics of the countries involved.
- 8760. TOPICS IN HOSPITAL AND HEALTH CARE ADMINISTRATION.** (3 cr; prereq PhD student in hospital administration) Weckwerth  
Independent study under tutorial guidance of selected problems and current issues in health and health care.
- 8761. READINGS IN THEORY AND PRINCIPLES OF HOSPITAL AND HEALTH CARE ADMINISTRATION.** (3 cr; prereq 8760) Weckwerth
- 8762. CONTEMPORARY PROBLEMS OF HOSPITAL AND RELATED HEALTH SERVICES.** (3 cr; offered alt yrs) Weckwerth  
Current concepts, problems, principles, and future developments in the fields of health and health care.
- 8763. EXTERNAL FORCES AFFECTING HEALTH SERVICES DELIVERY.** (3 cr; prereq PhD students in hospital administration)  
Development of concepts, models, and principles of financing, social policymaking, organizing, and human resource development for health service delivery, including written papers, oral presentation, and cross examination.
- 8764. RESEARCH APPLICATIONS TO HEALTH SERVICES DELIVERY.** (3 cr; prereq PubH 8763)  
Tutorial guidance and supervised course development covering research design, application, analysis, and presentation in health services delivery.
- 8770. HEALTH AND HUMAN BEHAVIOR.** (3 cr; prereq 5795; offered alt yrs) Litman  
The sociology of health and health care; social and personal components of behavior in sickness and in health; community health; relationship of social and cultural factors in the organization and delivery of health care services.
- 8780. ADVANCED STATISTICAL METHODS IN HEALTH CARE RESEARCH.** (3 cr; prereq one qtr each of applied and theoretical statistics; offered alt yrs) Weckwerth  
Survey and analysis of the application of nonparametric statistics to health care research.
- 8781. SEMINAR: RESEARCH STUDIES IN HEALTH CARE.** (3 cr; prereq PhD student in hospital administration or #) Litman  
Review and appraisal of design, measuring instruments, research methodology, and findings of contemporary studies in the field of health care.
- 8782. RESEARCH PRACTICUM.** (3 cr per qtr [max 6 cr]; prereq PhD student in hospital administration) Litman, Weckwerth, staff  
Summer field experience in health care research. Supervised independent and team research on selected topics and problems in the field of health care.
- 8790. SEMINAR: POLITICAL ASPECTS OF HEALTH CARE.** (3 cr; prereq PhD student in hospital administration or #; offered alt yrs) Litman  
Interrelationships between government, politics, and health care; the political and social basis of health legislation and community decision making in provision and modification of health services.
- 8796. TOPICS IN HEALTH ECONOMICS.** (3 cr; prereq hospital administration student or #) for Dahl  
General principles of health economics applied to current issues in health. Implications for health policy.

## Maternal and Child Health

- 5608. ALCOHOL AND THE FAMILY: EFFECTS ON THE FETUS AND THE CHILD.** (1 cr)  
One-day workshop reviews data on "Fetal Alcohol Syndrome," alcohol misuse by family members, and consequences for children, including the child's emotional development. Intervention/prevention strategies presented with stress on role of community resources including school and health professionals.

## Maternal and Child Health

- 5610. PRINCIPLES IN MATERNAL AND CHILD HEALTH.** (3 cr) ten Bensel, staff  
Introduction to current issues related to the health needs of families, mothers, and children with emphasis on principles of primary care, health maintenance, preventive care, organization, and evaluation.
- 5611. PROGRAMS IN MATERNAL AND CHILD HEALTH.** (3 cr) ten Bensel, staff  
Current programs including C&Y, MIC, family planning, nutrition, dental, EPSDT, neonatal intensive care, genetics, and school health. Community program leaders participate in class discussion.
- 5612. HUMAN GENETICS AND PUBLIC HEALTH.** (3 cr; prereq #) Schacht  
Evaluation of current studies in human genetics and applications to community health.
- 5613. CHRONIC AND HANDICAPPING CONDITIONS OF CHILDREN.** (3 cr) Leonard, Nelson  
In-depth look at the epidemiology, identification, management, follow-up, and prevention of chronic and handicapping conditions of children. Community programs related to emotional, physical, and intellectual handicaps.
- 5614. FIELD EXPERIENCE IN MATERNAL AND CHILD HEALTH.** (Cr ar; prereq MCH grad student) Splett, staff  
Field experiences are selected by the student to meet his or her career goals.
- 5615. HEALTH OF THE SCHOOL-AGE CHILD.** (3 cr; prereq 5610, grad student or #) Bamford  
Review of major health problems among school-age children; methods of providing and evaluating school health services.
- 5616. THE RIGHTS OF CHILDREN: NEGLECT AND ABUSE.** (4 cr) ten Bensel  
Needs and rights of children and parents and the neglect and abuse of children. Exploration of historical and legal aspects, identification and reporting procedures, family assessment and treatment modalities, follow-up processes, research, prevention, and implications for societal action.
- 5618. YOUTH AND HEALTH: AN INTRODUCTION.** (3 cr, §YoSt 5133) Baizerman  
Age-specific morbidity and mortality data regarding youth used as basis for class discussion and individual work on health topics important to a youth population. Introduction of a youth development concept for use in problem analysis.
- 5620. CHRONIC AND HANDICAPPING CONDITIONS OF CHILDREN: PREDICTION AND INTERVENTION WITH HIGH RISK INFANTS AND YOUNG CHILDREN.** (3 cr) Leonard, staff  
Focus on children who are handicapped, chronically ill, or at risk from the prenatal period through age 4, and their families. Problems in identifying the infant at risk; various regional and state programs for screening, assessment, and diagnosis; selected early intervention strategies; relationships between parents, health care providers, and educators; relevant legislation; needs and concerns of this particular age group. Organization of medical care for the chronically ill child.
- 5621. MCH STUDENT/FACULTY SEMINAR.** (1-3 cr; prereq MCH grad student) Staff  
Weekly discussion group allowing interaction between MCH students and faculty. MCH faculty members act as resource persons.
- 5622. WOMEN'S HEALTH: ISSUES AND CONTROVERSIES.** (4 cr; prereq #) Turnquist, Weiner  
Issues and controversies affecting women's health care from an historical perspective and public health vantage point. Contrasts methods of health care delivery, professional and consumer education, and addresses current literature. Includes specific health needs of underserved women in the population.
- 5623. MATERNAL HEALTH.** (3 cr; prereq #)  
Examination of maternal needs, services, and issues (adult and adolescent pregnancy, reproductive health and family health). Emphasis on preventive health, high risk problems, and care systems for childbearing women in the context of sociocultural, economic, and environmental factors.
- 5624. INTERNATIONAL HEALTH.** (Cr ar, §Ped 5525; prereq #) Venters  
Major health care problems in developing countries, political and economic constraints involved, and realistic possibilities for solution. Nutritional disturbances, tropical diseases, socioeconomic factors of family health, the role of folk medicine as a health resource, the use of health auxiliaries and the role of the physician in training them, factors that play a crucial role in patient acceptance.
- 5625. WORKING WITH ADOLESCENTS (WORKSHOP).** (1 cr) Blum  
For teachers, school administrators, school nurses, and others dealing with teenagers. Presentation of major problems of youth from perspectives of professionals and teens. Focus on drug use, teen sexuality, juvenile delinquency, normal adolescent problems and concerns.
- 5628. ADOLESCENT ABUSE.** (3 cr; prereq 5616, 5640, 5641, 5643 or professional experience with child abuse issues) Blum  
Focus on issues related to physical and sexual abuse of teenagers; physical and psychological manifestations of abuse, incest, and sexual assault, sexual abuse of males, consequences of abuse, treatment approaches, legal and ethical issues.
- 5629. PSYCHOSOCIAL ASPECTS OF CHRONIC ILLNESS AND HANDICAPPING CONDITIONS IN SCHOOL-AGE CHILDREN AND ADOLESCENTS.** (3 cr; prereq 5613, 5620 or #) Leonard, staff  
Impact of disease or handicap, including cognitive, sexual, social, educational, and vocational development. Current legislation, policies, and programs. Relationships of educational personnel, family, and child or adolescent. Special needs of terminally ill individual and family.

## Course Descriptions

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- 5630. FAMILY PLANNING ISSUES IN MATERNAL AND CHILD HEALTH.** (3 cr) Lia-Hoagberg  
Family planning and related issues and their relationship to maternal and child health. Family decision making and problem solving. Students have opportunity to analyze issues and determine policy.
- 5631. HEALTH NEEDS AND PROBLEMS OF ADOLESCENT FEMALES.** (4 cr) Weiner  
Major health concerns, developmental risks, and health behavior socialization patterns among adolescent females analyzed from public health, youthwork, and ecological perspectives. Implementation of preventive approaches, effective models of care, youth advocacy services, and professional/parent education emphasized.
- 5632. CHILDREN FROM VIOLENT HOMES: A SEMINAR FOR HEALTH CARE AND HELPING PROFESSIONALS.**  
(1 cr) Turnquist  
For professionals and others concerned with children from violent homes where they are not necessarily abused. Values and patterns related to violence in home and dynamics of violent family relationships. Emphasis on using variety of media to interpret reality and effect of violence from child's perspective; assess special needs and behavior of child; establish rapport and trust with child; and develop realistic case plans and appropriate interventions.
- 5633. INTRODUCTION TO RESEARCH METHODS: UNDERSTANDING SOCIAL BEHAVIORAL RESEARCH IN THE HEALTH SCIENCES.** (3 cr)  
Research design, sampling, measurement, survey research, interviewing, field methods, qualitative vs. quantitative approaches, content analysis, coding, funding, and ethical dimensions of research activity. Promotes both understanding and applied skills in research.
- 5634. HEALTH PROBLEMS AND HEALTH PROMOTION OF YOUTH.** (3 cr)  
For health planners and health care providers who work with youth. Review of major health problems from multiple perspectives: morbidity and mortality data, public health professionals and youth. Suicide and accidents, pregnancy, sexuality, drug use and abuse, depression and loneliness. Framework for developing prevention program.
- 5635. INTRODUCTION TO CONSULTATION IN YOUTHWORK.** (3 cr; prereq #)  
Overview of major conceptual models for understanding consultation; use of program development, research, program evaluation, and clinical cases to analyze consultation foci. Focus on role consultant and consultee. Emphasis on learning about consultation, not how to do. Ethical issues covered.
- 5638. SPECIAL TOPICS: SEMINAR ON ADOLESCENT CHILDBEARING-CHILDBEARING.** (3 cr) Weiner  
Overview of major research findings, outcome trends, and program models relevant to adolescent fertility, childbearing, and childrearing. Analysis of pregnancy prevention, risk reduction, perinatal health, psychosocial development, family support, and parent education.
- 5639. PREVENTION: THEORY, PRACTICE, AND APPLICATION IN PUBLIC HEALTH SERVICE.** (4 cr; prereq #)  
Shandeling  
Current issues and controversies centered around the idea of prevention and how it relates to the health services explored. History, prevention as an idea, terminology, lifestyle intervention, programs and legislative issues, education; roles and the implications for societal action emphasized.
- 5640. CHILD ABUSE AND NEGLECT SEMINAR.** (1 cr) ten Bense  
Causes, symptoms, and prevention of child abuse and neglect. Includes historical overview, terminology, dynamics, and the role of the community and the school.
- 5642. CHILD ABUSE AND NEGLECT.** (3 cr) ten Bense  
Survey of the basic concepts and knowledge of child abuse and neglect. Historical overview and issues of balance of rights between children and their parents. Examples of child abuse and neglect, reasons it occurs, its consequences, and ways society can intervene and prevent it. Independent study, TV course.
- 5643. SEXUAL ABUSE OF CHILDREN.** (1 cr) ten Bense  
Issues surrounding sexual abuse of children. Historical overview, definitions, dynamics, outcomes, treatment, and function of the school and community in the prevention of sexual abuse of children.
- 5644. THE CHALLENGE OF PREVENTION/HEALTH PROMOTION FOR CHILDREN AND YOUTH.** (1 cr) Shandeling,  
ten Bense  
Prevention and health promotion for the younger population. Emphasis on maternal and child health history, school health, legislative issues, evaluation, and models of prevention programs.
- 5645. BATTERED WOMEN: PROFESSIONAL SKILL BUILDING SEMINAR.** (1 cr) Turnquist  
Designed specifically for health professionals and the community at large to address the needs of women in violent home situations. Practical skills for client identification, assessment, and intervention. Short- and long-term goal setting, community resource information, and attitudinal barriers on the caregiver's part.
- 5647. HEALTHY ADOLESCENT DEVELOPMENT.** (3 cr) Blum  
For interdisciplinary audience of health professionals. Topics include physical, sexual, cognitive, moral, and identity development; discussions about the social contexts of adolescent including family, peer groups, school, workplace, and culture.
- 5649. TOPICS: MATERNAL AND CHILD HEALTH.** (Cr ar; prereq #) Staff  
Selected readings and problems.

## **Public Health Administration**

- 5700. PUBLIC HEALTH ADMINISTRATION I.** (Cr ar; prereq public health administration student or #) Block  
Structure, functions, activities, and problems of state public health agencies.
- 5701. PUBLIC HEALTH ADMINISTRATION II.** (1 cr; prereq public health administration student, 5700 or #; S-N only)  
Block, Sandberg  
Issues, problems, structure, and activities of local and federal public health agencies.
- 5702. PUBLIC HEALTH ADMINISTRATION III.** (1 cr; prereq public health administration student, 5701 or #; S-N only)  
Block, Sandberg  
Issues, problems, structure, and activities of other agencies that influence public health, their relationship to public health agencies.
- 5703. PUBLIC HEALTH ADMINISTRATION CLERKSHIP.** (Cr ar; prereq public health administration student or #)  
Block  
Assignment to the Minnesota Department of Health or other health agency for supervised work on a project of limited scope, and preparation of a formal report.
- 5704. FIELD EXPERIENCE: PUBLIC HEALTH ADMINISTRATION.** (Cr ar; prereq public health administration student or #)  
Supervised field experience at a management level in selected community or public health agencies and institutions.
- 5707. INDEPENDENT STUDY: PUBLIC HEALTH ADMINISTRATION.** (1-12 cr; prereq public health administration student or #)  
Independent study, under tutonal guidance, of selected problems and current issues in public health administration.
- 5709. MENTAL HEALTH ADMINISTRATION.** (1-3 cr; prereq enrollment in mental health administration training project)  
Historical overview, trends, governance, work force issues, disability groups, treatment controversies, legal aspects, financial considerations, and standards of quality assurances of mental health services.
- 5710. REGULATION AND HEALTH.** (3 cr; prereq grad student in public health, health related professional with BA or #)  
Process of regulation in public health context. Perspectives of major disciplines on regulation, movement toward regulatory reform, and use of nontraditional forms of regulation. Principles of administrative law; case studies in a variety of health-related areas.
- 5711. PUBLIC HEALTH LAW.** (4 cr; prereq student in public health or #) McInerney  
Introductory course. Basic concepts of the law, legislative process, legal bases for the existence and administration of public health programs, legal aspects of current public health issues and controversies, the regulatory role of government in the health services system.
- 5712. PRINCIPLES OF ORGANIZATION AND MANAGEMENT OF HEALTH MAINTENANCE ORGANIZATIONS I.** (2 cr; prereq public health administration student or #) Rupprecht  
HMOs, prepaid group practices and ambulatory care centers: concepts, history, organizational structure, administration, legislation, and providers and consumers; national, state, and local perspectives.
- 5713. PRINCIPLES OF ORGANIZATION AND MANAGEMENT OF HEALTH MAINTENANCE ORGANIZATIONS II.** (2 cr; prereq public health administration student, 5712 or #) Rupprecht  
Management of HMOs, prepaid group practices, and ambulatory care centers. Topics include: quality assurance, legal and ethical concerns, financial aspects, public health implications, and the impact of national health insurance: international perspectives; impact of various payment mechanisms and systems.
- 5715. ADMINISTRATIVE DECISION MAKING IN PUBLIC HEALTH AGENCIES.** (2 cr; prereq public health administration student or #) Fifer, Gumnit  
Process of public or governmental decision making from an administrative perspective. Case studies involving public health issues and decision making based on state government situations. Case study analysis, group discussion, student presentations, interviews with public health decision makers and their staffs.
- 5720. INTERPERSONAL EFFECTIVENESS IN HEALTH ADMINISTRATION.** (2 cr; prereq public health administration student or #) Veninga  
Skill development examining the health services organization as a social system and the manner in which the administrator can most effectively function; diagnosing the health of organizations, performance review, employee interviews; develop and evaluate résumés, delegate authority, and determine effective forms of organization, management of time, and supervision techniques. Political realities of organizational behavior.
- 5723. ADMINISTRATIVE RESIDENCY.** (Cr ar; prereq public health administration student or #)  
Ten months of field work in approved health care planning or operating organization, rotation through departments, solution of management problems, special projects. Preparation of thesis and formal report.
- 5730. MULTIDISCIPLINARY ASPECTS OF HEALTH PROMOTION/DISEASE PREVENTION.** (2 cr; prereq public health administration student or #)  
Concepts and issues surrounding disease prevention and health promotion. Medical administrative, economic, public policy, and behavioral factors considered in emphasizing the history, controversies, current issues, legislation, cost/benefit, and "state of the art."

## Course Descriptions

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- 5731. ADMINISTRATIVE ASPECTS OF PLANNING DISEASE PREVENTION/HEALTH PROMOTION PROGRAMS.** (4 cr; prereq public health administration student or #)  
Knowledge and skills for planning of disease prevention and health promotion programs; determining prioritized health risks and problems from use and analysis of available data; planning process for setting up prevention/promotion programs; management skills required for implementing, conducting and evaluating these programs.
- 5732. COMPETITION IN THE DELIVERY OF HEALTH SERVICES: A PUBLIC HEALTH PERSPECTIVE.** (3 cr; prereq grad students; health related professionals or #)  
Emergence of competition as a major factor in the delivery of health services and examination of current trends, proposals, regulatory alternatives, alternative delivery system, reactions and behavior of providers, advertising and marketing, role of antitrust agencies and the courts related to competition with a focus on public health implications of these activities.
- 5739. TOPICS: PUBLIC HEALTH ADMINISTRATION.** (Cr ar; prereq student in public health administration or #)  
Selected readings in public health administration with discussion based on these readings.

## Public Health Nursing

- 5500. HUMAN GROWTH AND DEVELOPMENT HEALTH IMPLICATIONS.** (3 cr) Pflug  
Overview of the stages of human growth and development and their implications for physical and psychosocial health throughout the life span.
- 5502. PROGRAM PLANNING AND DEVELOPMENT IN PUBLIC HEALTH NURSING.** (3 cr; prereq 5509, grad status, 5806 or equiv)  
Analysis of the planning, development, and evaluation of health programs in the context of community health needs assessment. Application of organizational development and planned change theories to program planning.
- 5503. COMMUNITY HEALTH SYSTEMS DEVELOPMENT: A PUBLIC HEALTH, COMMUNITY ORIENTED PERSPECTIVE.** (3 cr; prereq grad or MPH student)  
Community health systems development: public policy, health planning, systems design, community organization, 1-credit field experience.
- 5504. COMMUNITY HEALTH SYSTEMS MAINTENANCE.** (2-3 cr; prereq 5503 or #)  
Maintaining community health systems; sub-systems, group processes, coordination, information systems, quality assurance, community organizations, consumer advocacy, volunteers, grant writing. Optional fieldwork.
- 5505. SEMINAR: PUBLIC HEALTH NURSING AT THE MACRO-SYSTEM LEVEL.** (2-3 cr; prereq 5509, 5576 or #)  
Focuses on the organization and the activities of the discipline of public health nursing at state, national, and international levels. The dynamic relationships between large population groups, governmental structures, and major community service professions. Analysis of current and potential public health nursing organizational strategies that impact on the health of the public. Assists nurses in preparing themselves for leadership positions in official and professional organizations. Assists them in identifying and prioritizing aggregate health problems at the macro-system level and in selecting appropriate macro-system level interventions. A field experience equivalent to 1 credit is available for students registering for 3 credits.
- 5506. PUBLIC HEALTH LEADERS AS EDUCATORS.** (3 cr; prereq 5509 or #)  
Philosophical value perspectives on education and persons as teachers/learners. Transformational learning and leadership for non-education specialist public health leaders.
- 5507. CONSULTATION IN HUMAN SERVICES.** (2-3 cr)  
Consultation theory and methods applied to human services: community, organizational, and clinical. Development of contracts, work plans, evaluation and project reports. One-credit field work optional.
- 5509. INTRODUCTION TO PUBLIC HEALTH NURSING.** (3 cr; prereq public health nursing student)  
Knowledge, theories, models, and frameworks relating to public health nursing. Includes philosophical, historical and contemporary perspectives. Links public health nursing with public health, management, and other sciences and disciplines.
- 5510. RESEARCH METHODOLOGY IN PUBLIC HEALTH NURSING.** (1-3 cr; prereq #) Staff  
Guidance in development of study design, implementation, and analysis.
- 5511. HEALTHY ADULTS: A PUBLIC HEALTH PERSPECTIVE.** (3 cr) Ostwald  
Models and theories of health and wellness critiqued: how they relate to the adult population in a pluralistic society. Educational, engineering, and enforcement interventions used in primary prevention analyzed in terms of ethical considerations, compliance rates, and economic implications.
- 5512. ADULTS AT RISK: A PUBLIC HEALTH NURSING APPROACH.** (3 cr; prereq PubH 5511 or #) Ostwald  
Secondary prevention emphasized. Students develop health maintenance protocols for specific aggregates of the adult population. The "Precede" model of health education used to develop community based health education programs aimed at reduction of morbidity and mortality.

- 5513. TOPICS: ADULT HEALTH.** (1-3 cr; prereq #) Ostwald  
Individualized, directed instruction of selected problems and current issues in adult health for public health nurses.
- 5515. SEMINAR: ISSUES IN ADULT HEALTH.** (2 cr; prereq #) Ostwald  
In-depth exploration of contemporary issues in adult health. Facilitation of student's integration of issues in adult health with major issues in nursing and public health.
- 5516. ETHICAL DIMENSIONS OF PUBLIC HEALTH NURSING PRACTICE.** (1 cr; prereq grad student or #) Aroskar  
Examination of ethical issues and dilemmas that confront public health nurses and agencies with discussion of how ethical/value aspects interface with political, legal, economic, and cultural considerations.
- 5517. THE ELDERLY: A HIGH RISK POPULATION.** (3 cr) Ostwald  
Focus on characteristics that place the over 65 age group at high risk for disability, institutionalization, and death. Health maintenance, rehabilitation, and alternatives to institutionalization.
- 5519. HEALTH MAINTENANCE IN THE COMMUNITY: CONTINUUM OF CARE.** (Cr ar; prereq #) Lentsch/Ostwald  
Exploration of comprehensive multidisciplinary, multi-systems approaches to maintenance of wellness in populations with long-term health problems. Independent study.
- 5521. PUBLIC HEALTH NURSING: EDUCATION I.** (3 cr; prereq PubH 5509) Aroskar  
Seminar/practicum focusing on issues and trends in undergraduate public health nursing education, including roles and responsibilities of undergraduate nursing faculty.
- 5522. PUBLIC HEALTH NURSING: EDUCATION II.** (3 cr; prereq PubH 5509, 5521) Aroskar  
Seminar/practicum focusing on planning, development, implementation, and evaluation of public health nursing learning experiences in undergraduate nursing programs.
- 5523. PUBLIC ETHICS/POLITICS AND PUBLIC HEALTH.** (2-3 cr; prereq SPH students or #) Aroskar  
Systematic examination of ethical/value aspects related to decision making in public health interventions. Responsibilities of the state in relation to health, politics as public ethics, and distributive justice in a pluralistic society.
- 5529. PUBLIC HEALTH NURSING SEMINAR: LEADERSHIP ROLES IN PUBLIC HEALTH NURSING.** (1 cr; prereq public health nursing grad student) Ostwald  
Role theory used as a basis for analyzing the roles and functions of contemporary public health nursing leaders. Students design roles for themselves that demonstrate synthesis of public health knowledge and skill.
- 5530. PUBLIC HEALTH NURSING PRACTICUM.** (1-4 cr; prereq #) Aroskar  
Guided application of education and/or management concepts and theories to the delivery of indirect public health nursing services in community-based settings.
- 5531. PUBLIC HEALTH NURSING PRACTICUM.** (1-4 cr; prereq #) Aroskar  
Continued application of education and/or management concepts and theories to the delivery of indirect public health nursing services in community-based settings begun in PubH 5530.
- 5532. PUBLIC HEALTH NURSING SEMINAR II: RESEARCH STUDIES IN PUBLIC HEALTH NURSING.** (1 cr; prereq #) Ostwald  
Presentation and critique of completed research. Required of all public health nursing (MPH) students.
- 5543. CHILD HEALTH: A PUBLIC HEALTH NURSING PERSPECTIVE.** (3 cr; prereq RN or senior nursing student) Berkseth  
Health status and needs of U.S. children, current public health nursing interventions, and implications for future practice.
- 5544. HEALTH OF CHILDREN IN DAY CARE.** (3 cr; prereq upper division or grad-level student in health sciences or related field and #) Berkseth  
Discussion of physical and psychosocial health risks of young children in day care; current and potential health promotion and disease prevention strategies for this population.
- 5545. PUBLIC HEALTH NURSING OF CHILDREN 5 TO 12.** (3 cr; prereq grade of B in PubH 5543) Berkseth  
In-depth exploration of major factors impacting the physical and psychosocial health of children 5 to 12 years and the family and community systems that care for them.
- 5547. TOPICS: PUBLIC HEALTH PRACTICE WITH CHILD POPULATIONS.** (1-3 cr; prereq #) Berkseth  
Selected topics in public health practice with child populations.
- 5550. NURSING ADMINISTRATION SEMINAR I.** (3 cr) Spradley  
Introduction to and analysis of management and organizational concepts and theories applied to public health nursing administration.
- 5551. NURSING ADMINISTRATION SEMINAR II.** (3 cr) Spradley  
Analysis of selected organizational and management issues with application to public health nursing administration practice.
- 5552. NURSING ADMINISTRATION SEMINAR III.** (1-3 cr) Spradley  
Analysis of the "state of the art" of nursing administration in the context of the external organizational environment. Synthesis with public health practice.

## Course Descriptions

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- 5575. TOPICS: PUBLIC HEALTH NURSING.** (Cr ar; prereq #) Staff  
Individualized learning experiences arranged with public health nursing faculty.
- 5576. THE POLITICAL PROCESS IN PUBLIC HEALTH.** (3 cr; prereq public health nursing student or #) Richard, Lentsch  
Preparation for assuming leadership in health policy arena. Emphasis on policy development; political, legislative, and regulatory processes; and political strategies in public health.
- 5582. COLLABORATIVE HEALTH CARE PRACTICE IN GERONTOLOGY.** (2-3 cr) Ostwald  
Theories of aging. Issues critical to provision of health care for elderly. Clinical focus on assessment and management of common health problems of older adult in holistic, interdisciplinary framework. Clinical experience with older adults in ambulatory and long-term care settings optional.
- 5590. THEORY AND PRACTICE OF OCCUPATIONAL HEALTH NURSING.** (1-4 cr; prereq public health nursing student, occupational health and safety student) Richard, Gerberich  
Introduction to major concepts and issues in occupational health and safety. Students identify a conceptual framework for working with aggregate populations of workers. Correlated field experiences included.
- 5592. PLANNING AND COORDINATING AN EMPLOYEE HEALTH SERVICE PROGRAM.** (3 cr; prereq occupational health nursing student) Richard, Gerberich  
Role development of occupational health nurse specialists related to various organizational structures, employee benefits program, and health needs of workers. Students participate in evaluation component of an employee health program.
- 5593. TOPICS IN OCCUPATIONAL HEALTH AND ILLNESS.** (2 cr; prereq graduate or MPH student or #) Richard  
Comprehensive overview of major occupational health problems and the tools utilized in their prevention and/or management. Interdisciplinary course for students in occupational health programs of medicine, nursing, industrial hygiene, and industrial safety. Applicable to programs of study in toxicology, epidemiology, and other areas of environmental and public health.
- 5594. INJURY PREVENTION IN THE WORKPLACE, COMMUNITY, AND HOME.** (3 cr; prereq basic course in epidemiology or #) Gerberich  
Analysis of injury problems affecting the public in the workplace, community, and home; strategies for prevention and control.
- 5595. SEMINAR: SAFETY IN THE WORKPLACE.** (1 cr) Gerberich  
Safety problems in the workplace; hazard analysis and prevention and control of injuries to the worker.
- 5596. PROBLEMS: SAFETY IN THE WORKPLACE.** (2 cr; prereq occupational health and safety student, graduate or MPH student or #) Gerberich  
An interdisciplinary approach to systematize and analyze data relevant to hazards in the workplace. A forum format provides the opportunity for students to further synthesize and evaluate their findings.
- 5597. TOPICS: INJURY PREVENTION IN THE WORKPLACE, COMMUNITY, AND HOME.** (1-3 cr; prereq basic course in epidemiology or #) Gerberich  
Selected projects: provides an opportunity for students to pursue projects relevant to injury problems.
- 8500. PUBLIC HEALTH: SOME UNEXAMINED ETHICAL DILEMMAS.** (2 cr; prereq #)  
Underlying ethical and value bases in public health practice at macro level. Illustration drawn from maternal/child and geriatric health, occupational health, environmental health, public health education, community mental health, public health administration, health legislation, and international health. Ethical issues such as allocation of resources for primary, secondary, and tertiary prevention; right to health; distributive justice; and individual, aggregate, and societal interests in public health program planning, implementation, and evaluation.
- 8505. PUBLIC HEALTH NURSING IN THE GROUP SETTING.** (3 cr) White, Veninga  
Opportunity for working with small groups in the community with emphasis on the group method of providing public health nursing services.
- 8510. DIRECTED RESEARCH.** (Cr ar; prereq 5510) Staff  
Guided study in research designs.
- 8511. DIRECTED RESEARCH.** (3 cr; prereq 5510, 8510) Staff  
Guided completion of a research study.
- 8597. RESEARCH: INJURY PREVENTION IN THE WORKPLACE, COMMUNITY, AND HOME.** (3-6 cr; prereq basic courses in epidemiology and statistics, 5594 or #) Gerberich  
Provides opportunity for students to develop independent and comprehensive research efforts relevant to injury problems.

## Public Health Nutrition

- 5900. FIELD COURSE I: PUBLIC HEALTH NUTRITION.** (1-4 cr; prereq public health nutrition student) Brown, Fleming, Splett  
Placement in an approved agency with opportunity for experience in nutritional aspects of public health programs.
- 5901. SEMINAR: PUBLIC HEALTH NUTRITION.** (1-6 cr; prereq public health nutrition student) Staff
- 5902. MATERNAL AND CHILD NUTRITION.** (3 cr; prereq 3000-level nutrition course or equiv or #) Brown  
Nutrient functions and requirements throughout pregnancy, lactation, infancy, and childhood through adolescence.
- 5903. NUTRITIONAL ASSESSMENT.** (1-2 cr; prereq 3000-level nutrition course or equiv or #) Brown  
Methods used to assess nutritional status of populations and individuals throughout the various stages of the life cycle.
- 5904. FACTORS AFFECTING NUTRITIONAL BEHAVIOR.** (2 cr; prereq Soc 3201 or equiv or #) Fleming  
Basic factors involved in the formation of food habits; method used to modify food habits and to promote and maintain nutritional health of individuals or groups.
- 5906. FIELD COURSE II: PUBLIC HEALTH NUTRITION.** (1-8 cr; prereq public health nutrition student) Splett  
For students desiring more than one concurrent field placement. Placement in a second approved agency with opportunity for experience in nutritional aspects of public health programs.
- 5907. NUTRITION EDUCATION: AN INTEGRATED APPROACH.** (1 or 2 cr)  
An integrated approach to nutrition education in the school system. Students participate in a two-day workshop and complete written assignments in curriculum design. Workshop content includes current nutrition issues, techniques for assessment of personal nutrition, nutrition education objectives, strategies for integrating nutrition education in other subject areas, and nutrition education resources.
- 5908. CURRENT NUTRITION ISSUES IN PUBLIC HEALTH.** (3 cr; prereq FScN 5622 or #) Brown  
Current issues in national and international nutrition and the prevention or resolution of problems through contributions of various public health disciplines.
- 5909. TOPICS IN PUBLIC HEALTH NUTRITION.** (1-12 cr; prereq public health nutrition student or #) Staff  
Independent study.
- 5932. NUTRITION: ADOLESCENTS, ADULTS, AND THE ELDERLY.** (3 cr; prereq 3000-level nutrition course or equiv or #)  
Review of current literature and research on nutrient needs and factors affecting nutritional status of adolescents, adults, and the elderly.
- 5933. NUTRITION FOR OPTIMUM HEALTH AND FITNESS.** (1 cr)  
Designed for teachers, nurses, physicians, social service workers, dietitians, and others dealing with nutrition and health. Nutrition and its role in achieving optimum health and physical fitness. Nutrition needs throughout the life cycle, relationship between the quality of diet and diseases in later life, update of present knowledge on nutrient requirements, functions, and availability. Students will assess their eating behaviors and diets and develop strategies for applying health and fitness information in professional practice.
- 5934. ADMINISTRATIVE SKILL BUILDING FOR NUTRITIONISTS AND DIETITIANS.** (1-3 cr; prereq dietitian or #)  
Designed to enable students to assess the processes and effectiveness of their leadership style; apply financial management, marketing, networking, and decision-making skills; and implement and evaluate nutrition information management systems.
- 5935. NUTRITIONAL NEEDS AND CONCERNS OF ADOLESCENTS.** (3 cr; prereq basic nutrition course or #)  
Current issues in adolescent nutrition; nutritional requirements, food behavior, eating disorders, food faddism, nutritional needs of special groups (athletes, pregnant and chronically ill adolescents), nutrition education/counseling techniques.

## Veterinary Public Health

- 3301. PERSPECTIVES: INTERRELATIONSHIPS OF PEOPLE AND ANIMALS IN SOCIETY TODAY.** (2-3 cr; §CVM 5100, §5303, §5304)  
Social and economic consequences of pets and people sharing urban environments; concerns of animal rights; differences in cultures and their influence on animal/human relationships.
- 5300. COMPARATIVE MEDICINE AND PUBLIC HEALTH.** (2 cr)  
Comparative studies dealing with sources of animal diseases, world food supplies, food protection, environmental pollution, population control, animal models of disease and relation to the biologic environment. How these factors affect public health and public policy.

## Course Descriptions

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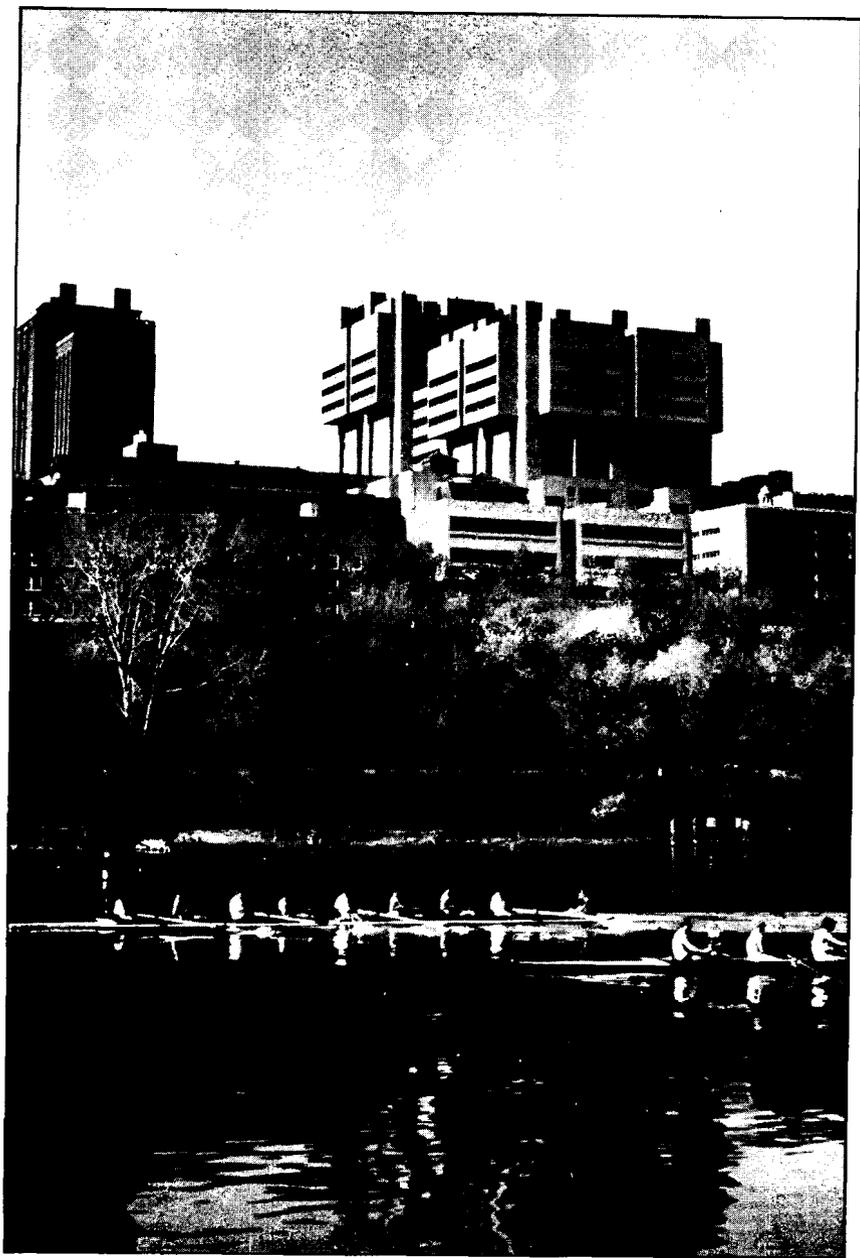
- 5301. PERSPECTIVES: INTERRELATIONSHIPS OF PEOPLE AND ANIMALS IN SOCIETY TODAY.** (2-3 cr; §CVM 5100, §5303, §5304)  
Social and economic consequences of pets and people sharing urban environments; concerns of animal rights; differences in cultures and their influence on animal/human relationships.
- 5308. COMPARATIVE MEDICINE AND PUBLIC HEALTH.** (2 cr; prereq VPH major or #)  
Comparative studies dealing with sources of animal diseases, world food supplies, food protection, environmental pollution, population control, animal models of disease, and relation to the biological environment. How these factors affect public health and public policy.
- 5310. DISEASES TRANSMITTED BETWEEN ANIMALS AND HUMANS.** (4 cr; prereq VPH major or #)  
Selected diseases transmitted between animals and human beings with emphasis on diagnostic problems, epidemiology, prevention, control, and evaluation.
- 5315. PROBLEMS IN DISEASE CONTROL AND ERADICATION.** (4 cr; prereq VPH major or #)  
Evaluation of selected past and present disease control and eradication programs and factors influencing degree of success and failure. Students develop models for proposed disease control and eradication programs in the United States or a foreign country for group evaluation and analysis.
- 5326. RESEARCH IN ANIMAL/HUMAN HEALTH.** (Cr ar; prereq VPH major or #)  
Research in the relationship of animal health to human health.



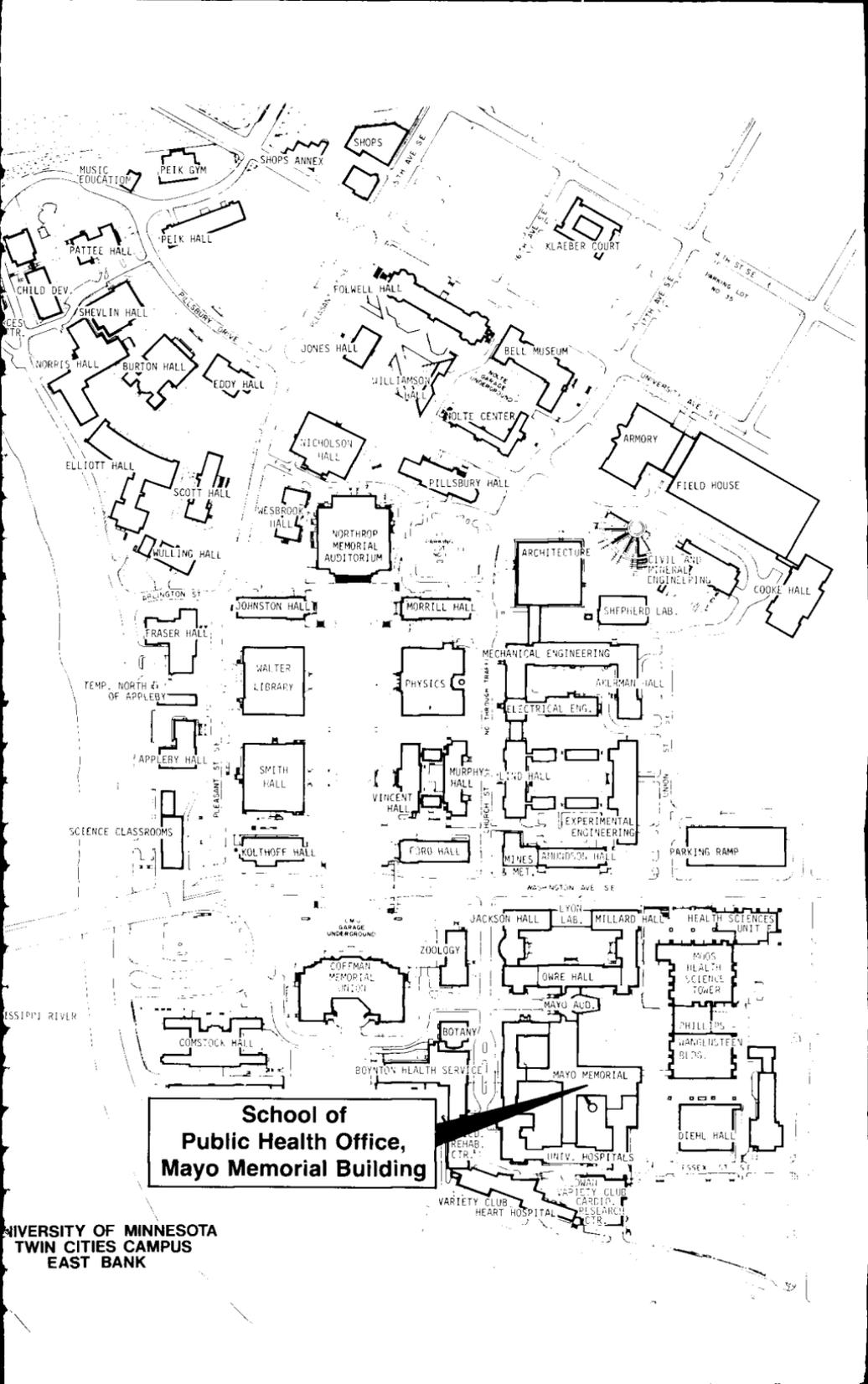
Professor Phyllis Fleming, public health nutrition, interviews a child during a research project on the nutritional status of children.

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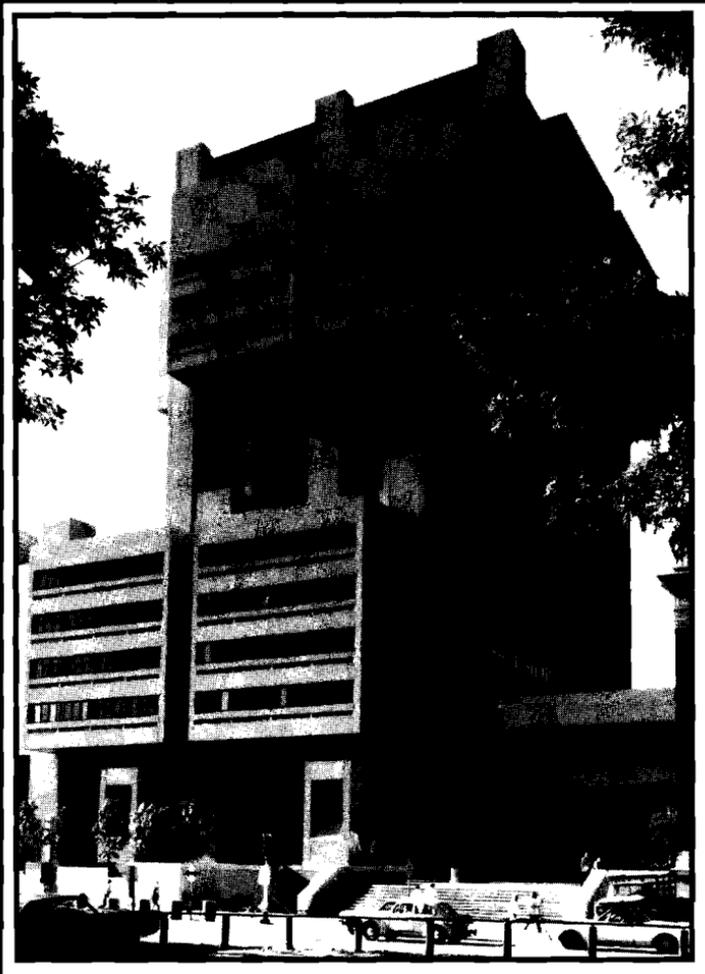


The men's rowing team practices on the Mississippi River in view of the health sciences complex.



**School of  
Public Health Office,  
Mayo Memorial Building**

UNIVERSITY OF MINNESOTA  
TWIN CITIES CAMPUS  
EAST BANK



**School of Dentistry**

# University of Minnesota

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The Malcolm Moos Health Sciences Tower is located at 515 Delaware Street S.E., Minneapolis, Minnesota 55455.

# School of Dentistry

*General Information* 3

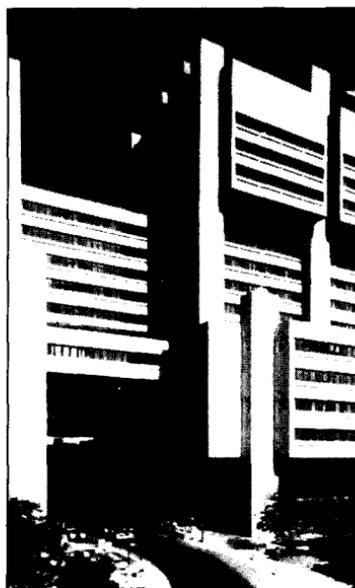
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*Cover Photos*

*Front*, the Malcolm  
Moos Health  
Sciences Tower

*Back*, a patient  
receiving treat-  
ment at the Pe-  
diatric Dentistry Clinic



## PUBLICATIONS

**Newsletter**—A School of Dentistry newsletter, *Contact Points*, is distributed during the academic year.

**Class Schedule**—This quarterly publication lists University day school courses complete with hours, rooms, instructors, prerequisites, registration instructions, tuition and fees, maps, grading definitions, and other pertinent information.

**Other Bulletins**—The annual *General Information Bulletin* provides a brief overview of the Twin Cities campus and basic costs and regulations. Separate biennial bulletins are printed for the College of Biological Sciences, Medical School, and other University units. Most may be obtained by visiting the Information Booth on the upper concourse of Williamson Hall or by calling 373-2153.

### Bulletin Use

The contents of this bulletin and other University bulletins, publications, or announcements are subject to change without notice. University offices can provide current information about possible changes.

### Equal Opportunity

The University of Minnesota is committed to the policy that all persons shall have equal access to its programs, facilities, and employment without regard to race, creed, color, sex, national origin, or handicap. In adhering to this policy, the University abides by the requirements of Title IX of the Education Amendments of 1972, by Sections 503 and 504 of the Rehabilitation Act of 1973, and by other applicable statutes and regulations relating to equality of opportunity.

Inquiries regarding compliance may be directed to Lillian H. Williams, Director, Office of Equal Opportunity and Affirmative Action, 419 Morrill Hall, University of Minnesota, 100 Church Street S.E., Minneapolis, MN 55455 (612/373-7969), or to the Director of the Office of Civil Rights, Department of Education, Washington, DC 20202, or to the Director of the Office of Federal Contract Compliance Programs, Department of Labor, Washington, DC 20210.

### Access to Student Educational Records

In accordance with regents' policy on access to student records, information about a student generally may not be released to a third party without the student's permission. The policy also permits students to review their educational records and to challenge the contents of those records.

Some student information—name, address, telephone number, dates of enrollment and enrollment termination, college and class, major, adviser, and degrees earned—is considered public or directory information. To prevent release of such information outside the University while in attendance at the University, a student must notify the records office on his or her campus.

Students are notified annually of their right to review their educational records. The regents' policy, including a directory of student records, is available for review at the Information Booth in Williamson Hall, Minneapolis, and at records offices on other campuses of the University. Questions may be directed to the Office of the Coordinator of Student Support Services, 260e Williamson Hall (612/373-2106).

# General Information

## Mission

In 1888, the University of Minnesota took over the Minnesota College Hospital and established its own Department of Medicine. Dentistry, one of three colleges in the new department, became a separate unit in 1892. Its name was changed to the School of Dentistry in 1932. Today, as part of a large metropolitan university with a strong commitment to the health sciences, the School of Dentistry offers its students a variety of academic and cultural opportunities. It is a full member of the American Association of Dental Schools, and the undergraduate programs in dentistry and dental hygiene are approved by the Commission on Dental Accreditation. The objectives of the School of Dentistry include the following:

### *Teaching*

- To prepare undergraduates for high quality professional practice through the acquisition of skills, knowledge, and attitudes essential to the practice of dentistry.
- To conduct educational programs based on a strong foundation of scientific and biological principles that gives students an understanding of the patient's total health and teaches them to plan, execute, and direct oral health treatment and preventive measures as part of general health care.
- To inculcate in students 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.
- To provide students with experience in working with auxiliary personnel and practicing TEAM dentistry.
- To prepare dental auxiliary personnel to assist the practicing dentist and to perform clinical duties consistent with their skills and training.
- To provide graduate-level training for the preparation of individuals interested in careers in research, academic dentistry, and specialty practice.
- To teach undergraduate and graduate students the essentials of practicing dentistry in hospitals and community health centers.
- To stimulate students to conduct research, to think critically, and to understand public health needs and preventive dentistry.
- To utilize the most advanced teaching methods in a curriculum subject to constant review.
- To promote needed programs of continuing education for dental practitioners and related health professionals.
- To integrate the teaching programs of the school with those of the other health sciences and the community.
- To provide other health science workers and the University community with insight into the importance of oral health.
- To inform and influence the community and society about the benefits of good oral health.

### *Research*

- To advance the knowledge of oral health with an active, expanding fundamental and applied research program.
- To investigate various educational methods and to develop new techniques and measurements for evaluating educational programs to determine the need for change and improvement.
- To investigate community oral health problems, causes of oral disease, and methods of preventive care.
- 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.

## General Information

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### Service

- To provide exemplary care for patients treated in the clinics.
- To provide prompt and efficient consultative services to dental practitioners, medical practitioners, and other health science professionals.
- To promote and cooperate with communities on oral health service projects consistent with the mission of the dental school.
- To demonstrate an attitude of social responsibility and sensitivity while undertaking and carrying out the school's service programs.
- To share and disseminate oral health knowledge with dental practitioners, other health science workers, and the public.

## Facilities

The School of Dentistry is based in the Malcom Moos Health Sciences Tower south of Washington Avenue, between Union and Harvard Streets, on the Twin Cities campus. The address is 515 Delaware Street S.E., Minneapolis, Minnesota 55455, with the main administrative office in room 15-209 (376-4373). Constructed with state and federal funds, the building provides a flexible, innovative environment for teaching and practicing dentistry and conducting research. All the basic science teaching laboratories are in the Malcolm Moos Health Sciences Tower, except for the adjacent anatomy laboratories. Reference books and periodicals for the use of dental students are in the Reading Room on the ninth floor, and nonprint materials are in the Learning Resources Room on the eighth floor.

The Biomedical Library in Diehl Hall, one block south of the Malcolm Moos Health Sciences Tower, features an extensive selection of reference materials in the fundamental and clinical health sciences. The large Twin Cities campus library system is headquartered in Wilson Library on the West Bank.

## Degrees Offered

**Doctor of Dental Surgery**—The professional D.D.S. program involves a four-year curriculum. Requirements are explained in the second and third sections of this bulletin.

**Bachelor of Science**—The bachelor of science (B.S.) degree will be granted to School of Dentistry students who satisfy course requirements for three years of pre-dental liberal arts work and two years of dental study. The B.S. is optional, but must be applied for before students complete the D.D.S. In accordance with all-University liberal education distribution requirements, students must fulfill the following group distribution requirements (at least 48 credits):

*Group A—Language, Logic, Mathematics, and the Study of Argument*  
8 to 10 credits (normally two courses)

*Group B—The Physical and Biological Universe*  
12 to 15 credits (normally three courses; one or more must include a laboratory)

*Group C—The Individual and Society*  
16 to 20 credits (normally four courses)

*Group D—Literary and Artistic Expression*  
12 to 15 credits (normally three courses)

The B.S. degree may be awarded with the honors "with distinction" or "with high distinction."

**Dental Hygiene**—The degree of graduate dental hygienist (G.D.H.) in dental hygiene is offered through the Dental Auxiliaries Department. For details, consult the *Undergraduate Health Sciences Bulletin* or contact Donna Aker, chair, Dental Auxiliaries Department, 5-164 Malcolm Moos Health Sciences Tower (373-3271).

**Graduate Programs**—Graduate programs are designed to meet the needs of members of the dental profession in preparation for careers in education, research, and specialty practice. The master of science (M.S.) degree is offered through the Graduate School in the various dental specialties: endodontics, oral pathology, oral radiology, oral and maxillofacial surgery, orthodontics, pediatric dentistry, periodontics, and prosthodontics. The doctor of philosophy (Ph.D.) degree in oral biology is also offered through the Graduate School, and a one-year General Practice Residency Program is offered through the School of Dentistry. These programs are approved by the Commission on Dental Accreditation. For details, consult the *Graduate Programs in the Health Sciences Bulletin (1983-84)* or *Graduate School Bulletin (1984-86)*.

A series of short courses are regularly offered to keep members of the dental profession informed of new developments in research and clinical procedures. Special brochures listing courses, dates, and costs are available through the Continuing Dental Education Program, 6-406 Malcolm Moos Health Sciences Tower (373-7961).

## Student Activities

Each year, undergraduates elect the School of Dentistry Council of Students, which discusses matters of mutual interest with faculty advisers and promotes numerous projects and activities. Undergraduates also have representatives with voting privileges on School of Dentistry committees pertaining to admission of students, educational policy, student affairs, and clinical affairs. The Student Affairs Committee, composed of both students and faculty members, is responsible for such student concerns as membership in local and national organizations, ethics, counseling, tutorial assistance, questions on the educational programs, financial aid, publications, housing, and alumni relations. Students have representatives on the Board of Directors of the School of Dentistry Alumni Society and on the Executive Council of the School of Dentistry Century Club. They also serve as student delegates on the House of Delegates of the Minnesota Dental Association.

Four dental societies—Alpha Omega, Delta Sigma Delta, Psi Omega, and Xi Psi Phi—are active on campus. Fourth-year students may be elected by the faculty to the Beta Beta chapter of the national dental honor society, Omicron Kappa Upsilon.

Undergraduates are encouraged to become members of the American Student Dental Association, Minnesota Dental Association, and American Association of Dental Schools (AADS). For a nominal fee, students receive the *Journal of the American Dental Association* and can participate in certain insurance programs. Some Minnesota students are active in the Council of Students of the AADS.



Techniques are demonstrated in the Preclinical Laboratory.

# Doctor of Dental Surgery Program

## Calendar

The professional program in the School of Dentistry involves a four-year curriculum. The fall quarter starts after Labor Day and runs for 14 weeks. The winter and spring quarters of 10 weeks each coincide with the University calendar. Clinical activity is required of students during the summer after their third year.

## Admission Requirements

The School of Dentistry is committed to the policy that all persons shall have equal access to its Doctor of Dental Surgery Program without regard to race, creed, color, sex, national origin, or handicap. It is committed to improving the educational and professional career opportunities in dentistry for underrepresented minorities. As part of pursuing this goal, the School of Dentistry publicizes dental career opportunities for prospective students, actively recruits qualified individuals, and provides a broad range of supportive services for currently enrolled minority students.

**General Requirements**—A first-year class is admitted to the program in dentistry once a year, in the fall, although students planning to enter dental school can begin their pre dental studies at any time.

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

A minimum of 135 quarter credits or 90 semester credits of liberal arts courses from an accredited college are required. A limit of 96 quarter credits from community or junior colleges will be applied to the 135 required quarter credits, or to a 180-quarter-credit, four-year college program. (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 upon with favor.

To help achieve the goals of a liberal education, the School of Dentistry prefers that all students distribute some part of their pre dental college course work in areas of study other than those related to the biological and physical sciences. Pre dental students are urged to plan their course work to satisfy the University's liberal education distribution requirements.

The minimum scholastic average that will be considered is C, but acceptance is on a competitive basis and an average well above C is usually necessary to achieve admission.

Courses and minimum credits required for admission are listed below. Required courses should be completed by the end of the regular academic year (spring quarter) for enrollment the following fall. Completing required courses the summer before the fall of enrollment is strongly discouraged.

## Doctor of Dental Surgery Program

Science course work must include both lecture and laboratory instruction. Exemptions and advanced courses with fewer credits will be recognized, but transcripts or other academic records must clearly identify these, and individual evaluations will be made. Courses in biology, chemistry, and physics may be considered outdated if taken more than five years prior to the time of application. Only under unusual circumstances will satisfactory credits graded on a satisfactory-no credit evaluation system be accepted for required courses. Applicants may submit a maximum of the following percentage of S credits in elective courses: 10% of the minimum total credits for three-year students, and 15% of the minimum total credits for four-year students. It must also be emphasized that incomplete grades are looked upon with disfavor by the Admissions Committee. Any incomplete grades and any withdrawal grades in excess of one per academic year must be explained in the application.

### *Required Courses*

1. English—12 quarter credits in composition, literature, speech, humanities (with emphasis on literature), or etymology.
2. General Biology or Zoology—10 quarter credits. General zoology alone is acceptable but not preferred.
3. Physics—10 to 12 quarter credits. Complete basic course required.
4. General Principles of Chemistry—12 quarter credits. Can include a course in qualitative analysis or quantitative analysis.
5. Organic Chemistry—8 to 10 quarter credits. The course content must include study of both the aliphatic and aromatic series. One-semester courses do not generally carry sufficient credits and are not of sufficient depth to be acceptable.
6. Mathematics—Applicants are expected to demonstrate by college validation or college credit a background in mathematics through college algebra.
7. Applied Human Psychology—4½ quarter credits (3 semester credits). Fewer than 4½ quarter credits (3 semester credits) are not acceptable. Examples of appropriate courses are general human psychology, child and adolescent human psychology, and abnormal human psychology.

### *Elective Courses*

Elective courses should be selected to achieve as broad and liberal an education as possible. Students are expected to select the following preferred electives if feasible: speech, art (e.g., basic drawing and sculpturing), cell biology, genetics, and applied human psychology. Additional electives can be chosen from among the following subjects: analytical chemistry, accounting, anthropology, business (practical courses), classics, comparative anatomy, economics, etymology, history, humanities, logic, higher mathematics, political science, sociology, and a foreign language.

Individuals considering dental careers are urged to gain information about dentistry through discussions with professionals in the field and through direct observation of or participation in patient care and laboratory procedures in dental offices, dental laboratories, and dental school clinics and laboratories. Other expected orientations to dentistry include experiences involving fine manual dexterity, knowledge of health fields, and direct personal services to people on a one-to-one basis.

**Required Entrance Tests**—All applicants are required to take the Dental Admission Test prepared by the American Dental Association. It is given two times a year, usually in October and April, in many testing centers throughout the United States and in several foreign countries. It is administered on the Minneapolis campus of the University of Minnesota. Many applicants take the test as soon as they have completed the required courses in biology, general chemistry, and organic chemistry.

It is strongly recommended that candidates take the test by October of the preceding academic year for enrollment the following fall. Although the test generally measures

aptitudes rather than special knowledge, some specific questions are asked in the areas of biology, general chemistry, and organic chemistry; thus a review of these subjects before taking the test is urged. Applicants are encouraged to study test preparation materials such as those provided free of charge by the American Dental Association's Division of Educational Measurements. An application form and a brochure describing the test, testing centers, and dates are available from the Office of Admissions, 240 Williamson Hall, University of Minnesota, 231 Pillsbury Drive S.E., Minneapolis, MN 55455, and from the School of Dentistry. These materials can also be obtained by writing to the Division of Educational Measurements, American Dental Association, 211 East Chicago Avenue, Chicago, IL 60611.

**Residence Requirements**—First priority for admission is given to Minnesota residents, second to residents of neighboring states with which the University of Minnesota has contract or reciprocity admission agreements, and third to other nonresidents who have acceptable reasons for attending the University of Minnesota School of Dentistry.

**Personal Interview**—Candidates may be requested to appear for an interview at the discretion of the Admissions Committee. Prospective students may request an appointment if they wish to discuss matters relative to their application and their pre dental course of study. It is suggested that candidates write or call for an appointment to assure that a faculty member will be available. Contact the Office of Student Affairs, 15-106 Malcolm Moos Health Sciences Tower, University of Minnesota, 515 Delaware Street S.E., Minneapolis, MN 55455 (612/373-3454).

## Application Procedures

The University of Minnesota School of Dentistry participates in the American Association of Dental Schools Application Service (AADSAS), a national agency that coordinates dental application services. All students seeking admission to the school must apply through this service, whether they are new applicants or reapplicants. Application materials may be obtained from the AADSAS through an application request card, which is available from the School of Dentistry, 15-106 Malcolm Moos Health Sciences Tower, University of Minnesota, 515 Delaware Street S.E., Minneapolis, MN 55455, or from the Office of Admissions, 240 Williamson Hall, University of Minnesota, 231 Pillsbury Drive S.E., Minneapolis, MN 55455. After the application materials are completed, they should be mailed to the AADSAS, P.O. Box 4000, Iowa City, IA 52240.

After the University of Minnesota has received the AADSAS application, each applicant will be sent a University of Minnesota School of Dentistry application form to be completed and a request for the following additional information:

1. One *official* transcript from each college attended. These must be submitted to the School of Dentistry at the time of application and after each quarter or semester of subsequent work until a decision is made on the application. These transcripts are in addition to those submitted to AADSAS. Transcripts marked "student copy" or with a similar reference are not acceptable. Accepted students must continue to submit a transcript after each quarter or semester of study until completion of all course work.
2. Three written recommendations, submitted on special recommendation forms sent to the applicant with the request for supplemental information. These recommendations should come from persons who have been very familiar with the applicant and the applicant's work within the last four years. At least one recommendation should come from an employer if possible. The rest could come from peers, college teachers, college recommendation committees, college counselors, and other appropriate individuals. All recommendations must be accompanied by a letter of reference in addition to the completed form. Applicants are requested to limit their recommendations to three. The recommendations must be submitted directly from the recommender to the School of Dentistry.

## Doctor of Dental Surgery Program

Applications should be filed between August 1 and February 1 of the preceding academic year for entry the following fall. The AADSAS application must be received by AADSAS before February 1. Early filing is encouraged.

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

1. Complete the American Association of Dental Schools application.
2. If you have attended any other colleges or universities before entering the University of Minnesota, you must submit one official transcript from each institution attended previously to the School of Dentistry after receiving the request for supplemental materials from the school. Appearance on the University of Minnesota transcript of courses and credits transferred from other colleges and universities is *not* sufficient. Following completion of each semester or quarter of work until a decision is made on the application, you must submit one official transcript of your grades to the School of Dentistry. Accepted students must continue to submit transcripts until they have completed all course work.

### *Students Now Attending Other Colleges and Universities*

1. Complete the American Association of Dental Schools application.
2. Submit one official transcript from each institution attended to the School of Dentistry after receiving the request for supplemental materials from the school.
3. Following completion of each semester or quarter of work until a decision is made on the application, you must submit one official transcript of your grades to the School of Dentistry. Accepted students must continue to submit transcripts until they have completed all course work.

## Tuition and Fees<sup>1</sup>

### Tuition

For full-time students (per quarter)	
Residents .....	\$1,331.00
Nonresidents .....	2,662.00
For students carrying fewer than 12 credits (per credit)	
Residents .....	110.91
Nonresidents .....	221.82
Record Service Fee (applicable only to students new to the University of Minnesota) .....	6.00
Student Services Fee (per quarter) .....	79.40
Graduation Fee (Diploma) .....	15.00
Application Fee for 1984 entering class .....	20.00
Credit by Special Examination (only upon approval of appropriate committee) .....	30.00
Precious Metals	
Second year—fall .....	700.00
Typodonts	
First year—three needed .....	180.00
Gowns	
Purchase in first year .....	48.00
Books	
First year .....	490.00
Second year .....	300.00
Third year .....	245.00
Fourth year .....	30.00

<sup>1</sup>The tuition and fees listed here were charged for the 1983-84 academic year and are subject to change. Increases in tuition and fees are possible for the 1984-85 and 1985-86 academic years.

**Other Fees**—See the current *Class Schedule* for information on late registration, late payment, and installment payment fees.

**Estimated Costs for Dental Equipment and Supplies**—The School of Dentistry provides virtually all the dental instruments and supplies needed by students. This reduces costs for students, provides a convenient and efficient instrument and supplies system, and permits the school to maintain control over the sterility and maintenance of the instruments and supplies used in the clinics. As part of the financial support of this system, students pay a usage fee. The usage fee per quarter was \$175 for the 1983-84 academic year. Increases in this fee will depend on cost factors.

## Financial Aid

Special loans, scholarships, fellowships, awards, and honors for qualified School of Dentistry students are sponsored by a diversity of individuals, graduating classes, foundations, philanthropic groups, societies, and commercial firms. For more information, contact the Office of Student Affairs, 15-106 Malcolm Moos Health Sciences Tower (373-3454), or the University's Office of Student Financial Aid, 210 Fraser Hall (376-8686).

The Student Employment Center, 120 Fraser Hall (373-3674), posts part-time and summer job openings, but the demands of the dentistry program make it difficult for students to devote much time to outside employment. A few research assistantships are occasionally available in the School of Dentistry.

## Graduation Requirements

Candidates for the degree of doctor of dental surgery must have:

1. complied with the rules and regulations of the School of Dentistry and of the University of Minnesota;
2. demonstrated sound moral character;
3. received a passing grade in all required courses;
4. completed all department clinical requirements;
5. completed treatment of all clinical patients;
6. completed at least seven quarters in residence as a full-time clinical student, as defined by clinic utilization and productivity;
7. returned all equipment and supplies assigned for their use;
8. earned a minimum grade point average of 2.00 (C);
9. discharged all financial obligations to the University; and
10. been recommended by the faculty of the School of Dentistry for the degree.

## National Board Dental Examinations

The National Board Dental Examinations are held on the Minneapolis campus. Virtually all students elect to take these written examinations, which are recognized by 52 of the 53 licensing jurisdictions in the United States.

# Doctor of Dental Surgery Program

## Program in Dentistry (D.D.S.)

### FIRST YEAR

#### Fall Quarter

	Credits
Dent 5092—Professional Problem Solving .....	0
Dent 5649—Oral Anatomy .....	6
Dent 5670—Introduction to Oral Biology .....	1
Dent 5725—Oral Histology and Embryology .....	3
Anat 5105—Dental Microscopic Anatomy .....	8
MdBc 5202—Biochemistry for Dental Students .....	6
	24

#### Winter Quarter

Dent 5026—Introduction to Health Ecology .....	5
Dent 5093—Professional Problem Solving .....	0
Dent 5600—Introduction to Biomaterials I .....	1
Dent 5750—Occlusion I .....	3
Dent 5775—Oral Radiology I .....	3
Anat 5108—Gross Human Anatomy for Dental Students .....	7
	19

#### Spring Quarter

Dent 5094—Professional Problem Solving .....	1
Dent 5150—Operative Dentistry I .....	2
Dent 5153—Operative Dentistry Laboratory .....	2
Dent 5401—Pediatric Dentistry I .....	1
Dent 5601—Introduction to Biomaterials II .....	3
Anat 5109—Gross Human Anatomy for Dental Students .....	7
Anat 5110—Neuroscience for Dental Students .....	2
Phsl 5100—Neuroscience for Dental Students .....	2
	20

### SECOND YEAR

#### Fall Quarter

Dent 5001—Fixed Prosthodontics Technique .....	4
Dent 5151—Operative Dentistry I .....	2
Dent 5154—Operative Dentistry Laboratory .....	3
Dent 5317—Anesthesia .....	2
Dent 5402—Pediatric Dentistry II .....	1
Dent 5463—Periodontology Technique .....	0
Dent 5623—Endodontic Technique .....	1
Dent 5776—Oral Radiology II .....	2
MdBc 5203—Topics: Dental Biochemistry .....	3
MicB 5201—Microbiology for Dental Students .....	7
	25

#### Winter Quarter

Dent 5002—Fixed Prosthodontics Technique .....	3
Dent 5100—Introduction to Genetics .....	1
Dent 5152—Operative Dentistry I .....	1
Dent 5155—Operative Dentistry Laboratory .....	2
Dent 5260—Introduction to Oral Pathology .....	2
Dent 5451—Periodontology I .....	3
Dent 5464—Periodontology Technique .....	1
Dent 5550—Removable Prosthodontics I .....	5
Dent 5624—Endodontic Technique .....	1
Dent 5808—Patient Management I .....	2
Phsl 5101—Human Physiology .....	5
	26

## Program in Dentistry

<i>Spring Quarter</i>	Credits
Dent 5003—Fixed Prosthodontics Technique .....	3
Dent 5050—Dental Ergonomics and Auxiliary Utilization .....	1
Dent 5156—Introduction to Operative Dentistry Clinic .....	1
Dent 5452—Periodontology II .....	3
Dent 5465—Periodontology Clinic .....	1
Dent 5555—Removable Prosthodontics II and Laboratory .....	4
Dent 5751—Occlusion II .....	3
Dent 5809—Patient Management II .....	3
LaMP 5100—Pathology for Dental Students .....	4
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### THIRD YEAR

<i>Fall Quarter</i>	
Dent 5010—Fixed Prosthodontics Clinic .....	3
Dent 5036—Organization and Management of Dental Practice I .....	3
Dent 5052—Dental Auxiliary Utilization Clinic (DAU I, II) .....	0
Dent 5161—Operative Dentistry Clinic .....	3
Dent 5310—Oral Surgery I .....	1
Dent 5371—Orthodontics I .....	3
Dent 5409—Pediatric Dentistry Clinic .....	0
Dent 5466—Periodontology Clinic .....	1
Dent 5560—Removable Prosthodontics III .....	1
Dent 5562—Removable Prosthodontics Clinic .....	3
Dent 5625—Endodontics .....	2
Dent 5778—Oral Radiology Clinic .....	0
Dent 5800—Treatment Planning Clinic I .....	0
Phcl 5103—Pharmacology for Dental Students .....	5
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<i>Winter Quarter</i>	
Dent 5006—Fixed Prosthodontics I .....	1
Dent 5011—Fixed Prosthodontics Clinic .....	3
Dent 5043—Organization and Management of Dental Practice II .....	0
Dent 5053—Dental Auxiliary Utilization Clinic (DAU I, II) .....	0
Dent 5162—Operative Dentistry Clinic .....	3
Dent 5251—Oral Pathology .....	3
Dent 5311—Oral Surgery II .....	1
Dent 5410—Pediatric Dentistry Clinic .....	1
Dent 5467—Periodontology Clinic .....	1
Dent 5563—Removable Prosthodontics Clinic .....	3
Dent 5777—Oral Radiology III .....	1
Dent 5779—Oral Radiology Clinic .....	1
Dent 5801—Treatment Planning Clinic I .....	1
Phcl 5104—Pharmacology for Dental Students .....	4
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<i>Spring Quarter</i>	
Dent 5007—Fixed Prosthodontics II .....	1
Dent 5012—Fixed Prosthodontics Clinic .....	3
Dent 5044—Organization and Management of Dental Practice II .....	1
Dent 5054—Dental Auxiliary Utilization Clinic (DAU I, II) .....	2
Dent 5090—Organization and Management of Dental Practice III .....	2
Dent 5160—Operative Dentistry II .....	2
Dent 5163—Operative Dentistry Clinic .....	3
Dent 5252—Oral Pathology .....	3
Dent 5372—Orthodontics II .....	2
Dent 5411—Pediatric Dentistry Clinic .....	1
Dent 5468—Periodontology Clinic .....	2
Dent 5564—Removable Prosthodontics Clinic .....	2
Dent 5780—Oral Radiology Clinic .....	2
Dent 5802—Treatment Planning Clinic I .....	1
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# Doctor of Dental Surgery Program

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## FOURTH YEAR

### Fall Quarter

Dent 5015—Fixed Prosthodontics Clinic .....	3
Dent 5030—Health Ecology: Update .....	2
Dent 5091—Organization and Management of Dental Practice IV .....	3
Dent 5095—Professional Problem Solving .....	0
Dent 5165—Operative Dentistry Clinic .....	3
Dent 5255—Medicine for the Dentist .....	1
Dent 5316—Oral Surgery Clinic .....	1
Dent 5325—Medical and Dental Office Emergencies .....	1
Dent 5404—Pediatric Dentistry III .....	1
Dent 5413—Pediatric Dentistry Clinic .....	0
Dent 5469—Periodontology Clinic .....	1
Dent 5565—Removable Prosthodontics Clinic .....	2
Dent 5626—Endodontics Clinic .....	1
Dent 5642—Hospital Dentistry .....	0
Dent 5804—Treatment Planning Clinic II .....	1
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### Winter Quarter

Dent 5016—Fixed Prosthodontics Clinic .....	3
Dent 5096—Professional Problem Solving .....	0
Dent 5166—Operative Dentistry Clinic .....	3
Dent 5256—Medicine for the Dentist .....	1
Dent 5318—Oral Surgery Clinic .....	1
Dent 5315—Oral Surgery III .....	1
Dent 5326—Medical and Dental Office Emergencies .....	1
Dent 5414—Pediatric Dentistry Clinic .....	1
Dent 5470—Periodontology Clinic .....	1
Dent 5566—Removable Prosthodontics Clinic .....	2
Dent 5627—Endodontics Clinic .....	1
Dent 5643—Hospital Dentistry .....	0
Dent 5675—Oral Biology: Fundamental and Applied .....	2
Dent 5805—Treatment Planning Clinic II .....	1
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### Spring Quarter

Dent 5017—Fixed Prosthodontics Clinic .....	3
Dent 5097—Professional Problem Solving .....	1
Dent 5167—Operative Dentistry Clinic .....	3
Dent 5319—Oral Surgery Clinic .....	1
Dent 5415—Pediatric Dentistry Clinic .....	1
Dent 5471—Periodontology Clinic .....	1
Dent 5567—Removable Prosthodontics Clinic .....	2
Dent 5628—Endodontics Clinic .....	1
Dent 5644—Hospital Dentistry .....	1
Dent 5806—Treatment Planning Clinic II .....	2
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## Evaluation of Student Performance

Students are evaluated by written tests, practical examinations, and observation of daily work and clinical performance. All prerequisite course work must be completed with a passing grade before students may begin clinical patient care. Students must attain passing grades in all required courses and clinical assignments and attain a minimum grade point average of 2.00 before graduation. The University's grading systems of A-B-C-D-N or S-N are used.

Class committees make quarterly evaluations of each student's academic achievement and personal conduct. Recommendations on a student's status and promotion are transmitted to the Council on Administration for action.

A 2.00 grade point average is generally required for promotion between academic years. Students with grade point deficiencies are considered for promotion, individually, by the committees and Council on Administration.

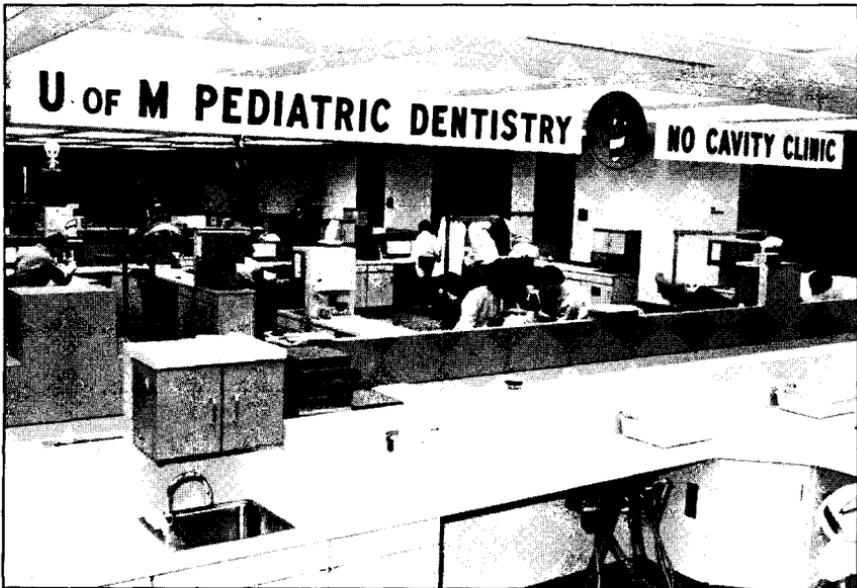
Students are expected to act as mature, professional individuals. A personal conduct code, written by a student-faculty committee, stipulates guidelines for student behavior. It prescribes respect for school property and certain other rules and regulations. Students can be dismissed from school for disciplinary as well as scholastic reasons.

Students must exercise their clinical responsibilities with discretion and must display concern for the dignity and importance of the individual patient.

## **Counseling**

The class committee chair serves as the major adviser for each class. Counseling is also available through the dean's office in the School of Dentistry, the Health Sciences Student Personnel Services office, and the Student Counseling Bureau of the University, and from faculty members of the student's own choice.

A special counseling program assigns a full-time or part-time faculty member to advise each dental student during the entire year. This informal counseling system gives students a faculty member with whom they can discuss academic or personal matters on an unofficial basis.



Many patients are treated at the Pediatric Dentistry Clinic.



Studies are conducted at one of the dental research laboratories.



An operation is performed at the Periodontal Surgery Clinic.

# Course Descriptions

## Dentistry (Dent)

### DEPARTMENT OF ENDODONTICS

*Professor*

James R. Jensen, D.D.S., M.S.D., *chair*

*Associate Professor*

Harold H. Messer, B.D.Sc., M.D.Sc., Ph.D.

*Assistant Professor*

Mahmoud ElDeeb, B.D.S., M.S.

*Associate Clinical Specialist*

Dinh Quan, M.S.D., Ch.D.

- 5623. ENDODONTIC TECHNIQUE.** (Cr ar) Quan  
Seminars and laboratory exercises.
- 5624. ENDODONTIC TECHNIQUE.** (Cr ar) Quan  
Seminars and laboratory exercises.
- 5625. ENDODONTICS.** (2 cr; 20 lect hrs) Jensen  
Diagnosis and treatment of pulp and periapically involved teeth.
- 5626-5627-5628. ENDODONTICS CLINIC.** (1 cr per qtr) Jensen, Quan  
Basic principles of diagnosis and treatment of pulp and periapically involved teeth. Seminars, clinical demonstrations, and practical experience with clinical patients.
- 5630. ENDODONTICS: INDEPENDENT STUDY.** (Cr and hrs ar)
- 5631. SURGICAL ENDODONTICS ELECTIVE.** (Cr ar) Jensen  
Clinical demonstration and participation in surgical techniques.

### DEPARTMENT OF FIXED PROSTHODONTICS

*Professor*

Harvey L. Colman, D.D.S., M.S.D., *acting chair*  
Frederick W. Noble, D.D.S., *director, Oral Anatomy Program*

*Associate Professor*

James L. Donahue, D.D.S.

*Assistant Professor*

Steven C. Keck, D.D.S., M.S.

- 5001-5002-5003. FIXED PROSTHODONTICS TECHNIQUE.** (Cr ar) Keck  
Lectures, seminars, and demonstrations on clinical and laboratory procedures. Exercises in casting, soldering, and the construction of a mandibular hygienic bridge, maxillary posterior bridge, maxillary and mandibular anterior bridges, and porcelain crowns. An illustrated syllabus aids students in carrying out each project. Weekly lectures on laboratory techniques and fundamental principles.
- 5005. FIXED PROSTHODONTICS: INDEPENDENT STUDY.** (Cr and hrs ar)
- 5006. FIXED PROSTHODONTICS I.** (1 cr; 10 lect hrs) Donahue, Colman  
Nomenclature and definitions, and diagnosis and treatment planning as they relate to types of abutments, retainers, and pontics used in Fixed Prosthodontics.
- 5007. FIXED PROSTHODONTICS II.** (1 cr; 10 lect hrs) Donahue, Colman  
Design principles for porcelain fused to metal, restorations, pontic designs, occlusion in fixed prosthodontics. Review of the literature in fixed prosthodontics. Lectures, slides, movies, and seminar discussions.
- 5010-5011-5012. FIXED PROSTHODONTICS CLINIC.** (3 cr per qtr) Colman  
Instruction in the diagnosis, design, and construction of fixed prosthodontic cases.
- 5015-5016-5017. FIXED PROSTHODONTICS CLINIC.** (Cr ar) Colman

## Course Descriptions

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**5649. ORAL ANATOMY.** (6 cr) Noble

Nomenclature; classification, identification, and methods of charting the human dentition, primary and permanent; detailed study of tooth morphology and arrangement; and calcification and eruption sequences as they pertain to the growth and development of the oral cavity. Laboratory exercises designed to reinforce lecture material as well as develop the knowledge and manual skills necessary to reproduce fine tooth detail.

**5654. ORAL ANATOMY: INDEPENDENT STUDY.** (Cr and hrs ar)

## DEPARTMENT OF HEALTH ECOLOGY

*Professor*

Leslie V. Martens, D.D.S., M.P.H., *chair*  
David O. Born, Ph.D.  
Michael J. Loupe, Ph.D.

*Assistant Professor*

James R. Gambucci, D.D.S.  
Mark S. Simmons, D.D.S.

*Associate Professor*

Muriel J. Bebeau, Ph.D.  
Lester E. Block, D.D.S., M.P.H.  
Anthony J. DiAngelis, D.M.D., M.P.H.  
P. Jean Frazier, M.P.H.

Health ecology is a multidisciplinary unit whose broad purpose is to enable dental professionals to relate effectively to their social and economic environment. Students are introduced to (a) the basic principles of epidemiology and health assessment, (b) the role and practice of dentistry as a health care delivery system, and (c) the factors that influence the availability and utilization of health services and preventive oral health procedures and methods. An elective option offers extended study in a variety of individualized areas.

**5026. INTRODUCTION TO HEALTH ECOLOGY.** (5 cr)

The broad spectrum of areas that influence the dental profession in its role in the nation's health care delivery system. Lectures, demonstrations, and small group discussions on such topics as dental epidemiology, dental public health, preventive dentistry, patient education and management, political and economic influences in dentistry, human resources problems, consumerism and sociocultural implications for dental health.

**5030. HEALTH ECOLOGY: UPDATE.** (2 cr)

Update of issues raised in 5026. Emphasis on areas that affect dentistry's role in the nation's health care delivery system; their impact on the profession of dentistry and on the oral health of the nation. Seminars, demonstrations, field experiences, and lectures.

**5036. ORGANIZATION AND MANAGEMENT OF DENTAL PRACTICE I.** (3 cr)

Designed to help students develop skills in planning, organizing, leading, and controlling the human environment of the dental practice. Emphasis on the effective use of available human resources in dental care delivery. The theory and application of an accountability management planning system (AMPS). Concepts of TEAM building, setting goals and objectives, accountability techniques, performance appraisal, identification and management of stress and related problems.

**5042-5043-5044. ORGANIZATION AND MANAGEMENT OF DENTAL PRACTICE II.** (1 cr total)

A three-day training seminar in management for third-year students. Through small group interaction, individual work, discussions, and simulations, students gain proficiency in a variety of management skills that involve interpersonal or professional management problems.

**5050. DENTAL ERGONOMICS AND AUXILIARY UTILIZATION.** (1 cr)

Lectures and clinical seminars on the principles of ergonomics. Emphasis on how recognition of these principles in dentistry increases productivity and quality, and enhances human values such as health, safety, and comfort for the dental operating team and patient. Course serves as a preparation for participation in the Dental Auxiliary Utilization Clinic.

**5052-5053-5054. DENTAL AUXILIARY UTILIZATION CLINIC (DAU I, II).** (2 cr total)

Clinical experience designed to help students develop specific skills in four-handed dentistry with emphasis on the efficient utilization of chairside dental assistants. Through seminars, demonstrations, and clinical practice, students work daily with trained dental assisting teaching specialists in providing restorative dental services.

**5055. HEALTH ECOLOGY: INDEPENDENT STUDY.** (Cr and hrs ar)

**5060. TEAM II: GENERAL DENTISTRY CLINIC.** (2 cr; elective)

Experience in managing and treating patients as in private practice. Under the guidance of experienced dental practitioners, students acquire skills in performing initial exams, developing treatment plans, completing treatment, working and communicating with dental laboratories, and determining appropriate recall intervals for patients. Students provide routine restorative, endodontic, and periodontic care.

**5070. HEALTH ECOLOGY ELECTIVE.** (Cr ar)

Allows highly motivated students to undertake study and receive academic credit for activities in special-interest areas. Individual offerings depend on student needs and staff specialization. Areas in which student work has been done include advanced preventive dentistry, patient management, biostatistics, community health problems, American Sign Language, and the rural preceptorship program. Considerable flexibility exists in structuring this course.

**5075. RURAL DENTAL PRECEPTORSHIP PROGRAM.** (2 cr; two 5-wk assignments; elective)

Focuses on the advantages of a rural practice and on career opportunities in rural areas. Opportunities for students to gain experience in rural practice and to develop and maintain rural ties.

**5080. DENTAL AUXILIARY UTILIZATION CLINIC (DAU III).** (1 cr; prereq 5054; 35 clinic hrs; elective)

Students train a dental auxiliary student in effective chairside assisting with emphasis on four-handed dentistry techniques. Through clinic and evaluation sessions supervised by experienced DAU personnel, students develop a structured method to efficiently train auxiliaries.

**5090. ORGANIZATION AND MANAGEMENT OF DENTAL PRACTICE III.** (2 cr)

Judicial systems, administration, and proceedings; regulation of practice of dentistry, organization of practice; ethics; advertising; fee splitting; legal problems incident to purchasing a dental practice, joining a dental association, and leasing real estate and purchasing personal property; accounting; taxation; wills and estate planning; contracts; malpractice; and insurance.

**5091. ORGANIZATION AND MANAGEMENT OF DENTAL PRACTICE IV.** (3 cr)

Essential elements of establishing a dental practice for fourth-year students. Through lectures and discussions, students are introduced to the practice community, practice selection, methods of financing, office design, and equipment considerations. Additional lectures focus on tax obligations, office systems, dealing with third-party accounts, working effectively with dental laboratories and supply houses, and a variety of practice management strategies.

**5093. PROFESSIONAL PROBLEM SOLVING.** (1 cr)

Issues, rights, responsibilities, codes, and consequences in resolving recurrent ethical dilemmas of the student dentist. Small group seminars.

**5094. PROFESSIONAL PROBLEM SOLVING.** (1 cr)

Issues, rights, responsibilities, codes, and consequences in resolving recurrent ethical dilemmas of the profession. Small group seminars.

**5760. PUBLIC COMMUNICATION.** (1 cr; elective) Smith

Designed to increase the dental student's knowledge and understanding of people and communication (verbal and nonverbal) and to help the student become a better speaker and listener.

## DEPARTMENT OF OPERATIVE DENTISTRY

*Professor*

Ronald E. Geistfeld, D.D.S., *chair*  
Anna T. Hampel, D.D.S., M.S.D.

*Associate Professor*

William H. Douglas, B.D.S., M.S., Ph.D., *director*,  
*Biomaterials Program*  
Thomas D. Larson, D.D.S., M.S.D.

*Assistant Professor*

Richard T. Ford, D.D.S., M.A.  
Glenn T. Haggan, D.D.S.  
Gary L. Hill, D.D.S., M.S.  
Harriet K. Meetz, D.D.S., M.S.  
Franklin A. Messinger, D.D.S.  
Craig B. Phair, D.D.S., M.S.  
Chester J. Schultz, D.D.S., M.S.

**5150-5151-5152. OPERATIVE DENTISTRY I.** (2/2:1 cr) Hill and faculty

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

**5153-5154-5155. OPERATIVE DENTISTRY LABORATORY.** (2/3:2 cr) Hill and faculty

The techniques and principles of cavity preparation, manipulation of restorative materials, and instrumentation.

**5156. INTRODUCTION TO OPERATIVE DENTISTRY CLINIC.** (1 cr) Geistfeld and faculty

Experience in clinical techniques and clinical protocol, forms, and systems.

**5158. OPERATIVE DENTISTRY: INDEPENDENT STUDY.** (Cr and hrs ar)

**5160. OPERATIVE DENTISTRY II.** (2 cr; 20 lect hrs) Larson and faculty

Advanced clinical techniques with emphasis on the concepts and modifications of cavity design as well as the biological and technical considerations in the application of new materials in operative dentistry.

## Course Descriptions

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- 5161-5162-5163. OPERATIVE DENTISTRY CLINIC.** (3 cr per qtr; 270 clin hrs) Geistfeld, Larson, and faculty  
Students gain experience and acquire efficiency in the practice of operative dentistry on assigned patients under close supervision.
- 5165-5166-5167. OPERATIVE DENTISTRY CLINIC.** (Cr ar) Geistfeld, Larson, and faculty
- 5170. SEMINAR: OPERATIVE DENTISTRY.** (1 cr) Geistfeld  
A series of seminar topics (to be selected by students) on clinical aspects of various types of restorative materials and procedures.
- 5600. INTRODUCTION TO BIOMATERIALS I.** (1 cr) Douglas and faculty  
Introduction to physical, chemical, and mechanical properties of materials used in dentistry.
- 5601. INTRODUCTION TO BIOMATERIALS II.** (3 cr) Hampel and faculty  
Continuation of Introduction to Biomaterials I with accompanying laboratory exercise.
- 5602. BIOMATERIALS: INDEPENDENT STUDY.** (Cr and hrs ar)

## DEPARTMENT OF ORAL BIOLOGY

### Professor

Burton L. Shapiro, D.D.S., M.S., Ph.D.,  
*chair*  
Greg R. Germaine, Ph.D.  
Quenton T. Smith, Ph.D.

### Assistant Professor

Robert J. Feigal, D.D.S., Ph.D.

### Associate Professor

Mark C. Herzberg, D.D.S., Ph.D.  
Harold H. Messer, M.D.Sc., Ph.D.

- 5670. INTRODUCTION TO ORAL BIOLOGY.** (1 cr)  
Major biological and pathological issues relevant to dentistry. Biological principles fundamental to dental practice.
- 5675. ORAL BIOLOGY: FUNDAMENTAL AND APPLIED.** (2 cr; 20 lect hrs)  
Discussions of major and current problems of dentistry and oral biology conducted by specialists.
- 5677. DENTAL RESEARCH TRAINING.** (3 cr; hrs ar; elective) Basic science and clinical faculty  
Undergraduate dental students are given an opportunity to work on a research project in the laboratory or clinic with a faculty member. Following completion of the research project, students are required to submit a written report describing their research activities.
- 5680. ORAL BIOLOGY: INDEPENDENT STUDY.** (Cr and hrs ar)

## DEPARTMENT OF ORAL DIAGNOSIS AND RADIOLOGY

### Professor

James W. Little, D.M.D., M.S., *chair*  
Frederick W. Noble, D.D.S.

Valerie A. Murrain, D.M.D., M.S.

John K. Schulte, D.D.S., M.S.D., *director, Occlusion Program*

### Associate Professor

Ramesh K. Kuba, D.D.S., M.S.D.,  
*director, Oral Radiology Program*

### Instructor

Stephen J. Tervola, D.D.S.  
Dennis C. Theis, D.D.S.

### Assistant Professor

John W. Brand, D.D.S.  
Mahpareh P. Marefat, D.M.D., M.S.

- 5750. OCCLUSION I.** (3 cr; 10 lect, 30 lab, 30 clin hrs) Noble and interdisciplinary faculty  
Principles of occlusion including articulators and articulation of casts, face bow transfer, occlusal analysis, mandibular movements, and effects of mandibular movement on occlusal morphology. Laboratory exercise in the wax-added technique of developing occlusal morphology.
- 5751. OCCLUSION II.** (3 cr; 10 lect, 20 lab, 20 clin hrs) Schulte  
Examination, diagnosis, and treatment of patients with occlusal problems. Lectures and clinic demonstrations. Introduction to occlusal modulates of selective grinding and occlusal splints. Experience in the use of a semiadjustable articulator.
- 5755. OCCLUSION: INDEPENDENT STUDY.** (Cr and hrs ar)

- 5775. ORAL RADIOLOGY I.** (3 cr) Kuba  
Films, roentgenograms, cassettes, and grids used in dentistry; intraoral roentgenographic surveys; roentgenographic density and contrast; geometry of image formation and application to intraoral techniques; roentgenographic quality analysis; film processing; and theory of atomic structure.
- 5776. ORAL RADIOLOGY II.** (2 cr; 20 lect hrs) Kuba  
Roentgenographic anatomy, applications of image shift principles in localization, nature and characteristics of atomic radiations, production and control of X-rays, mathematics of roentgenographic exposure, biological effects of ionizing radiations, radiation dosimetry, radiation protection, and radiation regulations.
- 5777. ORAL RADIOLOGY III.** (1 cr; 10 lect hrs) Kuba  
In-depth study of interpretation of intraoral and extraoral roentgenograms emphasizing the establishment of differential and definitive diagnosis. Roentgenograms of a broad spectrum of developmental and acquired diseases examined.
- 5778-5779-5780. ORAL RADIOLOGY CLINIC.** (Cr ar) Brand, Kuba  
Students observe and participate in demonstrations of various roentgenographic procedures (intraoral and extraoral, including panoramic techniques) to develop ability to produce acceptable complete periapical-biting roentgenographic surveys on mounted skulls and patients, process exposed films, qualitatively evaluate the results, and mount and interpret the roentgenograms. Discussion of topics relevant to oral radiology.
- 5781. ADVANCED ORAL RADIOLOGY CLINIC.** (Cr and hrs ar; elective) Kuba
- 5784. TMJ PATHOLOGY AND FACIAL PAIN.** (1 cr; elective) Brand
- 5785. ORAL RADIOLOGY: INDEPENDENT STUDY.** (Cr and hrs ar) Brand, Kuba
- 5800-5801-5802. TREATMENT PLANNING CLINIC I.** (2 cr total)
- 5804-5805-5806. TREATMENT PLANNING CLINIC II.** (4 cr total) Little  
Planning treatment and providing emergency dental care.
- 5807. TREATMENT PLANNING: INDEPENDENT STUDY.** (Cr and hrs ar)
- 5808. PATIENT MANAGEMENT I.** (3 cr; prereq concurrent regis in 5260) Little  
A systematic approach to the evaluation of the dental patient, including techniques of interviewing, examination, and diagnosis. Lectures and clinical seminars.
- 5809. PATIENT MANAGEMENT II.** (3 cr) Marefat  
Patient admission, use of dental record, phase I treatment planning, billing and accounting, and patient assignment. Lectures and seminars.

## DEPARTMENT OF ORAL PATHOLOGY AND GENETICS

### *Regents' Professor*

Robert J. Gorlin, D.D.S., M.S., *chair*

### *Professor*

Jaroslav Cervenka, M.D., C.Sc., *director*,  
*Cytogenetics and Cell Genetics Division*

Karlind T. Moller, Ph.D.

John J. Sauk, Jr., D.D.S., M.S.

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

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

Robert A. Vickers, D.D.S., M.S.D.

Carl J. Witkop, Jr., D.D.S., M.S., *director*, *Human Genetics Division*

### *Associate Professor*

Kathleen M. Keenan, Ph.D.

Richard A. King, M.D., Ph.D.

### *Assistant Professor*

DeWayne Townsend, Ph.D.

- 5100. GENETICS: AN INTRODUCTION FOR DENTAL STUDENTS.** (1 cr; 10 hrs) Shapiro  
Lectures on the 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.
- 5102. HUMAN AND ORAL GENETICS: INDEPENDENT STUDY.** (Cr and hrs ar)
- 5250. ORAL PATHOLOGY: INDEPENDENT STUDY.** (Cr and hrs ar)
- 5251-5252. ORAL PATHOLOGY.** (6 cr total) Sedano  
Diseases of oral and paraoral tissues and teeth 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. Lectures, laboratory assignments, and autotutorial clinical laboratory sessions.
- 5255-5256. MEDICINE FOR THE DENTIST.** (2 cr total) King  
Principles of diagnosis, cardiovascular disease, and other systemic problems of dental consequence. Common medical emergencies in the dental office.

## Course Descriptions

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- 5260. ORAL PATHOLOGY INTRODUCTION.** (2 cr; prereq concurrent regis in 5806) Witkop  
Introduction to oral diagnosis. Basic methods of oral and facial examination and diagnosis. Review of normal anatomy and details of normal variations. Clinical aspects of common pathological conditions and medical terminology used to describe oral lesions. Demonstrations and practical sessions.
- 5725. ORAL HISTOLOGY AND EMBRYOLOGY.** (3 cr) Sedano  
Lectures and self-taught laboratory sessions in the embryology and histology of human oral structures and other parts of the head and neck region. Histology and embryology of teeth, mandible, maxilla, palate, tongue, and salivary glands correlated with abnormalities of development. Basic electron microscopy of hard dental tissues.

## DEPARTMENT OF ORAL AND MAXILLOFACIAL SURGERY

### Professor

Daniel E. Waite, D.D.S., M.S., *chair*  
Mellor R. Holland, D.D.S., M.S.D.

### Associate Professor

Myer S. Leonard, D.D.S., M.D.

### Assistant Professor

Mohamed ElDeeb, B.D.S., D.O.S., M.S.  
James R. Friction, D.D.S., M.S.  
Daniel J. Gatto, D.D.S.  
Mark T. Jaspers, D.D.S., M.S.  
Hak Joo Kwon, D.D.S.

Ronald E. Geistfeld, D.D.S.

James R. Jensen, D.D.S., M.S.D.  
Andrew T. Morstad, D.D.S., M.S.  
Michael J. Till, D.D.S., Ph.D.  
Robert A. Vickers, D.D.S., M.S.D.  
Carl J. Witkop, D.D.S., M.S.

### Associate Professor

Thomas D. Larson, D.D.S., M.S.D.  
Myer S. Leonard, D.D.S., M.D.  
Bruce L. Pihlstrom, D.D.S., M.S.  
Paul O. Walker, D.D.S., M.S.D.

### Assistant Professor

David J. Clay, D.D.S., M.S.D.  
Richard T. Ford, D.D.S., M.A.  
Daniel J. Gatto, D.D.S.  
James E. Hinrichs, D.D.S., M.S.  
Mark T. Jaspers, D.D.S., M.S.  
Timothy A. Peterson, D.D.S.

## HOSPITAL DENTISTRY PROGRAM

### Regents' Professor

Robert J. Gorlin, D.D.S., M.S.

### Professor

Daniel E. Waite, D.D.S., M.S., *chief*  
Carl L. Bandt, D.D.S., M.S.D., M.S.

- 5310. ORAL SURGERY I.** (1 cr; 10 lect hrs) Kwon and faculty  
Principles of surgery; armamentarium; asepsis; fundamentals of exodontia; mucoperiosteal flap design; biopsy technique; multiple extraction; alveoloplasty; and complicated exodontia.
- 5311. ORAL SURGERY II.** (1 cr; prereq 5310; 10 lect hrs) Jaspers and faculty  
Complications in oral surgery; minor preprosthetic surgery; immediate dentures; cysts; and benign oral neoplasms.
- 5315. ORAL SURGERY III.** (1 cr; prereq 5311; 10 lect hrs) Waite and faculty  
TMJ; salivary glands; trauma; developmental deformities; oral malignancies; and facial space infections.
- 5316-5318-5319. ORAL SURGERY CLINIC ROTATION.** (1 cr per qtr; prereq 5311) Jaspers and faculty  
Clinical experience in the Oral Surgery Clinic of the School of Dentistry. Two sessions: 1) clinical assistant—exposure to clinic procedures, aseptic technique, and chairside oral surgical assisting; and 2) student operator—experience in performing exodontia, alveoloplasty, minor preprosthetic surgery, soft tissue correction, and biopsy techniques. Postoperative treatment of surgical complications. Application of related basic science principles of anatomy, pharmacology, physiology, local anesthesia, and oral surgery.
- 5317. ANESTHESIA.** (2 cr; 20 lect hrs) Gatto and faculty  
Lectures and demonstrations on the use of local and general anesthetic agents in the practice of dentistry. Theory and administration of local anesthetics as well as the principles of sedation and analgesia with inhalation, intramuscular, and intravenous drugs.
- 5320. ORAL SURGERY: INDEPENDENT STUDY.** (Cr and hr ar)
- 5325-5326. MEDICAL AND DENTAL OFFICE EMERGENCIES.** (1 cr per qtr) Gatto  
Current concepts in medicine dealing with subjects ranging from medical history and examination to specific organ systems and related diseases. Dental office emergencies related to specific medical problems, patient evaluation, monitoring systems, and therapeutic measures.
- 5330. NITROUS OXIDE INHALATION ANALGESIA/EMERGENCY DRUG UTILIZATION.** (1 cr) Schulte, Jaspers  
Designed to provide instruction and demonstration in the use of nitrous oxide and emergency drugs.
- 5642-5643-5644. HOSPITAL DENTISTRY.** (1 cr total) Gatto  
Lectures and clinical experience. Management of hospitalized patients, operating room protocol, admission and discharge of patients, and ambulatory patients.

## DEPARTMENT OF ORTHODONTICS

*Professor*

T. Michael Speidel, D.D.S., M.S.D., *chair*

*Assistant Professor*

Mark F. Holmberg, B.D.S., M.S.

- 5371. ORTHODONTICS I.** (3 cr; 30 lect hrs) Speidel  
Lectures on factors contributing to normal and abnormal development of deciduous, mixed, and permanent dentitions; space maintenance and tooth guidance procedures; introduction to biomechanics and construction of fixed and removable appliances.
- 5372. ORTHODONTICS II.** (2 cr; 20 lect hrs) Speidel  
Lectures on clinical management of specific orthodontic problems.
- 5376. ORTHODONTIC LABORATORY.** (1 cr; 20 lab hrs; elective) Speidel  
Practical applications of analysis of developing occlusions. Fundamentals of orthodontic appliances.
- 5380. ORTHODONTICS.** (Cr and hrs ar; elective) Bevis  
Principles and procedures in preventive, interceptive, and corrective orthodontics interrelated through case analysis and treatment planning.
- 5381. HEAD AND NECK ANATOMY REVIEW.** (Cr and hrs ar; elective) Cavanaugh  
Vascular supply and innervation, facial planes and their relationship to the spread of infection, and radiographic anomalies.
- 5385. ORTHODONTICS: INDEPENDENT STUDY.** (Cr and hrs ar)

## DEPARTMENT OF PEDIATRIC DENTISTRY

*Professor*

Michael J. Till, D.D.S., Ph.D., *chair*  
Louise B. Messer, B.D.Sc., M.D.Sc.  
Karlind T. Moller, Ph.D., *director, Cleft Palate Program*

*Assistant Professor*

Robert J. Feigal, D.D.S., Ph.D.  
Monica A. Jungbluth, D.D.S.  
Patricia C. Kubes, B.D.S.

*Associate Professor*

Paul O. Walker, D.D.S., M.S.D.

- 5401. PEDIATRIC DENTISTRY I.** (1 cr; 10 lect hrs) Till and faculty  
Development of the dentition; restorative dentistry and pulpal therapy in the primary dentition; and principles of preventive dentistry.
- 5402. PEDIATRIC DENTISTRY II.** (1 cr; 10 lect hrs) Till and faculty  
Physical and emotional development of the child; patient management; treatment of congenital disorders and traumatic dental injuries; and clinical aspects of preventive, interceptive, and corrective orthodontics in the primary and mixed dentitions.
- 5404. PEDIATRIC DENTISTRY III.** (1 cr; 10 lect hrs) Till and faculty  
Handicapping conditions frequently encountered by the general practitioner, including significant dental aspects, and medical management during dental treatment.
- 5405. PEDIATRIC HOSPITAL DENTISTRY.** (1 cr; elective) Walker  
Clinical dental treatment of special children in the outpatient clinics and operating rooms of University and community hospitals. Seminars and directed experiences related to the care of the special child.
- 5407. MINOR TOOTH MOVEMENT.** (1 cr; hrs ar; elective) Walker  
Discussions of appliances for space maintenance, simple crossbite, correction of tipped teeth for restorative treatment, and replacement and stabilization of avulsed teeth.
- 5409-5410-5411. PEDIATRIC DENTISTRY CLINIC.** (2 cr total) Till and faculty  
A clinic-seminar program reviewing clinical topics and techniques and treating selected patients under supervision.
- 5413-5414-5415. PEDIATRIC DENTISTRY CLINIC.** (2 cr total) Till and faculty  
Students perform diagnostic, treatment planning, and restorative procedures on children aged 2 to 12 years. Careful patient selection and allocation to ensure that each student acquires a broad experience in all phases of pediatric dentistry.
- 5420. PEDIATRIC DENTISTRY: INDEPENDENT STUDY.** (Cr and hrs ar) Till and faculty

## Course Descriptions

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### DEPARTMENT OF PERIODONTICS

#### Professor

Carl L. Bandt, D.D.S., M.S.D., M.S.,  
*chair*  
Richard C. Oliver, D.D.S., M.S.,  
*dean, School of Dentistry*  
Erwin M. Schaffer, D.D.S., M.S.D.

#### Associate Professor

M. Bashar Bakdash, D.D.S., M.P.H., M.S.D.  
Mark C. Herzberg, D.D.S., Ph.D.  
Bruce L. Pihlstrom, D.D.S., M.S.

#### Assistant Professor

James E. Hinrichs, D.D.S., M.S.  
James R. Jensen, Jr., D.D.S., M.S.  
George C. Lawther, D.D.S., M.S.D.  
Larry F. Wolff, Ph.D., D.D.S.

- 5451. PERIODONTOLOGY I.** (3 cr; 30 lectures) Bakdash and faculty  
Ecological impact of periodontal disease on oral health. Anatomy, physiology, and etiology of periodontal diseases. Clinical, histopathological, and pathogenic aspects of gingivitis and periodontitis, as well as the role of occlusion and systemic disorders. Clinical procedures associated with diagnosis, prognosis, treatment planning, and initial phase of periodontal therapy.
- 5452. PERIODONTOLOGY II.** (3 cr; 30 lectures) Bakdash and faculty  
Clinical procedures associated with surgical phase of periodontal therapy. Evaluation of periodontal treatment, maintenance phase, and relationship between periodontics and other disciplines in dentistry. Auxiliary utilization, dental insurance reporting, clinical research, and interrelations between the generalist and the periodontist.
- 5460. PERIODONTICS: INDEPENDENT STUDY.** (Cr and hrs ar) Pihlstrom and faculty
- 5463-5464. PERIODONTOLOGY TECHNIQUE (LAB).** (1 cr total) Carlson and faculty  
Designed to familiarize the student with presurgical procedures in periodontics.
- 5465. PERIODONTOLOGY CLINIC.** (1 cr) Bakdash and faculty  
Small group clinical seminars designed to simulate various aspects of periodontal clinical examination, diagnosis, prognosis, treatment planning, and instrumentation related to patient's total care.
- 5466-5467-5468. PERIODONTOLOGY CLINIC.** (1 cr per qtr) Bakdash and faculty  
Experience in diagnosis and treatment of diseases affecting the investing tissues of the teeth.
- 5469-5470-5471. PERIODONTOLOGY CLINIC.** (3 cr total) Bakdash and faculty  
Opportunity to gain further experience in surgical treatment of periodontal disease, evaluation of periodontal therapy, and implementation of maintenance programs.

### DEPARTMENT OF REMOVABLE PROSTHODONTICS

#### Professor

Andrew T. Morstad, D.D.S., M.S., *chair*  
Richard J. Goodkind, D.M.D., M.S.

#### Associate Professor

James L. Baker, D.D.S., M.S.D.  
Allan D. Petersen, D.D.S.

#### Assistant Professor

David J. Clay, D.D.S., M.S.D.  
Timothy A. Peterson, D.D.S., M.S.D.  
James A. Schorn, D.D.S., M.S.D.  
Chia-Chen Yeh, D.D.S., M.S.D.

- 5550. REMOVABLE PROSTHODONTICS I.** (5 cr) Petersen  
Lectures, demonstrations, and laboratory instruction on various phases of complete denture prosthetics; manipulation and use of prosthetic dental materials, fundamental principles of complete denture construction including *primary and final impressions, pouring casts, establishing jaw relationships, arrangement of denture teeth, and principles of occlusion; prescription writing and the student relationship with dental laboratories.*
- 5553. REMOVABLE PROSTHODONTICS: INDEPENDENT STUDY.** (Cr and hrs ar)
- 5555. REMOVABLE PROSTHODONTICS II AND LABORATORY.** (4 cr) Baker, Anderson  
A series of lectures introducing the design of partial dentures laboratory instruction, coordinated with knowledge acquired from basic science courses. Laboratory includes construction of cast removable partial dentures on models.
- 5560. REMOVABLE PROSTHODONTICS III.** (1 cr) Clay  
Lectures on complete denture prosthesis correlated to students' accumulated knowledge from basic and clinical sciences. Designed to enable students to carry out procedures and solve problems associated with removable denture prosthesis.
- 5562-5563-5564. REMOVABLE PROSTHODONTICS CLINIC.** (3 cr per qtr; 180 clin hrs) Baker, Morstad, Clay  
Clinical practice in complete and partial removable denture prosthodontics. Biomechanical aspects of dental prosthesis. Proper and efficient use of auxiliary dental personnel such as the laboratory technician.

- 5565-5566-5567. REMOVABLE PROSTHODONTICS CLINIC.** (Cr ar) Morstad, Baker, Clay
- 5568. REVIEW OF PARTIAL REMOVABLE PROSTHETICS.** (1 cr; hrs ar; elective) Baker  
Treatment planning, case analysis, use of precision attachments, and overlay dentures.
- 5569. REMOVABLE PROSTHETICS.** (Cr ar) Baker, Petersen  
Recent advances in removable prosthetic dentistry.
- 5570. SEMINAR: RESTORATIVE DENTISTRY.** (Cr ar) Morstad  
Lectures on the clinical approach to crown and bridge, operative, periodontic, and removable prosthetic dentistry; technical procedures and biological concepts.
- 5575. OVERVIEW OF IMPLANTS USED IN DENTISTRY.** (1 cr; elective) Petersen  
Endosseous and subperiosteal implants used today. Indications for their use, surgical procedures, and prosthodontic restorations. Slides showing actual clinical cases.
- 5577. REVIEW OF COMPLETE DENTURE PROSTHETICS.** (1 cr; elective) Petersen  
Various phases of complete denture prosthetics.



Dr. A. T. Morstad guides a student treating a Prosthodontics Clinic patient.

## Contributing Departments

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### Contributing Departments

#### ANATOMY (Anat)

5105. **DENTAL MICROSCOPIC ANATOMY.** (8 cr; 100 hrs; prereq regis in School of Dentistry) Bauer  
Minute structure of cells, tissues, and organs of the human body.
5108. **GROSS HUMAN ANATOMY FOR DENTAL STUDENTS.** (7 cr; 120 hrs; prereq #) Bauer  
Lectures on and dissection of thorax, extremities, abdomen, and pelvis.
5109. **GROSS HUMAN ANATOMY FOR DENTAL STUDENTS.** (7 cr; 120 hrs; prereq #) Sorenson  
Lectures on and dissection of head and neck.
5110. **NEUROSCIENCE FOR DENTAL STUDENTS.** (2 cr; prereq regis dent fr or #, concurrent regis in Phsl 5100) Elde  
Introduction to structure and function of central nervous system. Correlation between morphology and physiology.

#### BIOCHEMISTRY (MdBc)

5202. **BIOCHEMISTRY FOR DENTAL STUDENTS.** (6 cr; 59 lect hrs) Singer, Carr, Gray, Towle, and faculty
5203. **TOPICS IN DENTAL BIOCHEMISTRY.** (3 cr; 30 lect hrs) Singer and faculty

#### MICROBIOLOGY (MicB)

5201. **MICROBIOLOGY FOR DENTAL STUDENTS.** (7 cr) Anderson, Liljemark, Reilly  
Nature and diversity of microorganisms; microbial structure and function; metabolism and growth; genetics and virology; principles of sterilization and disinfection; chemotherapy; host-parasite relationships; fundamentals of immunology; pathogenic bacteria, fungi, and viruses; ecology of oral microorganisms; microbiology of dental caries and periodontal disease.

#### PATHOLOGY (LaMP)

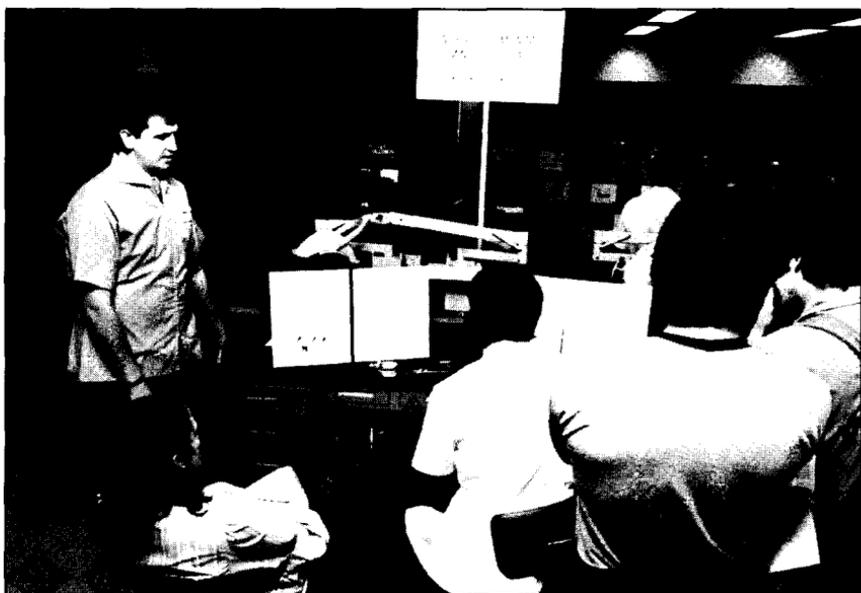
5100. **PATHOLOGY FOR DENTAL STUDENTS** (4 cr; 33 lect hrs and self-study of microfiches; prereq courses in human anatomy, microscopic anatomy, neuroscience, biochemistry, human physiology, genetics, and microbiology) Runge and faculty  
Basic pathologic processes and disorders. Specific diseases of various organ systems. Histopathology with reference to gross changes.

#### PHARMACOLOGY (Phcl)

- 5103-5104. **PHARMACOLOGY FOR DENTAL STUDENTS.** (5/4 cr) Wilcox  
Lectures and laboratory exercises on the action and fate of drugs.

#### PHYSIOLOGY (Phsl)

5100. **NEUROSCIENCE FOR DENTAL STUDENTS.** (2 cr; concurrent regis in Anat 5110 required; prereq courses in biochemistry and human anatomy; 3 lect, 3 lab hrs per wk)  
Basic principles of nervous function studied through neuroanatomy and neurophysiology.
5101. **HUMAN PHYSIOLOGY.** (5 cr; for dental students; prereq biochemistry and Phsl 5100; 4 lect, 2 lab hrs per wk)  
Principles of physiology, circulation, respiration, digestion, excretion, metabolism, and endocrine gland function.
5102. **PHYSIOLOGY AND DENTISTRY.** (1 cr; for dental students only; prereq Phsl 5101; elective) Meyer and faculty  
Lecture-conference course to integrate physiology and dentistry.



A student describes the advantages of intraligamentary anesthesia.



A student explains the acid etch bridge technique.

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