Does your future lead to the University of Minnesota School of Public Health?

Would you like to join some of the brightest students at one of the top-ranked schools in the country? Investigate the possibilities at the University of Minnesota. Explore the educational options available in the dynamic field of public health.

Students come first with us! As part of the University’s Academic Health Center, the school offers cutting-edge teaching and research led by world-class faculty. Join the approximately 350 students working on master’s or doctoral degrees within nine academic majors. Take steps toward your degree. Shape your future and your dreams!
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“... Undoubtedly, the University of Minnesota’s School of Public Health is a highly regarded institution throughout the world. However, prestige alone is not the only factor that contributes to the pride I feel in attending this school. Rather, it is the rich diversity of the students and faculty, the rigorous curriculum, and the breadth of research opportunities available to students. Yet it is the enthusiasm and the ideals of the school that has taught me the most valuable lesson of all: that there are no limits to how high you can fly...”

Gita Uppal, President
School of Public Health Student Senate

“... Many of our health department staff are graduates of the School of Public Health. We experience a natural connection, a positive synergy, between the state’s public health agency and the school. Our staff benefit from the continual learning and infusion of new talent, and students benefit from the application of their research and learning in our agency.”

Anne Barry
Alumnus
Former Commissioner, Minnesota Department of Public Health

“The Health Professionals Covenant

“... As a health professional dedicated to enhancing the health care status and well-being of individuals and communities, I pledge collaboration with all of my health professional colleagues similarly committed, and promise to place patient and public interest above the perceived self-interests of my individual profession.”

— Association of Academic Health Centers

“... Attending the School of Public Health and getting my master’s degree was the best move I ever made in my education. My degree allowed me to achieve personal and professional goals in the field of public health beyond my imagining when I entered the school.”

Mary Sheehan
Alumnus
President, Minnesota Public Health Association

Mary Sheehan
Alumnus
President, Minnesota Public Health Association

Mary Sheehan
Alumnus
President, Minnesota Public Health Association
School of Public Health

Our mission 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, evaluation, and improvement of systems for the delivery of health services.

National rankings place the University of Minnesota School of Public Health among the top 10 of accredited public health schools in the United States. As part of the Academic Health Center, the school participates in the interdisciplinary training of health professionals in all fields. Made up of four administrative divisions and nine academic majors, the school has been delivering education and cutting-edge research for more than 50 years.

For public health students, learning experiences extend beyond the campus and the classroom. Our students have access to the innovative, progressive Minnesota health industry and the amenities of a major metropolitan area for collaboration, networking, and applied learning.

Here's why Minnesota is an exciting place to study and practice public health:

• International leadership and innovation in managed care
• Pioneering efforts by state government to provide healthcare access for the uninsured
• Proximity to a large, dynamic medical technology industry
• Environment of public/private collaboration to address population health issues
• Landmark tobacco litigation (in which the School of Public Health played an instrumental role) which will provide tobacco research with $10 million annually for the next 10 years.

We cater to the student experience through the majors and through school-wide services. For example, the School of Public Health Career Center helps prospective students, current students, and alumni maximize employment opportunities, enhance career development skills, and develop and maintain professional contacts. Services include:

• Mentor program
• Resource library
• Individual coaching
• Job search workshops
• Panels on topics of interest to graduates

The University

This Big Ten campus, among the nation's largest public universities and a leading research institution, offers vast scholarly opportunities. As a state land-grant institution, the school is well-known for its commitment to education, public service, and research.

The School of Public Health is located on the Twin Cities campus, the largest of the University's four campuses.

The University Library System is the 15th largest in the nation and contains over 5 million books and volumes on the Twin Cities campus alone. Computer facilities are available free of charge across campus. Students are provided with email accounts, keeping them in touch with the latest news on campus and within the school. Boynton Health Service, in existence for 75 years, provides health care for students, staff, and faculty.

Dual Degrees

The School of Public Health offers several dual degree options. These degrees allow a student to earn two separate degrees at the same time while “double counting” up to 12 credits for each degree. This means that students can complete their degrees more quickly, by applying some credits simultaneously toward both degrees. In most cases, students can also apply one internship and one Plan B paper to graduation requirements for both programs. Dual degrees in the following list are available:

• M.S.W./M.P.H. (in community health education, maternal and child health, or public health nutrition)
• M.B.A./M.P.H. (in public health administration)
• M.S. in nursing/M.P.H. (in community health education, environmental health, epidemiology, maternal and child health, public health administration, or public health nutrition)
• M.D./Ph.D. (in epidemiology or health services research, policy and administration)
• M.P.A./M.S. (in health services research, policy and administration)

Professional and Academic Degrees—What’s the Difference?

Professional degrees offered through the School of Public Health include all programs leading to the M.P.H., and the M.S. program in Industrial Hygiene.

Professional degree programs are oriented toward practice in specific public health settings. They require students to complete coursework in the five core areas of public health, a field practice experience, and a culminating experience usually consisting of a final project and/or final examination (specifics may vary by major).

Academic degrees (M.S., Ph.D.) are more oriented toward research rather than practice. Although students in academic programs are not required to complete coursework in the five areas of public health, almost all academic degree programs offered through the School require at least one course from the public health core. Students are, of course, encouraged to take more as their schedules permit, and most do. A list, based on Graduate School rules, academic degree students are required to successfully complete a final examination. Content, focus, and specifics will vary by program.
General Information

Students applying for an M.P.H. degree apply directly to the School of Public Health and major. Major admissions committees make the initial decision to approve an application, with final approval by the Dean. Students applying for an academic degree apply through the Graduate School. Major admissions committees also make the initial decision to approve an application, but final approval is given by the Dean of the Graduate School.

Some programs offer both M.P.H. and M.S. degrees in the same specialty areas.

To decide for which program to apply, you may wish to talk with Student Services Center representatives or the major coordinator. They can advise you about the differences in degrees. Differences may include coursework and field practice requirements as well as employment market preferences for one degree over another.

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School of Public Health Degrees Available, by Major

<table>
<thead>
<tr>
<th>Academic Major</th>
<th>Individual Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M.P.H.</td>
</tr>
<tr>
<td>Biostatistics (BIO)</td>
<td>24 months</td>
</tr>
<tr>
<td>Clinical Research (CR)</td>
<td>n/a</td>
</tr>
<tr>
<td>Community Health Education (CHE)</td>
<td>24 months</td>
</tr>
<tr>
<td>Environmental Health (EH)</td>
<td>12-24 months</td>
</tr>
<tr>
<td>Epidemiology (EPI)</td>
<td>12-24 months</td>
</tr>
<tr>
<td>Health Services Research, Policy and Administration (HSRP&amp;A)</td>
<td>n/a</td>
</tr>
<tr>
<td>Maternal and Child Health (MCH)</td>
<td>12-24 months</td>
</tr>
<tr>
<td>Public Health Administration (PHA)</td>
<td>12-21 months</td>
</tr>
<tr>
<td>Public Health Nutrition (PH NUTR)</td>
<td>13-24 months</td>
</tr>
</tbody>
</table>

† Degrees offered through University of Minnesota Graduate School

General Admission Information

- Admission is for fall only. Exceptions are at the discretion of the specific major.
- For the purpose of the School of Public Health admission application forms, international applicants are defined as non-U.S. citizens or non-permanent residents.
- Individual majors have specific admission requirements. Students meeting criteria are not guaranteed admission.
- If admission is deferred, the application fee is valid for a one-year period only. Students not enrolling during that period must reapply and submit a new fee.
- Applying to more than one major? You must submit a separate application packet and fee for each major and may only matriculate into one major.
## Minimum Admission Requirements

Admission requires a baccalaureate or higher degree from an accredited college or university.

<table>
<thead>
<tr>
<th>Academic Major</th>
<th>GPA(^1) (4.00 scale)</th>
<th>GRE(^2)</th>
<th>TOEFL(^3)</th>
<th>Other (includes prerequisite courses— one course unless otherwise indicated)</th>
<th>Deadline *</th>
</tr>
</thead>
</table>
| BIO M.P.H., M.S. | 3.10 overall 3.40 statistics, mathematics | 450 verbal 550 quantitative 550 analytic | 600 paper 250 computer | Prerequisites:  
- Applied statistics  
- Math: multivariate calculus, linear algebra  
- Computer programming, e.g., Fortran, C | March 1 |
| BIO Ph.D. | 3.70 statistics, mathematics | 550 verbal 650 quantitative 650 analytic | 600 paper 250 computer | M.S. in statistics, biostatistics  
- Prerequisites: inference, real analysis, mathematical statistics | March 1 |
| CR M.S. | | 600 paper\(^5\) 250 computer\(^5\) | | Advanced health science professional degree  
- Clinical practice training, completed or near completion  
- Letter of support from clinical director of training  
- Availability of adviser | July 15 |
| CHE M.P.H. | 3.00 | 1,500\(^\text{4}\) overall | 600 paper\(^6\) 250 computer\(^6\) | One year work/volunteer experience: public health, social service, or community setting  
- Prerequisites: behavioral and social sciences (3 courses), quantitative methods (1 course), biological sciences (1 course) | March 1 |
| EH M.P.H., M.S., Ph.D. | 3.00 | 1,500 overall | 600 paper 250 computer | Sciences, engineering (varies by specialty)  
- Availability of adviser  
- Occupational Health Nursing: baccalaureate nursing degree | March 1 |
| EPI M.P.H. | 3.00 | 1,500\(^\text{5,6}\) overall | 600 paper\(^7\) 250 computer\(^7\) | Foundation in life and behavioral sciences  
- Demonstrated quantitative aptitude | March 1 |
| EPI Ph.D. | 3.00 | 1,500\(^\text{5,6}\) overall | 600 paper\(^7\) 250 computer\(^7\) | Foundation in life and behavioral sciences  
- Demonstrated quantitative aptitude  
- Additional essay: 500–700 words of proposed research area | January 15 |
| HSRP&A M.S., Ph.D. | 3.00 | 1,500 M.S. 1,800 Ph.D. | 600 paper 250 computer | Prerequisites: calculus, statistics, intermediate microeconomics\(^8\) | March 1 |
| MCH M.P.H. | 3.00 | 1,500 overall | 600 paper 250 computer | One year relevant work experience preferred (2-year option)  
- Doctoral degree and/or 5 years relevant experience (1-year option) | March 1 |
| P H NUTR M.P.H. | 3.00 | 1,500 overall | 600 paper\(^7\) 250 computer\(^7\) | 3 years full-time nutrition experience (13-month option)  
- 1 year relevant work/volunteer experience preferred (16- and 24-month options) | March 1 |
| PHA M.P.H. | 3.00 | 1,500\(^\text{10}\) overall | 600 paper 250 computer | One year relevant work experience preferred  
- Prerequisites: statistics, accounting  
- Letter of intent: description of college major, honors, research projects, leadership experience, career interest | March 1 |

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1. Based on at least 60 undergraduate semester credits or 6 postbaccalaureate semester credits as specified by the major and the dean.
2. Must have been taken within the last five years.
3. Required for every applicant whose previous degree(s) were obtained from a non-English speaking country and whose native language is not English.
4. TOEFL score of 600 may replace minimum GRE verbal requirement.
6. M.D.s who have passed the ECFMG or USMLE are not required to take the GRE or TOEFL, unless applying to the MCH major.
7. Must have been taken within the last two years.
8. Students who do not have these prerequisites but are otherwise qualified for admission will be advised to take relevant summer session courses before beginning the program.
9. Not required for candidates with doctoral degrees from accredited U.S. institutions. Those with Canadian degrees should inquire about exceptions.

* International applicants are strongly encouraged to submit application materials well before the deadline.
### Minimum Degree Requirements

#### Master of Public Health (M.P.H.)

- **Credits:** 30. Upon approval of major and dean, up to 12 semester credits may be transferred.
- **Coursework:** Approved by major and adviser.
- **Core Courses:** Meet a national standard in 5 core areas: administration, behavioral sciences, biostatistics, environmental health, epidemiology.
- **Exam:** Pass written and/or oral comprehensive exam.
- **Project:** Demonstrate research and presentation skills, capacity to work independently.
- **Internship:** 90 hours in approved placement.
- **GPA:** Cumulative GPA of 3.00 for all required courses taken A-F.
- **Residency:** One semester and 10 semester credits.
- **Duration:** Complete degree requirements within 7 years.

#### Master of Science (M.S.)

This degree is subject to Graduate School credit-hour and residence minimum requirements.

<table>
<thead>
<tr>
<th>Plan A</th>
<th>Plan B</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 credit hours</td>
<td>3 credit hours</td>
</tr>
<tr>
<td>Thesis</td>
<td>Project (120 hours of independent learning)</td>
</tr>
</tbody>
</table>

#### Doctor of Philosophy (Ph.D.)

This highly individualized degree is subject to Graduate School credit-hour and residence minimum requirements.

- Prescribed coursework
- Preliminary written exam
- Preliminary oral exam
- Dissertation and oral defense
Frequently Asked Questions

Who can answer my questions?
Call the Student Services Center (612) 626-3500 or (800) 774-8636. We will be glad to forward your call to a major coordinator if necessary.

When is the application deadline?
The deadline is March 1 for all but two of the majors. The epidemiology Ph.D. deadline is January 15 and the M.S. in Clinical Research has an absolute deadline of July 15. Earlier application is strongly encouraged, especially for international students.

Do I have to pay an application fee?
We require an application fee for each application; the fee is valid for one year. In addition, an Application for Change of College or Status form is required of those who have attended any degree-granting program at the University of Minnesota.

What is a letter of intent?
Unless specifically directed in the academic major's description, the letter of intent should describe past or present professional experience, future career goals, and educational needs. Include the professional role you see yourself performing, and, if possible, the type of agency, organization, or setting in which you plan to work.

Who should complete the recommendation forms?
Recommendation forms should be completed by persons qualified to assess your academic work; clinical, public health, or professional experiences; or leadership potential in public health.

What is the Title IV code for my financial aid application?
The Title IV code is 003969.

Must I be a full-time student?
Most of our academic majors allow you to complete your degree as a full-time or part-time student. However, please note that most courses for degree programs are taught during the day.

If admitted, can I defer my admission?
In most cases, once admitted you can defer your admission for one year only. You must request a deferment in writing, from the major. If granted, your name will be added to the next year's incoming class list.

Do I have to take a test for admission?
Yes. A standardized test is required unless you already have a U.S. doctoral level degree. Most majors require the GRE. For locations and test dates, call (609) 771-7670. Use institution code 6874 and department code 0616.

Can I be admitted at any time other than fall term?
Fall term admission is generally required for School of Public Health majors. Any exceptions are at the discretion of the specific major.

Can I transfer courses from another university or college?
Credits must be approved by the faculty of the academic major and the dean of the School of Public Health and cannot exceed 12 semester credits.

Does it always snow in Minnesota?
Contrary to popular belief, Minnesota isn't trapped in a perpetual tundra. We enjoy the full spectrum of seasons, which include summer temperatures well into the upper 80s. It's beautiful here!

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### Estimated Budget for School of Public Health Students (based on 1999–2000 tuition rates)

<table>
<thead>
<tr>
<th></th>
<th>Resident</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tuition &amp; fees</td>
<td>$5,950.00</td>
<td>$11,270.00</td>
</tr>
<tr>
<td>Books &amp; supplies</td>
<td>$700.00</td>
<td>$700.00</td>
</tr>
<tr>
<td>Room &amp; board</td>
<td>$7,050.00</td>
<td>$7,050.00</td>
</tr>
<tr>
<td>Personal/misc.</td>
<td>$2,500.00</td>
<td>$2,500.00</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>$16,200.00</td>
<td>$21,520.00</td>
</tr>
</tbody>
</table>

### Tuition Rates for School of Public Health 1999–2000

<table>
<thead>
<tr>
<th>Credits</th>
<th>Resident</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per credit</td>
<td>$267.00</td>
<td>$525.00</td>
</tr>
<tr>
<td>8–12 credit plateau</td>
<td>$2,135.00</td>
<td>$4,200.00</td>
</tr>
</tbody>
</table>

### Tuition Rates for Graduate School 1999–2000

<table>
<thead>
<tr>
<th>Part-time Rates</th>
<th>Resident</th>
<th>Nonresident</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 credit</td>
<td>$420.00</td>
<td>$825.00</td>
</tr>
<tr>
<td>2 credits</td>
<td>$840.00</td>
<td>$1,650.00</td>
</tr>
<tr>
<td>3 credits</td>
<td>$1,260.00</td>
<td>$2,475.00</td>
</tr>
<tr>
<td>4 credits</td>
<td>$1,680.00</td>
<td>$3,300.00</td>
</tr>
<tr>
<td>5 credits</td>
<td>$2,100.00</td>
<td>$4,125.00</td>
</tr>
<tr>
<td>Full-time rates</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6–14 credits</td>
<td>$2,520.00</td>
<td>$4,950.00</td>
</tr>
<tr>
<td>Each credit over 14</td>
<td>$420.00</td>
<td>$825.00</td>
</tr>
</tbody>
</table>
What is biostatistics?
Biostatistics combines statistics, computing, and biomedical science to further human health research. Biostatisticians design, direct, and analyze clinical trials; develop new statistical methods, and analyze data from observational studies, laboratory experiments, and health surveys. Biostatistics is an ideal field for students with mathematical backgrounds who enjoy working with computers and numbers, interact well with others, and are interested in health-related research.

Job prospects for biostatistics graduates are excellent, with career opportunities in state and federal health agencies, large medical centers, university research facilities, and pharmaceutical and medical device companies. Typical starting salaries range from $40,000 to $55,000 for master's graduates, and from $50,000 to $65,000 for doctoral graduates.

Why Minnesota?
Biostatistics has an international reputation for excellence in methodological and applied research and training. Biostatistics students enjoy small classes and individual faculty attention, state-of-the-art computing facilities, proximity to a large academic health center, a strong record in job placement, teaching and research assistantships, and opportunities for work experience in clinical trials.

Faculty and students actively contribute to research in projects such as:
- Community-based clinical trials in AIDS
- Prevention of lung disease in smokers
- Pathogenesis and treatment of otitis media (ear infection) in children
- Prevention and treatment of colon cancer
- Spatial clustering of disease
- Effects of risk-factor intervention on death rates from coronary heart disease

Faculty methodological research covers a broad spectrum, with emphasis on Bayes and empirical Bayes methods, analysis of spatial data, methods for case-control studies, principal components curve decomposition, random effects models, modeling disease natural history, analysis of longitudinal data, database systems, quality control, errors-in-variables, smoothing, meta-analysis, clinical trials, and models for univariate and multivariate event-time data.

Admission
Students may apply for the M.S., M.P.H., or Ph.D. degree. The master's degree usually requires two years of study; the doctoral degree requires one or two years of coursework beyond the master's degree, plus the dissertation.

Applicants should submit materials by December 31 to allow sufficient time for processing.

Admission to the M.S. and M.P.H. requires:
- Mathematics through multivariable calculus (3 semesters or 4 quarters)
- Linear algebra (1 course)
- One course in applied statistics
- One course in computer programming using a standard procedural language such as FORTRAN or C
- Overall GPA of 3.10 or above on a 4.00-point scale (3.40 or above for quantitative courses)
- GRE scores of 450 (verbal), 550 (quantitative), and 550 (analytic). A score of 600 or better on the TOEFL may replace the minimum GRE verbal requirement.

Admission to the Ph.D. program requires fulfillment of the master's degree requirements listed above, plus:
- An M.S. in statistics or biostatistics
- Coursework in real analysis, mathematical statistics, and biostatistical inference
- GPA of 3.70 or above in math/statistics coursework
- GRE scores of 550 (verbal), 650 (quantitative), and 650 (analytic)

Financial Aid
Graduate assistantships, traineeships, and fellowships are available. Research assistants work on NIH-sponsored projects in the Coordinating Centers for Biometric Research, an applied research unit that conducts government- and industry-sponsored clinical trials and other studies. Student research assistants also work in the division's Biostatistics Consulting Laboratory, a health sciences resource for designing and analyzing studies. Applicants to the M.S. or Ph.D. programs with strong academic records, and whose applications are complete by January 1 may be awarded a Graduate School fellowship that provides tuition plus a stipend for one academic year. Decisions on research/teaching assistantships are made in early March.
What is clinical research?
Clinical research may be defined as “the elucidation of human biology and disease, and its control.” A three-part definition was adopted by the National Institutes of Health Director’s Panel on Clinical Research (CRP) as follows:

- Patient-oriented research. Research conducted with human subjects (or on material of human origin such as tissues, specimens, and cognitive phenomena) for which the investigator (or colleague) directly interacts with human subjects. This area includes:
  - Mechanisms of human disease
  - Therapeutics interventions
  - Clinical trials
  - Development of new techniques
- Epidemiologic and behavioral studies
- Outcomes research and health services research

Clinical research is fast becoming more complex, sophisticated, and regulated. This has created a recognition and demand for formalized training for those who intend to apply their clinical skills to patient-based health research. This master of science degree in clinical research will focus on patient-oriented research, and less on outcomes or health services research, or classic epidemiologic and behavioral studies. The student interested in the latter might be better served by seeking a Master of Public Health (M.P.H.).

Who should apply?
This program is designed for individuals interested in a research career in academia, industry, research institutes, health agencies, or regulatory agencies. Applicants must have an advanced health professional degree (e.g., M.D., D.D.S., D.V.M., Pharm.D., N.P., Ph.D., or any other advanced degree in a clinical biomedical field). In addition, students must have completed or be at an advanced stage of their clinical practice training.

Why Minnesota?
To satisfy the demand for improved and formal training in clinical research, faculty representing all the Academic Health Center schools (except Duluth) developed and now make up the graduate faculty of this interdisciplinary degree program. Faculty in the schools of public health, medicine, dentistry, nursing, pharmacy, and veterinary medicine are national leaders in many areas of research, including clinical research. This multi-disciplinary approach will provide a broad range of mentoring and the ability to select clinical research involvement (i.e., the thesis) in areas of interest to the applicant. Each school offers excellent support services for student research and training activities. The Clinical Research M.S. is housed in the School of Public Health, Division of Epidemiology.

Research Activities
A wide variety of clinical trials are on-going at the Academic Health Center. Examples of research include studies in osteoporosis prevention, heart disease prevention, the role of inflammatory dental disease in the genesis of atherosclerosis, and interventional research into AIDS, cancer, congestive heart failure, arterial stiffness, and hypertension.

The Degree Program
This 38-credit program includes 26 credits in required courses, 2 elective credits, and 10 thesis credits. The elective credits may be taken from any academic unit within the Academic Health Center or from other related fields by permission of the adviser. The thesis will involve an active role in an ongoing clinical research project and completes the experience. In a final oral examination, the thesis project will be presented and defended before a faculty committee. The committee will consist of at least three members, with at least two members from the clinical research M.S. graduate faculty.

For additional information, request a Clinical Research Curriculum Sheet from the Student Services Center or visit our Web site.
Community Health Education

Leslie Lytle, Ph.D., major chairperson
(612) 626-8802 or (800) 774-8636
<http://www.epi.umn.edu>

What is community health education?
Community health education promotes the adoption of healthy behaviors in individuals, families, groups, communities, and whole populations. Public health practitioners accomplish this through public and institutional policy, media advocacy and mass media, community organizing, individual and family counseling, support groups and classes, and interventions designed for schoolchildren or employees.

Who should apply?
Those interested in the contribution of social factors to health; working with disadvantaged populations; developing and evaluating innovative community-based programs to help prevent disease and injury; working with communities, organizations, and policymakers to reduce health risks; helping people change high-risk behaviors; influencing public opinion and policy on health issues; and using social change strategies to help communities define and work toward healthy living and working environments.

Community Health Education is required.

A program is required for students planning to pursue a Ph.D. degree in social and behavioral epidemiology, which is available at the University of Minnesota for students who wish to pursue advanced study and research careers.

Dual Degrees
The M.P.H. can be obtained in conjunction with an M.S.W. or an M.S. in nursing. Separate applications must be submitted to the participating schools.

For additional information, request a Community Health Education Curriculum Sheet or visit our Web site.
Environmental Health

Donald Vesley, Ph.D., M.P.H., major chairperson
Deborah Swackhamer, Ph.D., director of graduate studies
(612) 626-0900 or (800) 774-8636
<http://www1.umn.edu/eoh/>

**What is environmental health?**

Environmental health is a broad-based, multidisciplinary field that emphasizes the scientific, technological, policy, and management skills needed to address contemporary environmental and occupational health concerns. Curriculum stresses the importance and application of basic scientific principles to environmental and occupational health issues, and provides an understanding of the regulatory, legal, and policy implications.

Areas of specialization include:

- Environmental chemistry—interactions of pollutants with air, water, and soil, and their exposures to humans and wildlife
- Environmental health policy—environmental health issues, including occupational health risk assessment and management, and decision-making and policy analysis
- Environmental microbiology—occurrence, significance, and control of microorganisms that may affect human health, including microbial contamination control and food safety
- Environmental and occupational epidemiology—causal impact of environment and occupation on human health
- Environmental toxicology—biochemical mechanisms of toxicity and protection of human health through research and environmental policy regulations
- General environmental and occupational health—how various environments affect the health of people, and how public health interventions can identify these risks and prevent disease or injury
- Industrial hygiene—health and safety of people at work, especially the evaluation and control of potential hazards; a focus in hazardous substances is available
- Occupational health nursing—occupational health and safety for nurses interested in a management role
- Occupational medicine—the academic component of an occupational medicine residency program for physicians

**Research Activities**

Faculty research interests cover a broad spectrum, with research conducted in all of the specialty areas. Current projects include: exposure assessment in industrial settings, small business interventions to improve worker health and safety; measuring pesticide exposures in children; measuring and apportioning the sources of human exposures to an array of compounds; determining the concentrations, bioavailability, and fate of toxic chemicals in aquatic and wetland environments; investigating mechanisms by which tumor promoters contribute to carcinogenesis; developing methods for evaluating bias in geographic information systems and epidemiological studies; evaluating devices intended to minimize or eliminate microbial contamination; epidemiological studies to assess environmental and occupational exposures as etiologic factors; cancer prevention; initiatives to design and implement a community-based research initiative on violence prevention and control.

The division houses four research centers: the Center for Ecological Risk Assessment; the Center for Environmental and Health Policy; the Regional Injury Prevention Research Center; and the Center for Violence Prevention and Control.

**Degree Programs**

Three degree options are offered: the M.P.H., M.S., and Ph.D. A dual degree option for M.P.H./M.S. in occupational health nursing is also available.

**The M.P.H.** provides a breadth of information and experience in various disciplines that aims to recognize and prevent human disease and injury and control environmental hazards.

**The M.S.** is for both practitioners and for those planning careers in research or academia. Students receive a solid technical background that provides proficiency in applied or basic research.

**The Ph.D.** brings students to a high level of academic competence through a combination of advanced coursework and research, and prepares students to assume leadership roles in the field. Substantial independent effort is required to produce a high-quality academic thesis that contributes to the body of knowledge in environmental and occupational health.

**Financial Aid**

Division research activities support approximately 15-20 research assistants annually. In addition to salary support, assistantships usually provide tuition waivers and eligibility for low-cost health insurance. The major also awards traineeships that provide stipend support and paid tuition in several specialty areas, as well as scholarships designated for environmental health students.

**Why Minnesota?**

The multidisciplinary and highly collaborative faculty provide exciting educational and research opportunities for students. This program offers high-quality laboratory facilities; small classes, and individual faculty attention; excellent financial assistance; proximity to a large academic health center; and opportunities to participate in faculty research. The division is home to the nationally top-ranked Midwest Center for Occupational Health and Safety.
What is epidemiology?

Epidemiology provides the scientific basis of public health through description, quantification, and analysis of patterns of health and disease in populations and includes the study of biological, environmental, behavioral, and social factors underlying disease and health patterns. Such analyses lead to identification of the underlying causes of disease, the planning and evaluation of health-services delivery, and the development of intervention strategies, programs, and policies to prevent disease and promote health. As a field, epidemiology has many interdisciplinary and cross-disciplinary features as it seeks to advance and guide public health practice toward the improvement of human health.

Who should apply?

No particular undergraduate or professional degree provides better preparation than another. Applicants are admitted to the major with backgrounds in biology, mathematics, microbiology, genetics, medicine, dentistry, veterinary medicine, and law. Strong preference is given to applicants with excellent quantitative and analytic abilities and a solid foundation in a life science. Relevant experience in a public health setting is preferred.

Why Minnesota?

Our exceptional faculty include national leaders in epidemiology and prevention of cardiovascular disease, cancer, and infectious diseases; genetic epidemiology; and behavioral interventions. The majors have a unique emphasis that incorporates the study of disease prevention with classical epidemiologic studies of disease etiology. It has a strong base of funded research that provides students with many opportunities for research support and material for research projects.

Degree Programs

Master's degrees in epidemiology are offered through the School of Public Health (M.P.H.) and the Graduate School (M.S.). Applicants, including those planning to pursue a doctoral-level degree, are encouraged to select the M.P.H. degree. Curriculum and requirements for the M.P.H. and the M.S. are nearly identical, but most students have traditionally chosen the professional degree (M.P.H.).

An accelerated one-year master's degree program is offered for students who have completed M.D., D.D.S., D.V.M., or Ph.D. work in a related field. These students complete a 30-credit curriculum that includes 27 credits of required coursework plus 3 credits of electives. Students with other backgrounds complete a 45-credit curriculum that includes 37-38 credits of required coursework plus 7-8 credits of electives.

Any epidemiology and other health-related graduate-level courses are available as electives. This allows students to develop a specialty emphasis in either a specific disease or problem area or a methodological area. All epidemiology master's students are required to submit a master's project, which may take one of three forms: a paper, a written literature review of publishable quality, or an NIH-type grant application.

Students choose their master's projects from a variety of potential topics/data sets; this includes potential projects with faculty, other University units, the M innesota D epartment of H ealth, and other outside medical and health-care organizations. A comprehensive oral examination is also required. In addition to coursework and a master's project, students must participate in a qualifying field experience.

The Ph.D. is for students interested in research and teaching careers in the health sciences. It includes a core curriculum totalling 63-69 credits. Students must pass written and oral preliminary examinations, write and defend a dissertation, and prepare a manuscript for publication as senior author.

The program emphasizes epidemiologic and public health aspects of cardiovascular disease, cancer, alcohol, tobacco, and other substance abuse; infectious diseases; and maternal and child health. Students may select one of two field concentrations: behavioral or biological aspects of disease etiology and prevention.

The behavioral concentration emphasizes that human behavior patterns are important contributing causes of disease, disability, and death. Understanding modern epidemics and developing prevention methods requires study of the origins and development of human behavior patterns and how they are influenced and formed by cultures, societies, families, and personality.

The biological concentration emphasizes the biological influences and determinants of disease incidence and prevalence that preface the development of effective prevention methods, especially regarding cardiovascular disease, cancer, and infectious diseases.

Both concentrations use an empirical perspective and emphasize study design, measurement, quantitative analysis, and interpretation.

Dual Degrees

The M.P.H. can be obtained in conjunction with the M.S. in nursing. Separate applications must be submitted to the participating schools.

For additional information, request an Epidemiology M.P.H. or Ph.D. Curriculum Sheet or visit our Web site.
Health Services Research, Policy and Administration

Roger Feldman, Ph.D., director of graduate studies
(612) 624-6151 or (800) 744-8636
<http://www.hsr.umn.edu>

What is health services research?
Health services research focuses on organizing and delivering cost-effective health services. It deals with policy issues related to costs, access, and quality of health services and equitable distribution of health resources.

Who should apply?
This is an ideal field for persons interested in affecting public policy related to health-care systems. Students come from a variety of educational backgrounds, including economics, political science, public affairs, and sociology. Strong quantitative skills are essential and a health services background is helpful, but not essential. Our purpose is to train academics and researchers who can contribute at state and federal levels.

Why Minnesota?
The faculty have extensive research programs and work closely with policymakers at the state and national levels to link their research to practice. Students become involved in these research projects as soon as they enter their educational programs and work with the faculty in the policy arenas. Teaching programs based on a mentoring philosophy are an important part of the Minnesota tradition.

Opportunities to interact with those who have shaped the managed competition policies in Minnesota is a fundamental part of this learning experience and a major attraction of the program. Minnesota is widely known for its innovative health policies and health-care delivery systems. The concept of hospital systems was initiated in Minnesota, and Integrated Service Networks pioneered in Minnesota, and Integrated Service Networks are now being developed as the second generation of the HMO concept. Students not only study under the direction of an internationally acclaimed faculty, but also have the opportunity to interact with those shaping future health-care systems.

Research Activities
Faculty research interests include analyzing HMO trends and public policy issues; analyzing data on health insurance purchasing cooperatives and competitive pricing for Medicare; effects of managed competition on the structure of physician practices; outcomes of hospital care; development of second-generation social HMOs; patterns and quality of care for vulnerable populations; performance and effectiveness of alternative health systems; gender bias and racial discrimination in health care; impact of insurance reform on rural providers and consumers; diffusion of technology and its impact on rural providers; developing integrated health-delivery systems; organizational influence on the quality of health care; and psychoactive drug use by nursing home elderly. Faculty publish in all relevant health services research, peer-reviewed journals.

Degree Programs
Master's Degree
This program prepares health services researchers and health policy analysts to carry out sophisticated empirical studies, formulate policy options, work effectively in the political arena to shape and implement policies, and evaluate policies once implemented.

Students learn basic, theoretical, and statistical skills as well as the main social and health service analytic paradigms; receive a historical introduction to health care and health services research; and take courses in measurement and surveys and sampling. Courses in evaluation research, health services policy, and cost-benefit analysis complete the required curriculum. Electives come from throughout the University.

The two-year, full-time program offers concentrations in policy analysis, managed health care, and clinical outcomes research.

Ph.D. Degree
This program is designed primarily for students interested in academic careers or senior research positions in government or the private sector. The emphasis is on theory, modeling, and quantitative methods. Coursework is supported by the student's ongoing involvement with faculty on research projects and is linked to the health-care field by these projects.

Students select an area of concentration in either policy or administration. Both concentrations include courses in research methods, health-care systems and environments, health economics, and statistics. Students take a supporting program or minor.

During their course of study, students also work as research assistants on a project with a faculty member in the student's area of interest. This experience allows students to follow a research project from beginning to end.

Dual Degrees
The M.S./M.P.A. with the Hubert H. Humphrey Institute of Public Affairs offers a three-year program. Students must apply to each program separately.

The M.D./Ph.D. allows students to complete the first two years of medical school, then complete the entire Ph.D. program during the next four to five years. Students then complete the final two years of medical school and their chosen residency. Students must apply to each program separately.

Financial Aid
Graduate School fellowships, training grants, research assistantships, and tuition fellowships are available.
Maternal and Child Health
Joan Patterson, Ph.D., major chairperson
(612) 626-8802 or (800) 774-8636
<http://www.epi.umn.edu>

What is maternal and child health?
Maternal and child health focuses on promoting and preserving the health of families, including mothers, children, and adolescents. Mothers and children have been among the most vulnerable populations and addressing their needs requires expertise in theories of human growth and development, and social ecology. This expert knowledge is combined with the skill areas of public health—epidemiology, biostatistics, environmental health, management, and behavioral sciences—to assess MCH needs; develop, manage, and evaluate MCH programs; and formulate and advocate for effective policies in areas such as reproductive and perinatal health, health of children, and adolescents (including those with special needs), and families. MCH leaders work to identify and promote social and environmental conditions contributing to the health of mothers and children. They also develop public health programs that may include health promotion and disease prevention, as well as primary care services.

Who should apply?
Students who want to positively influence health outcomes of mothers, children, and families in the United States should apply. Applicants’ interests typically include developing and evaluating MCH programs; working collaboratively with multidisciplinary professionals from communities, public and private organizations and agencies, clinicians, policy makers, and researchers to develop innovative initiatives for health promotion; and/or managing programs that serve the needs of MCH populations.

Applicants who are mid-career or have professional training in health sciences, education, or social services are preferred. Individuals with other backgrounds are encouraged to have a minimum of one year’s work experience or volunteer experience in an area of public health directly pertaining to mothers and children.

The M.P.H. in maternal and child health is an appropriate degree for students planning to proceed to a Ph.D. degree in biological or behavioral epidemiology, which is available at the University of Minnesota for students who wish to pursue advanced study and research careers.

Why Minnesota?
The MCH major is nationally recognized as one of 13 federally funded training programs. The MCH faculty is multidisciplinary, with expertise in epidemiology, medicine, nursing, psychology, nutrition, family studies, and health education. They work collaboratively with faculty throughout the School of Public Health and University, with particularly strong linkages with the Adolescent Health Program in the Medical School, the School of Nursing, Department of Family Social Science, and Institute of Child Development.

MCH students are encouraged to share knowledge and experiences gained in and out of the classroom with other students. The MCH curriculum is both comprehensive and flexible, emphasizing scientific knowledge of the field as well as skills in methodology/analysis, management/communication, and policy/advocacy.

Research Activities
MCH faculty focus their research, teaching, and community services expertise on reproductive and perinatal health; family planning; child, adolescent, and family health promotion, risk reduction, and resiliency; child and family adaptations to chronic health conditions; and preventive interventions in the areas of adolescent pregnancy, childhood obesity, and fetal substance exposure. The faculty’s research and community service activities afford additional opportunities for student training.

Degree Program
The M.P.H. in maternal and child health can be earned through a one- or two-year option. These options are designed to be completed in one or two calendar years if taken full time; however, completion during these timeframes cannot be guaranteed. Students in both options are strongly encouraged to attend full time, but are not required to do so.

Most applicants qualify for consideration into the two-year option. At present, this option consists of at least 47 semester credits.

The one-year option, consisting of at least 30 semester credits, is designed for individuals with a doctorate, extensive knowledge in a health-related area, and/or at least 5 years of relevant experience in a public health agency. Meeting these criteria does not automatically ensure acceptance. Applicants interested in this option should justify this request in their letter of intent. If the one-year request is denied, an applicant will be considered for the two-year option.

In addition to coursework, students in both options must complete a 120-hour supervised field experience, master’s project, and pass an oral defense.

These requirements may be revised. For additional information, request an MCH Curriculum Sheet from the Student Services Center or visit our Web site.

Dual Degrees
The M.P.H. can be obtained in conjunction with an M.S.W. in social work or an M.S. in nursing. Those interested in pursuing a dual degree must submit separate applications to the School of Public Health and the other respective school.

Financial Aid
Traineeships and research/teaching assistantships may be available to qualified students. For more information, contact the major coordinator.
PUBLIC HEALTH ADMINISTRATION

Mila Aroskar, Ed.D., major chairperson
(612) 625-9480 or (800) 774-8636
<http://www.hsr.umn.edu/hmp/pha/phahome.htm>

What is public health administration?
Public health administration is a management discipline that enhances the public's health through innovative policies and skilled administrative practices and the formulation and implementation of public health policies. This major prepares leaders who will be advocates for the public interest and promote health through population-focused administration, the development and implementation of public health-enhancing policy, and evidence-based public health (EBPH).

Who should apply?
Individuals who share a strong commitment to preventing disease, promoting health and serving populations and want to manage public health-related organizations and agencies and/or formulate policies designed to improve the public's health and its access to care. Examples of such organizations and agencies include voluntary health agencies; human services organizations; long-term care agencies; international health organizations; managed care plans; community clinics; local, state, and federal public health organizations.

Why Minnesota?
The public health administration major offers:
• A one-year M.P.H. program for professionals in fields such as public health, law, medicine, and social work
• A two-year M.P.H. program that accommodates students' academic and professional goals
• A flexible program for part-time students
• An emphasis on evidence-based public health decision-making and practice
• Strong ties to leaders in the public health community, including the Minnesota Department of Health
• Opportunities to complete elective coursework at the Hubert H. Humphrey Institute of Public Affairs
• A working relationship with managed care organizations
• Field experience with community leaders in public health administration practice
• Proximity to the Minnesota Department of Health and Human Services and the state capitol in St. Paul.

Research Activities
Individual faculty interests include ethics in health care, access to care, management, organization behavior, management communication, competition, regulation and rationing as applied to health services, quality of care, evidence-based public health, managed care, public health policy, care of the chronically ill, and development of Medicaid and Medicare policy.

Degree Programs
The public health administration major offers the following:
• A one-year program (for those enrolled full time) of 30-31 semester credits for individuals with advanced degrees and/or who have extensive and progressively more responsible work experience in public health practice. The curriculum incorporates the following major categories of knowledge and skills: administration/management; policy and program development, implementation and evaluation; evidence-based public health; and the core areas of public health.
• A two-year program (for those enrolled full time) of 50 semester credits for individuals with baccalaureate degrees and limited or no public health experience. Students complete the PHA required core courses (17 credits) and the public health core courses (11-12 credits). They also choose one of the three following areas of focus: management; analytic and information skills; or applied policy/advocacy. In addition, students can select electives and or concentrations in areas such as health services management, finance, managed care, evaluation, long-term care administration, international health, and bioethics.
• Students complete a master's project to develop research and analytical skills in an area of their interest. In addition, they design a field experience allowing them to develop skills and competencies in public health administration practice that will enhance job placement following completion of the program.

Dual Degrees
The following dual degrees are also available:
• M.P.H./M.B.A. with the Curtis L. Carlson School of Management
• M.P.H./M.S. with the School of Nursing

Financial Aid
The public health administration major annually offers the Stauffer Award to promising incoming students who have demonstrated leadership and academic excellence. Research/teaching assistantships also become available throughout the year as a result of research grants.
Public Health Nutrition

John Himes, Ph.D., M.P.H., major chairperson
(612) 626-8802 or (800) 774-8636
<http://www.epi.umn.edu>

What is public health nutrition?
Public health nutrition advances knowledge about the role of nutrition in disease prevention and health promotion and applies this knowledge to planning, managing, delivering, and evaluating nutrition services and programs.

Four key areas of study include: applied human nutrition and the relationship of diet to health and disease; developing, implementing, and evaluating programs to achieve and maintain healthful eating patterns; assuring delivery of nutrition services as a basic component of health care; and providing access to a safe and adequate food supply.

Who should apply?
The public health nutrition major welcomes applicants with career goals in public health and applied nutrition. Applicants must have a bachelor’s degree from an accredited college or university.

The major offers three program options of 13, 16, and 24 months leading to the M.P.H. If candidates:
- Are registered dietitians (R.D.) or R.D.-eligible and have at least three years of full-time professional experience in public health nutrition, they may apply for the 13-month program totaling 34.5–36.5 credits.
- Have a nutrition or dietetics degree and are R.D.s or R.D.-eligible, they may apply for the 16-month program totaling 38.5–40.5 credits.
- Do not have a nutrition degree but will have completed specific science prerequisites before starting the M.P.H., they may apply for the 24-month program totaling 54.5–65.5 credits.

Prerequisites are outlined on the R.D. Criteria or Science Prerequisite forms available from the Student Services Center.

Why Minnesota?
The public health nutrition major emphasizes program planning, health behavior change and intervention strategies, research and evaluation methods, and policy development. Students are provided with practical experience in different agencies and organizations and networking opportunities among public health nutrition professionals. Faculty are internationally recognized for their experience and expertise in public health nutrition and related areas.

Research Activities
Faculty research interests include nutrition and pregnancy outcomes, nutrition and women’s health, child growth and nutrition, child and adolescent nutrition and eating behaviors, obesity prevention, dietary assessment methods, dietary risks for heart disease and cancer, and dietary prevention of chronic diseases across the life cycle, especially in at-risk populations.

Degree Program
The public health nutrition major provides students with knowledge and skills needed for public health practice, understanding relationships between nutrition and health, and developing and implementing effective programs and services to improve and maintain the nutritional health of populations. Students may focus coursework and experiences around public health nutrition programs or nutritional epidemiology.

The major offers program options of 13, 16, and 24 months leading to the M.P.H., all requiring coursework, field experiences, and a research project. Please see the Public Health Nutrition Curriculum Sheet for details about the three options or visit our Web site.

The M.P.H. in public health nutrition may be an appropriate degree for students who wish to proceed to a Ph.D. degree in nutrition at the University of Minnesota, which offers a concentration in public health nutrition, or to the Ph.D. degree in epidemiology, where one may focus on nutritional epidemiology.

Financial Aid
Students interested in working as graduate research or teaching assistants may apply for a number of assistantships, including the Marguerite J. Queneau Research Assistantship. These assistantships are available on a competitive basis from public health nutrition and opportunities for support may be available from the Division of Epidemiology, School of Public Health, or elsewhere in the University. For more information, request a Marguerite J. Queneau Research Assistantship brochure from the Student Services Center.

Several maternal and child health nutrition traineeships are available for public health nutrition students who are U.S. citizens and wish to specialize in maternal, child, or adolescent health. Eligibility includes being a registered dietitian, at least one year of work experience, and career goals in public health nutrition, and maternal and child health. For additional information and application forms, contact the Student Services Center.

A six-month Dietetic Internship for Graduate Students (DIGS) is available. For more information, contact Dr. Louise Mullen, DIGS program director at (612) 624-3255, visit their Web site at <http://fscn.che.umn.edu/digs>, or see the Public Health Nutrition Curriculum Sheet.

Dual Degrees
The M.P.H. can be obtained in conjunction with an M.S.W. or an M.S. in nursing. Separate applications must be submitted to the participating schools.
**Course Descriptions**

PubH 3001. **Personal and Community Health.** (2 cr)
Fundamental principles of health conservation and disease prevention.

PubH 3003. **Fundamentals of Alcohol and Drug Abuse.** (2 cr)
Scientific, sociocultural, and attitudinal aspects of alcohol and other drug abuse problems; emphasizes incidence, high-risk populations, prevention, and intervention.

PubH 3004. **Basic Concepts in Personal and Community Health.** (4 cr)
Scientific, sociocultural, and attitudinal aspects of communicable and degenerative diseases, environmental and occupational health hazards, and alcohol and drug problems. Role of education in health conservation, disease control, and drug abuse.

PubH 5003. **Fundamentals of Alcohol and Drug Abuse.** (1.5 cr)
Lecture, discussion, and special readings on scientific, sociocultural, and attitudinal aspects of alcohol and other drug abuse problems; emphasizes incidence, high-risk populations, prevention, and intervention.

PubH 5010. **Public Health Interventions to AIDS.** (3 cr)
Survey of HIV infection from a public health perspective emphasizing intervention.

PubH 5017. **Culture and Health Behavior.** (2 cr)
Heightens cultural sensitivity regarding public health practice and individual health behaviors. Cultural diversity and its impact on health behaviors; etc. (universal) and emic (culture-specific) approaches.

PubH 5030. **Prevention of High-Risk Behavior Among Adolescents.** (2 cr)
Definitions and etiology of high-risk behaviors among adolescents; intervention programs. Review of current literature. Students design prevention program overview based on theory and etiological data using health education/behavior change methods.

PubH 5034. **Program Evaluation for Community Health Education.** (3 cr)
Developing useful program evaluations; emphasis on skills for program administrators, planners. Needs assessments, evaluability assessments, formative evaluation, implementation studies, and outcome evaluations; quantitative and qualitative data collection methods; ethical considerations.

PubH 5035. **Applied Research Methods.** (3 cr)
Complements master's project work using forms, questionnaires, interviews, literature searching, questionnaire development, scale construction, item analysis, data coding, entry and analysis, and report writing. Students use computer software package to develop questionnaire and conduct data analysis.

PubH 5040. **Dying and Death in Contemporary Society: Implications for Intervention.** (2 cr)
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.

PubH 5049. **Legislative Advocacy Skills for Public Health.** (3 cr)
State legislature as arena for public health practice; develops skills necessary to operate in that arena. Analyzes emergence, development, and resolution of legislative issues of public health importance.

PubH 5050. **Community Health Theory and Practice I.** (3 cr)
Socioenvironmental factors influencing health-related behavior. Role of groups, institutions, social structures in encouraging healthy, unhealthy behavior. Role of interventions affecting social environment; barriers to effective interventions. Individual behavior change theories, models targeting psychosocial approaches; application of theories in practice.

PubH 505L. **Community Health Theory and Practice II.** (3 cr)
Conceptualizing, planning, and implementing community health education programs and interventions. Examines health education/promotion organizations; how organizational factors shape health education practice. Focuses on planning health education/promotion efforts. Students gain experience in developing a hypothetical community health intervention.

PubH 5055. **Social Inequalities in Health.** (2 cr)
Extent and causes of social inequalities in health; degree to which our understanding of these inequalities is hampered by methodological limitations in health research. Focuses on individual, community, and policy approaches to reducing social inequalities in health.

PubH 5103. **Exposure to Environmental Hazards.** (2 cr)
Nature, effects, and regulation of exposure to biological, physical, and chemical hazards in the environment, placing them in context of inter- and multi-disciplinary scientific field of environmental health as an essential component of wider field of public health.

PubH 5104. **Environmental Health Effects: Toxicology and Epidemiology.** (2 cr)
Identification of mechanisms and effects on human health of environmental agents, including chemical, biological, physical, and psychological agents.

PubH 5105. **Environmental and Occupational Health Policy.** (3 cr)
Students develop an understanding of environmental and occupational health policies, laws, key concepts and principles, proposals and approaches for regulatory reform, approaches to policy analysis, and overall phases and issues in the policy-making process.

PubH 5110. **Environmental and Worker Protection Law.** (4 cr)
Law protecting public health and conserving the environment: 1) common law that evolved as courts settled private disputes; 2) public law made by legislatures and administrative agencies. Students research legal issues underlying public health and environmental policies, analyze court opinions, review statutes, and participate in negotiation exercises.

PubH 5111. **Preventing Pollution: Innovative Approaches to Environmental Management.** (3 cr)
Interdisciplinary approach to pollution problems, including sustainability, pollution prevention, risk assessment, regulatory reform, and strategic environmental management.
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<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>PubH 5122</td>
<td>Seminar: Safety in the Workplace</td>
<td>1 cr</td>
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<tr>
<td>PubH 5120</td>
<td>Injury Prevention in the Workplace, Community, and Home</td>
<td>2 cr</td>
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<tr>
<td>PubH 5123</td>
<td>Risk Analysis: Application to Risk-Based Decision Making</td>
<td>3 cr</td>
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<tr>
<td>PubH 5124</td>
<td>Injury Epidemiology: Analyses of Major Injury Problems Affecting the Public in the Workplace, Community, and Home Using Epidemiologic Models and Conceptual Framework; Emphasis on Strategies/Program Development for Prevention and Control</td>
<td>3 cr</td>
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<tr>
<td>PubH 5130</td>
<td>Occupational Medicine: Principles and Practice</td>
<td>3 cr</td>
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<tr>
<td>PubH 5140</td>
<td>Occupational Epidemiology</td>
<td>2 cr</td>
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<tr>
<td>PubH 5150</td>
<td>Interdisciplinary Evaluation of Occupational Health and Safety Problems</td>
<td>3 cr</td>
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<td>PubH 5151</td>
<td>Occupational Hygiene: Application</td>
<td>3 cr</td>
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<td>PubH 5152</td>
<td>Environmental Microbiology: Principles and Practice</td>
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<td>PubH 5153</td>
<td>Environmental Chemistry: Principles and Practice</td>
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<td>PubH 5154</td>
<td>Control of Exposure to Physical and Chemical Hazards</td>
<td>3 cr</td>
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<tr>
<td>PubH 5155</td>
<td>Environmental Health: Principles and Practice</td>
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<td>PubH 5156</td>
<td>Environmental Hygiene in the Workplace</td>
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<tr>
<td>PubH 5157</td>
<td>Introduction to Environmental Health</td>
<td>1 cr</td>
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<td>PubH 5158</td>
<td>Principles of Human Behavior: Principles and Practice</td>
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PubH 5335. Epidemiology and Control of Infectious Diseases. (2 cr)
Principles and methods. Strategies for disease control and prevention, including immunization. Relevance of modes of transmission of specific agents for disease spread and prevention. Public health consequences of infectious diseases at local, national, and international levels.

PubH 5336. Advanced Seminar in Infectious Disease Epidemiology. (1 cr [max 2 cr])
How infectious disease epidemiologic principles are applied in the "real world" to contemporary or controversial issues, including development of prevention and control strategies.

PubH 5340. Epidemiology II. (4 cr)
Measures of disease occurrence; strategies and design principles for etiologic and evaluative studies. Measurement of problems, interactions, sensitivity and precision, validity, and need for data specification and control of variables.

PubH 5345. Epidemiologic Methods: Data Collection. (2 cr)
Methods and techniques for collecting and managing epidemiologic research data, including practical aspects of sampling, response rates and response bias, forms design, selection and training of interviewers, and data preparation, entry, cleaning, and management. Ethical issues in research.

PubH 5348. Writing Research Grants. (2 cr)
Focuses on NIH-type grants. Mechanics of grant development and writing, principles of informed consent, budget development, grant-review process, identifying funding sources.

PubH 5351. Molecular Epidemiology. (2 cr)
Introduction to molecular epidemiology. Overview of sample collection, processing, and methodology examines some of the biomarkers used in cancer, cardiovascular disease, and infectious epidemiologic studies.

PubH 5365. Epidemiology of Aging. (2 cr)
Major concepts and issues. Emphasizes methodological issues unique to studies of older populations with measurement of epidemiologic characteristics especially important. Scope of epidemiologic studies of older populations; most prevalent health conditions.

PubH 5370. Alcohol and Other Drugs: Epidemiology, Prevention, and Control. (3 cr)
Population patterns regarding who uses which drugs, why they use them, and health consequences of alcohol and other drug use. Does not focus on treatments, care, rehab, or exploration of personal attitudes, practices regarding alcohol or other drug use.

PubH 5381. Genetic Epidemiology. (3 cr)
Etiology, distribution, and control of diseases in groups of relatives; inherited causes of disease in populations. A associations (case-control family studies), concordance (twin studies), disease transmission (segregation analysis), gene localization (gene mapping), and applications in studies of disease etiology.

PubH 5383. Pathobiology of Human Diseases. (3 cr)
Basic cell biology and pathology of human diseases, including cardiovascular, cancer neurodegenerative, immunologic, and infectious diseases. Current concepts of pathobiology, risk factors, and markers described for each disease.

PubH 5384. Human Physiology. (3 cr)
Basic human physiologic, chemical, and biologic principles, emphasizing homeostasis as a unifying concept. Cellular, organ, and organ systems function. Health applications and "clinical" problem solving. Course guided by principle that this physiologic information should form background knowledge to critically judge merits of biologic research.

PubH 5386. Public Health Aspects of Cardiovascular Disease. (2 cr)
Detailed perspective on well-established risk factors for CVD, prevention of CVD, and national recommendations for treatment and prevention. Introduces emerging risk factors and current controversies in CVD.

PubH 5387. Cancer Epidemiology. (2 cr)
Epidemiologic aspects of cancer, including theories of carcinogenesis, incidence, site-specific risk factors, and issues of cancer control and prevention.

PubH 5389. Nutritional Epidemiology. (2 cr)
Study of nutrition/disease relationships through application of epidemiologic methods. Characterization of various exposures to food and nutrient intakes, biological basis for nutrition/disease relationships, studies of specific chronic diseases and nutritional intake, design and interpretation of studies using nutritional measures.

PubH 5390. Smoking Intervention. (2 cr)
Impact of smoking on U.S. public health; review of research on onset and prevention, factors maintaining dependence, cessation and intervention strategies, public health campaigns, public policies and second-hand smoking controversies, and international issues.

PubH 5393. Design and Analysis of Group-Randomized Trials in Epidemiology. (3 cr)
Community, school-based, and work-site trials and trials involving randomization of other identifiable groups to study conditions. Experimental and quasi-experimental designs and threats to their validity.

Role, functions, and effects of mass media on public health; planned and unplanned effects; review of literature to understand how theories, models, and assumptions of mass communication research relate to public health.

PubH 5395. Obesity and Eating Disorders. (2 cr)
Definition, measurement, and prevalence; social, behavioral, and physiological causes; health consequences; treatment and prevention.

PubH 5398. Public Health Policy as a Prevention Strategy. (2 cr)
Philosophical, ethical, economic, political, and efficacy rationale for a policy approach to prevention; historical and current application of prevention policy to public health problems.

PubH 5414. Biostatistical Methods I. (2 cr)
Basic quantitative methods: descriptive statistics, concepts of probability, random sampling and sampling distribution, fundamental inferential procedures (confidence estimation, t-tests and chi-square tests, simple linear regression). Applications to public health studies: design, analysis, and interpretation of results.
PubH 5415. Biostatistical Methods II. (2 cr)
Continuation of 5414: basic statistical methods including correlation, regression, analysis of variance and nonparametric tests. Introduction to use of computer packages for data analysis, including SAS.

PubH 5420. Statistical Computing I: Using Statistical Packages. (1 cr)
Use of the statistical computer package SAS for analysis of biomedical data. Data manipulation, description, and basic statistical analyses (t-tests, chi-square, simple regression).

PubH 5421. Statistical Computing II: Advanced Computational and Graphical Methods. (2 cr)
UNIX-workstation-based computing and graphical methods for biostatistical analysis. Linear systems, numerical integration and differentiation, optimization, Monte Carlo methods, design and analysis of simulation studies. Familiarity with a programming language (preferably C or FORTRAN) is assumed.

PubH 5450. Biostatistics I. (3 cr)
Descriptive statistics; Gaussian probability models, point and interval estimation for means and proportions; hypothesis testing, including t, chi-square, and non-parametric tests; regression and correlation techniques; one-way analysis of variance; health science applications using output from statistical packages.

PubH 5452. Biostatistics II. (4 cr)
Analysis of counted data, including contingency table analysis and logistic regression; survival analysis, including Cox proportional hazards regression model.

PubH 5456. Proseminar for the Biostatistician. (2 cr)
Professional roles and responsibilities of the practicing biostatistician as consultant and collaborator in health sciences research.

PubH 5462. Clinical Trials: Design, Implementation, and Analysis. (3 cr)
Introduction to and methodology of randomized clinical trials: design issues, sample size, operational details, interim monitoring, data analysis issues, and overviews.

PubH 5465. Biostatistical Inference I. (4 cr)
Exploratory data analysis using SAS and S+, ANOVA, classical non-parametrics, multiple comparisons, power and sample size determinations, ANCOVA, simple linear regression, ANOVA as regression, robust regression.

PubH 5466. Biostatistical Inference II. (4 cr)

PubH 5605. Reproductive and Perinatal Health. (2 cr)
Issues, programs, services, and policies. Social, cultural, psychological, physiologic, environmental, economic, and political factors that affect reproductive health, pregnancy, and childbearing.

PubH 5606. Health of Children. (2 cr)
Overview of public health issues related to children in the United States. Focus on identifying and planning effective public health strategies, policies, and programs to improve the health of infants and children.

PubH 5607. Adolescent Health: Issues, Programs, and Policies. (2 cr)
Major public health issues of adolescents in the United States. Emphasis on prevention and health promotion strategies and on effectiveness of programs and policies.

For MCH students and others interested in learning about the needs of children and families. Examines MCH activities in the context of “Healthy People 2000,” including the history and organization of programs, policies, and advocacy activities.

PubH 5613. Chronic Illness and Disability in Childhood: Principles, Programs, and Policies. (2 cr)
Principles, policies, programs, and practices for identifying and meeting the needs of children and adolescents with chronic health conditions and of their families. Skills emphasized: needs assessment, program development, evaluation, family empowerment, interdisciplinary team building, integrated/coordinate service delivery, advocacy.

PubH 5628. Race, Class and Family Formation. (1 cr)
Impact of race and class on family formation, family dynamics, and family resiliency and maintenance. Effectiveness of traditional approaches to family intervention among individuals who are not engaged in traditional social institutions.

PubH 5633. Qualitative Research Methods. (2 cr)
Overview of qualitative methods used in research and evaluation; emphasis on public health issues of children, youth, families, and communities. Understanding the application of qualitative methods and developing data analysis skills.

PubH 5634. Advocating for Change for Children. (2 cr)
Strategies for changing systems and building skills in public policy research, information and perception management, coalition building, personal persuasion, and advocacy.

PubH 5639. Prevention: Theory, Practice, and Application in Public Health Service. (3 cr)
Current issues and controversies around prevention and how it relates to health services. History, prevention as an idea, terminology, lifestyle intervention, programs and legislative issues, education, roles and implications for societal action.

PubH 5645. Families and Health: An Ecosystems Approach. (2 cr)
Interrelationships between individual, family, and community health. Family theories and research and the impact of the sociocultural context, public policies, and community structures on health. Primary and secondary prevention strategies for promoting family health.

PubH 5650. T eenage Pregnancy and Parenting: Models for Intervention. (1 cr)
Understanding adolescent pregnancy, parenting, and sexual decision making from developmental and public health perspectives. Critical examination of best prevention practices, programs and policies for individual counseling, school-based interventions, youth-serving community organizations, and government.
PubH 5651. Critical Reading of Scientific Literature in Adolescent Health. (1 cr)
Critical examination of empirical research in adolescent health across disciplines. Enhances skills in understanding theory, methods, measurement, sampling design, statistical analysis, structure of research articles, peer review process, and ethical responsibilities of researchers in reporting research findings.

PubH 5654. Adolescent Sexual Identity: Teen Risk and Professional Responsibility (1 cr)
Issues that gay, lesbian, and bisexual adolescents and their families face in coming to terms with sexual orientation. Helpful ways to work with this hidden population and their families. One-day workshop.

PubH 5655. Sexual Orientation Issues for Adolescents. (2 cr)
A dolescent sexual orientation from perspective of individual identity; impact of the community and response of the community toward gay, lesbian, bisexual, and transgender youth; and interventions/roles of professionals in the school and community.

PubH 5661. Community Organizing for Public Health. (2 cr)
Introduces students to principles of community organizing and identifies challenges and strategies for public health professionals engaged in community organizing. Lowering barriers to community participation; encouraging leadership; building coalitions and alliances; sustaining community organizing efforts.

PubH 5693. Grant Writing for Public Health. (1 cr)
Hands-on workshop for those with all levels of grant-writing experience; focuses on children, youth, and families. Identifying successful elements of a grant application; understanding the grant review process; critiquing a grant; and writing a grant application.

PubH 5700. Foundations of Public Health Administration Practice. (2 cr)
Planning, organization, and administration of public health agencies at the state level; how these agencies function in relation to public health at federal and local levels. Interaction with practicing public health administrators and specialists.

PubH 5702. Policy Issues in Public Health Administration. (2 cr)
Policy development and implementation in public health-related agencies and organizations.

PubH 5705. Community Health Assessment. (2 cr)
Increases knowledge, understanding, and skills in two of the three core functions of public health: health assessment and assurance. Lectures, group activities, and individual presentations.

PubH 5711. Public Health Law. (2 cr)
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, and regulatory role of government in the health-services system.

PubH 5733. Interventions for Health of Populations. (3 cr)
Synthesis of life cycle developmental approach and public health perspective with nursing and behavior change conceptual models to develop intervention models that are effective in addressing priority public health problems across the life span.

PubH 5735. Public Ethics/Politics and Public Health. (2 cr)
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.

PubH 5740. Organizational Behavior. (2 cr)
Human behavior in organizations; motivation, leadership, influence of organizational structure, informal group behavior, interpersonal relations, supervision. Emphasis on preventing and solving problems among individuals and groups.

PubH 5743. Ethics in Health-Care Administration. (2 cr)
Ethical perspectives in management of health-care organizations, components of a decision-making framework, application of framework to selected ethical issues, and institutional mechanisms for dealing with ethical problems.

PubH 5751. Principles of Management in Health-Services Organizations. (2 cr)
Lectures, case studies on the role of health-care services administrators, principles of management and the administrative process.

PubH 5790. Sociology of Medicine and Health Care: An Introduction to Medical Sociology. (3 cr)
Social and psychological components of health and medical care. Organization and delivery of health-care services, their problems and perspectives; focus on patient, care provider, and environment within which health-care services are dispersed.

PubH 5801. Principles of Research and Program Evaluation. (4 cr)
Introduction to research in public health, including formulation of research question, methodological design, sampling designs, data collection techniques, instrument validity and reliability, role of statistical analysis, and ethics.

PubH 5806. Principles of Public Health Research. (2 cr)
Evaluation of public health research literature and planning for independent research projects. Formulation of research question, research design, sampling techniques, use of research concepts, and data analysis. Data collection techniques, including questionnaires, interviews, and data analysis.

PubH 5812. Managed Care. (3 cr)
Development and organization of HMOs; risk sharing; provider contracts; utilization management; quality improvement; marketing and new product development; employer relations; Medicare and Medicaid contracting; budgeting; financial performance; pricing; regulation.

PubH 5852. Program Evaluation in Health and Mental Health Settings. (3 cr)
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.

PubH 5861. Health Insurance. (2 cr)
Financing personal health care: theory of insurance, health insurance markets, cost sharing, HMOs, PPOs, public and catastrophic health insurance, and the uninsured. Emphasis on public policy.
PubH 5862. Cost-Benefit, Cost-Effectiveness, and Decision Analysis in Health Care. (2 cr)
An application of cost-benefit, cost-effectiveness, and decision analysis techniques in evaluating health-care programs; government regulations; new technologies; diagnosis and treatment protocols. Strengths, limitations, and appropriateness of different approaches.

PubH 5863. Understanding Health-Care Quality. (2 cr)
Introduction to assessing and assuring quality of care. Emphasizes both process and outcomes approaches, parallel interest in the appropriateness and effectiveness of care. Issues around creating needed behavioral changes.

PubH 5870. Survey Research and Sample Design in Health-Services Research. (2 cr)
General, technical, and theoretical context of survey research in health-services research. Survey and sample design issues, with extensive use of case examples.

PubH 5893. Economics of the Health-Care System. (3 cr)
Economic analysis of U.S. health-care sector, emphasizing problems of pricing, production, and distribution. Health-care services as one factor contributing to nation’s health.

PubH 5894. Health-Services Policy. (3 cr)
Social, political, and economic context within which U.S. health-care system developed; influence of these contextual elements on public policies guiding and regulating organization and delivery of health services.

PubH 5900. Public Health Nutrition: Principles and Programs. (2 cr)
Principles of public health nutrition, roles and functions of public health nutritionists, programs and delivery mechanisms for promoting nutritional status of populations. Students explore their beliefs and competencies in relation to principles and philosophy of public health nutrition.

PubH 5902. Maternal and Infant Nutrition. (2 cr)
Nutritional needs of childbearing women and infants and how to meet these through programs and services.

PubH 5905. Human Nutrition and Health. (2 cr)
Broad range of nutrition topics of contemporary interest. Concepts and facts about science of human nutrition in relation to personal and community nutrition problems and concerns. Applied, introductory graduate-level course with labs.

PubH 5907. Assessment of Dietary Intake. (1 cr)
Methods for assessing dietary intake of populations and individuals; appropriate uses of dietary assessment methods in public health, clinical, and research settings; evaluation and interpretation of dietary data.

PubH 5908. Anthropometric Assessment of Nutritional Status. (1 cr)
Anthropometry as used to assess nutritional status; training and experience in taking basic measurements; practical experience in anthropometry; conceptual rationales and interpretation of anthropometric data.

PubH 5910. Critical Review of Research in Public Health Nutrition. (1 cr)
Applying principles of nutrition, epidemiology, and biostatistics to evaluate scientific research on topics of significance in public health nutrition. Interactive seminar format with lecture, discussion, and student presentations.

PubH 5911. Biochemical Assessment. (1 cr)
Use of biochemical measurements for evaluation of nutritional status. Biochemical measurement methods, data analysis, and application of reference data; protein, vitamin, and mineral status.

PubH 5914. Community Nutrition Intervention. (3 cr)
Nutrition intervention strategies used in health programs. Selecting appropriate strategies, applying them to specific target audiences, and evaluating their usefulness in relation to program objectives.

PubH 5920. Public Health Aspects of Nutrition Policy. (2 cr)
Nutrition policy formulation and effects on public health. Role of policy approaches in context of nutrition; how these approaches differ from other prevention strategies.

PubH 5932. Nutrition: Adults and the Elderly. (2 cr)
Current literature and research on nutrition needs and factors affecting nutritional status of adults and the elderly.

Issues in nutrition and public health; biological and epidemiologic bases for public health dietary recommendations. Relation of nutrition to heart disease, cancer, hypertension, obesity, and other conditions.

PubH 5935. Child and Adolescent Nutrition. (2 cr)
Current issues and literature. Major nutrition issues of youth; biological, cultural, and psycho-social factors influencing food behaviors; and strategies for improving nutritional health.

PubH 8120. Occupational Injury Epidemiology and Control Program (OIECP) Research Seminar. (1 cr [max 12 cr])
Facilitates student research efforts in occupational injury epidemiology and control through roundtable discussions and interdisciplinary involvement.

PubH 8140. Validity Concepts in Epidemiologic Research. (2 cr)
In-depth examination of conceptual basis for validity in observational epidemiologic research. Recognizing, evaluating, preventing, and correcting for confounding specification error, measurement-error bias, and selection/follow-up bias.

PubH 8160. Advanced Toxicology. (2 cr [max 12 cr])
Cellular and molecular mechanisms by which xenobiotics cause toxicity; investigative approaches to current research problems in toxicology and carcinogenesis. Aoptosis, cell cycle regulation, genetic toxicology, molecular mechanisms of chemical carcinogenesis, and genetic basis for susceptibility to environmental toxicants.

PubH 8170. Advanced Industrial Hygiene Applications. (2 cr)
Recognition, evaluation, and control of occupational health and safety hazards; application of concepts to specific industrial hygiene problems related to gases/vapors, aerosols, physical agents.

PubH 8350. Advanced Epidemiologic Theory. (2 cr)
Integrates concepts from PubH 5330, 5340—Epidemiology I, II. Critical discussion of current theoretical paradigms of epidemiology, philosophy of causal inference in epidemiology, and estimation of causal parameters.

PubH 8377. Seminar: Chronic Disease and Behavioral Epidemiology. (1 cr [max 2 cr])
Readings, presentations, classroom discussions, and exercises provide experience in epidemiologic research methods in chronic diseases and behaviorally based diseases other than infectious and cardiovascular diseases and cancer.
PubH 8388. Special Topics and Issues in Epidemiology. (1 cr [max 3 cr])  
Intensive three-week immersion experience in study of epidemiologic topics and issues not treated in regular Ph.D. courses. Students explore emerging issues with faculty members who are developing or expanding a specific research area.

PubH 8390. Teaching Practicum in Epidemiology. (2 cr)  
Instruction and hands-on experience in teaching methods at the graduate level.

PubH 8420. Survival Analysis. (3 cr)  
Statistical methodologies in analysis of survival data, including Kaplan-Meier estimator, Cox's proportional hazards multiple regression model, time-dependent covariates, analysis of residuals, and multiple failure outcomes. Typical biomedical applications, including clinical trials and person-years data.

PubH 8421. Analysis of Categorical Data. (2 cr)  
Applications to clinical treatment evaluation, epidemiology, and other public health areas. Log-linear, logit, and linear logistic models; power and robustness studied by exact and approximate methods.

PubH 8422. Modern Nonparametrics. (2 cr)  
Classical nonparametric inference, exact tests and confidence intervals, robust estimates, the jackknife, bootstrap and cross-validation, nonparametric smoothing and classification trees. Variety of models and applications; formal development sufficient for understanding statistical structures and properties. Substantial computing.

PubH 8429. Probability Models for Biostatistics. (3 cr)  
Three basic models used for stochastic processes in the biomedical sciences: point processes (with emphasis on Poisson processes), Markov processes (with emphasis on Markov chains), and Brownian motion. Probability structure and statistical inference studied for each process.

PubH 8430. Sequential Analysis. (2 cr)  
Probability theory underlying sequential analysis, including stopping times, Brownian motion, comparison of frequentist and Bayesian approaches. Biomedical applications, including monitoring clinical trials, laboratory quality control, sequential design and allocation, inference following sequential design.

PubH 8431. Bayesian Decision Theory and Data Analysis. (4 cr)  
Bayes and empirical Bayes methods in a decision-theoretic framework for biostatistical analysis, including advanced data analytic and computing issues.

PubH 8433. Analysis of Longitudinal Data. (3 cr)  
Methods of inference for outcome variables measured repeatedly in time or space, normal theory linear models and nonlinear, nonnormal models with emphasis on GLIM, including random effect; transitional and marginal models with applications to biomedical data.

PubH 8434. Advanced Survival Analysis. (2 cr)  
Martingale methods and counting process theory as applied to survival data, including martingale foundations, statistical tests for comparing survival among groups, Cox proportional hazards model, diagnostics and analysis of residuals, multivariate survival data, and extensions to event history analysis.

PubH 8436. Spatial Biostatistics. (2 cr)  
Introduces statistical methodologies for analyzing spatial data. Tests for spatial autocorrelation, spatial prediction through kriging, random spatial processes, and tests for disease clustering.

PubH 8801. Health Services Policy Analysis: Theory. (3 cr)  
Integrated overview of U.S. health-services policy; theoretical and empirical literature related to this field. A synthesis of alternative policy-making models and political and philosophical underpinnings of those models.

PubH 8802. Health Services Policy Analysis: Applications. (2 cr)  
Emphasizes relationships between health-services research and policy, and uses case studies to examine how research influences policy and vice versa.

PubH 8803. Long-Term Care: Principles, Programs, and Policies. (2 cr)  
Long-term care policy for functionally impaired persons, particularly the elderly. Team taught from health-care and social services perspective; grounded in research literature on evidence of program effects. Innovative programs addressing current fragmentation of services.

PubH 8805. Applications of Sociological Theory to Health. (3 cr)  
Impact of social and organizational structures on access, delivery, and outcomes of care.

PubH 8806. Applications of Social Psychological Theories to Health. (3 cr)  
Social psychological theory explains the nature and causes of human social behavior: how people's thoughts, identities, and actions are affected by social processes and structures. Social psychological factors that influence health, health behaviors, and relationships between actors in the health-care system.

PubH 8810. Seminar: Research Studies in Health Care. (4 cr)  
Review and appraisal of design, measurement, analysis, and findings of contemporary studies.

PubH 8811. Research Studies in Health Care. (3 cr)  
Research methods commonly used in analysis of health-services research and health policy problems.

PubH 8813. Measurement of Health-Related Social Factors. (3 cr)  
How social factors such as innovativeness, compliance, religiosity, and stress are measured and tested for reliability and validity. Relationships between theory, concepts, variables, and data.

PubH 8820. Health Economics I. (3 cr)  
Application of microeconomic theory to health-care decisions of consumers and producers under different assumptions about market structure and behavior.

PubH 8821. Health Economics II. (3 cr)  
Examines application of microeconomic theory to health-services research through selected reading from published and unpublished health economics literature.

Critical evaluations and in-depth discussions of research and research issues in nutrition during various stages of the life cycle. Methodological issues of applied human nutrition investigation, current status of knowledge, and implication of research results for public health policies, programs, and future research.
UNIVERSITY OF MINNESOTA
MISSION STATEMENT

The University of Minnesota, founded in the belief that all people are enriched by understanding, is dedicated to the advancement of learning and the search for truth; to the sharing of this knowledge through education for a diverse community; and to the application of this knowledge to benefit the people of the state, the nation, and the world.

The University's threefold mission of research and discovery, teaching and learning, and outreach and public service is carried out on multiple campuses and throughout the state.

POLICIES

CATALOG USE—The information in this catalog and other University catalogs, publications, or announcements is subject to change without notice. University offices can provide current information about possible changes.

This publication is available in alternative formats on request. Contact the Office of Admissions, University of Minnesota, 240 W. William Hall, 231 Pillsbury Drive S.E., Minneapolis, MN 55455; (612) 625-2008; e-mail admissions@tc.umn.edu.

ACCESS TO 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. (Exceptions under the law include state and federal educational and financial aid institutions.)

Some student information—name, address, electronic (e-mail) address, telephone number, dates of enrollment and enrollment status (full time, part time, not enrolled, withdrawn and date of withdrawal), college and class, major, adviser, academic awards and honors received, and degrees earned—is considered public or directory information. Students may prevent the release of public information. To do so, they must notify the records office on their campus (see below).

Students have the right to review their educational records and to challenge the contents of those records. The regents' policy is available for review on the Web <www.umn.edu/tc/students/grades/privacy.html>, at 200 Fraser Hall, M inneapolis, and at records offices on other campuses of the University. Questions may be directed to the Office of the Registrar, 200 Fraser Hall (612) 625-5333.

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, color, creed, religion, national origin, sex, age, marital status, disability, public assistance status, veteran status, or sexual orientation.

In adhering to this policy, the University abides by the Minnesota Human Rights Act, Minnesota Statute Ch. 363; by the Federal Civil Rights Act, 42 U.S.C. 2000e; by the requirements of Title IX of the Education Amendments of 1972; by Sections 503 and 504 of the Rehabilitation Act of 1973; by the Americans with Disabilities Act of 1990; by Executive Order 11246, as amended; by 38 U.S.C. 2012, 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 directed to Julie Switzer, Director, Office of Equal Opportunity and Affirmative Action, University of Minnesota, 419 Morrill Hall, 100 Church Street S.E., Minneapolis, MN 55455 (612) 624-9547.

EXTRACURRICULAR EVENTS—No extracurricular events requiring student participation may be scheduled from the beginning of study day to the end of finals week. Exceptions to this policy may be granted by the Senate Committee on Educational Policy. The Senate advises all faculty that students who are unable to complete course requirements because of approved events during finals week will be provided an alternative and timely opportunity to do so.

IMMUNIZATION—Students born after 1956 who take more than one University class are required under Minnesota law to submit an Immunization Record form.

The form, which is sent along with the official University admission letter, must be filled out and returned to Boynton Health Service within 45 days of the first term of enrollment in order for students to continue registering for classes at the University. Complete instructions accompany the form.

RESIDENCY—Because the University is a state institution, Minnesota residents pay lower tuition than nonresidents. To qualify for resident status, students must reside in Minnesota for at least one calendar year before the first day of class attendance.

Military personnel applying for resident status must be on active duty and reside in Minnesota for purposes other than school attendance.

SMOKE-FREE CAMPUS POLICY—Smoking is prohibited in all facilities of the University of Minnesota, Twin Cities campus except for designated private residence hall rooms.

TUITION RECIPROCITY—The University has reciprocity agreements with North Dakota, South Dakota, Wisconsin, and Manitoba. If you are a resident of any of these states or this province, you may qualify for reciprocity tuition rates, which are lower than nonresident tuition rates, and in some cases, comparable to resident rates.