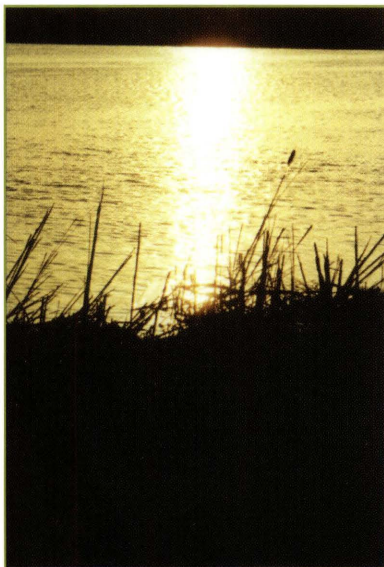


UNIVERSITY OF MINNESOTA



*School of Public Health
Catalog 2001 - 2002*

**ON THE COVER**

Sunset over Lake Hiawatha, one of the many local lakes in the Twin Cities. Photo courtesy of Shirley Fernandez.

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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.

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Word from the Dean

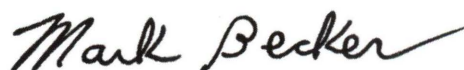
Welcome to the University of Minnesota School of Public Health. In these pages you will learn how students and faculty are pushing back the frontiers of knowledge to tackle many of the most compelling health problems now facing our communities, locally, nationally, and globally. Issues arising out of myriad challenges to health include preventing or managing multiple chronic diseases, emerging and re-emerging infectious diseases, and the effects of environment, social structure and societal change on the health of communities and populations. Because the challenges are so many and complex, the opportunities for careers that are both stimulating and fulfilling are virtually unlimited.

As you read this catalog and related documents about our School and the programs that we offer, you will see that students and faculty are drawn to public health from a wide array of educational backgrounds and life experiences. Our student body includes individuals whose prior academic degrees span the natural sciences, social sciences, engineering, and the professions ranging from medicine, nursing, veterinary medicine, dentistry, and pharmacy to education, law, business, and journalism - to name just a few. The prior life experiences of our students are every bit as broad and varied as their educational degrees. Some students enter our programs directly from undergraduate programs, whereas others do so decades after completing such training. This diverse mix of prior educational and life experiences enriches the learning environment throughout the School. But regardless of background and prior experience, the common thread that draws all of us to public health is a shared commitment to advancing the health of populations.

We welcome your interest in the School of Public Health at the University of Minnesota and encourage you to explore all of the resources available to current and prospective students. Visit our web site at www.sph.umn.edu - it will be steadily evolving over the course of the year. We also welcome your questions and thoughts about our School and programs. You can reach me personally by sending e-mail to mbecker@umn.edu.

There has never been a better or more compelling time to pursue a career in public health. The tradition of excellence and commitment to public health at this University dates back to the 1860s. We invite you to join us in crafting a future for yourself and our communities that is every bit as exciting and rewarding as our illustrious past has been.

Sincerely,



Mark P. Becker, Ph.D.
Dean



Photo courtesy of Richard Anderson

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Divisions/Administrative Units of the SPH

Students find their “home” in the SPH within their major and division, enjoying intellectual collaboration and social engagement among faculty, students, and staff.

Division of Biostatistics

Major:

Biostatistics

Division of Environmental & Occupational Health

Major:

Environmental Health

(Specialty Areas)

Environmental chemistry

Environmental and occupational epidemiology

Environmental health policy

Environmental microbiology

Environmental toxicology

Industrial hygiene

Occupational health nursing

Division of Epidemiology

Majors:

Clinical Research

Community Health Education

Epidemiology

Maternal and Child Health

Public Health Nutrition

Division of Health Services Research & Policy

Majors:

Health Services Research Policy and Administration

Public Health Administration

Dean's Office

Major:

Public Health Practice

(Specialty Areas)

Program in public health medicine

Executive program

Certificate in public health core competencies

School of Public Health

The SPH has existed officially for more than 50 years, but the presence of public health in the University dates back to the 1870s. “Public” is key because our title is our mission: the health of groups of people and populations, rather than the treatment of sick individuals.

We emphasize the prevention of injury and illness. Research and education programs focus on environmental health risks, effects of human behavior on health, illness and injury prevention, and economics and effective delivery of health care services.

The SPH consistently ranks between fifth and seventh among the 30 accredited schools of public health in the United States. Some of our programs have been ranked first nationally, and we are always looking for ways to place more programs in that premier position.

Because we are a multidisciplinary school, our faculty frequently work with units throughout the University, including other schools within the Academic Health Center (AHC), Humphrey Institute, Carlson School of Management, Minnesota Extension Service, College of Agricultural, Food, and Environmental Sciences, and Institute of Technology. Our faculty members are renowned nationally and internationally. They generate more research funding per capita than faculty at any other academic unit in the University. They are also heralded by our students as powerful teachers and supportive advisers.

Centers

The SPH houses or collaborates on community-based research and education with numerous centers, including:

- Center for Public Health Education and Outreach
- Midwest Center for Occupational Health and Safety
- Center for Violence Prevention and Control
- Nutrition Coordinating Center
- Midwest AIDS Training and Education Center
- Minnesota Ecological Risk Assessment Center
- Minnesota Area Geriatric Education Center
- Rural Health Research Center

For more information and a complete listing of SPH research centers, see the Web site for each division. The new Center for Public Health Education and Outreach provides educational opportunities for public health professionals and the public. The center is dedicated to fostering an environment for lifelong learning among public health professionals and graduates. See <http://www.cpheo.umn.edu> for more information.

Public Health Courses

2001-2002

3001 Personal and Community Health

Fundamental principles of health conservation and disease prevention.

3003 Fundamentals of Alcohol and Drug Abuse

Scientific, socio-cultural, and attitudinal aspects of alcohol and other drug abuse problems; emphasizes incidence, high-risk populations, prevention, and intervention.

3004 Basic Concepts in Personal and Community Health

Scientific, socio-cultural, 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.

3201 Issues in Environmental and Occupational Health

Scope of the field of environmental health. Concepts upon which environmental interventions are based. Consulting literature to identify appropriate interventions for community environmental health problems. Online course.

3301 Perspectives: Interrelationships of People and Animals in Society Today

Social, psychological, economic, and health consequences of people/animal relationships. Diversity of cultural perspectives on human/animal relationships. Animals and people sharing an urban environment. Hunting and wildlife conservation. Biomedical research. Animal rights and human/animal bond.

3310 Epidemiology: Science, Methodology, and Application

Scientific work from perspective of epidemiology. Method of scientific inquiry. Methodology/problems of epidemiology.

5003 Fundamentals of Alcohol and Drug Abuse

Lecture, discussion, and special readings on scientific, socio-cultural, attitudinal aspects of alcohol and other drug abuse problems. Emphasizes incidence, high-risk populations, prevention, and intervention.

5005 Topics: Community Health Education

Topic title for 2001-2002:

- Policy/Politics/Ethics of Public Health Decision-Making - Political and ethical factors of public health policy. Focuses on current issues such as tobacco, privacy, genetics, and health care financing.

5010 Public Health Interventions for AIDS

Survey of HIV infection from public health perspective. Emphasizes intervention.

5017 Culture and Health Behavior

Heightens cultural sensitivity regarding public health practice and individual health behaviors. Cultural diversity and its impact on health behaviors; etic (universal) and emic (culture-specific) approaches.

5020 Fundamentals of Social and Behavioral Science

Four major approaches to public health problems: psychosocial, economic, community, policy. Lectures provide overview of theory/implementation. Small groups provide opportunity to practice skills.

5030 Prevention of High-Risk Behavior Among Adolescents

Definitions/etiology of high-risk behaviors among adolescents. Intervention programs. Review of current literature. Students design prevention program overview based on theory/etiological data using health education/behavior change methods.

5034 Program Evaluation for Public Health Practice

Developing useful program evaluations. Emphasizes skills for program administrators, planners. Needs assessments, evaluability assessments, formative evaluation, implementation studies, and outcome evaluations. Quantitative/qualitative data collection methods. Ethical considerations.

5035 Applied Research Methods

Complements master's project work using forms, questionnaires, interviews. Literature searching, questionnaire development, scale construction, item analysis, data coding, entry/analysis, report writing. Use of computer software package to develop questionnaire and analyze data.

5040 Dying and Death in Contemporary Society: Implications for Intervention

Concepts, attitudes, ethics, and lifestyle management related to dying, death, grief, and bereavement. Emphasizes preparing community health and helping professionals/educators for educational activities in this area.

5049 Legislative Advocacy Skills for Public Health

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.

- 5050 Community Health Theory and Practice I**
Socio-environmental 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.
- 5051 Community Health Theory and Practice II**
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.
- 5055 Social Inequalities in Health**
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.
- 5061 Community Health Education in Health Care Settings**
Scope/effectiveness of and barriers to health education in clinical settings. Role of public health professional in implementing/maintaining health education guidelines. Emphasizes health education for risk factor modification.
- 5100 Topics: Environmental and Occupational Health**
Topic titles for 2001-2002:
 - Air Pollution - Primary and secondary sources of air pollution. Transport mechanisms including meteorological effects, atmospheric transformations, loss processes. Human and ecosystem health. Nuisance effects. Historical and future regulations/standards.
 - Working in Global Health - Introduction to global health issues aimed at students interested in working overseas in developing countries.
- 5103 Exposure to Environmental Hazards**
Nature, effects, regulation of exposure to biological, physical, chemical hazards in the environment, in context of inter-/multi-disciplinary scientific field of environmental health as essential component of public health.
- 5104 Environmental Health Effects: Introduction to Toxicology**
Identifying mechanisms/effects on human health of environmental agents. Chemical, biological, physical, and psychological agents.
- 5105 Environmental and Occupational Health Policy**
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.
- 5110 Environmental and Worker Protection Law**
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 exercise.
- 5111 Preventing Pollution: Innovative Approaches to Environmental Management**
Interdisciplinary approach to pollution problems, including sustainability, pollution prevention, risk assessment, regulatory reform, and strategic environmental management.
- 5112 Risk Analysis: Application to Risk-Based Decision Making**
Introduction to risk in context of regulatory decision making.
- 5113 Public Policy and Risk: Strategies for Effective Decisions and Discourse**
Introduction to policy making in public health, environment characterized by substantial risk/uncertainty. Basic mathematics of decision making under risk/uncertainty. Cognitive psychology of how people react to risk. Methods of risk communication.
- 5120 Injury Prevention in the Workplace, Community, and Home**
Injury epidemiology: analyses of major injury problems affecting the public in the workplace, community, and home using epidemiologic model and conceptual framework; emphasis on strategies/program development for prevention and control.
- 5122 Seminar: Safety in the Workplace**
Realm of and potential risk factors for occupational safety problems; strategies for prevention and control.
- 5123 Violence Prevention and Control: Theory, Research, and Application**
Analysis/critique of major theories and of epidemiological research pertinent to violence, including characteristics of violence and relevant risk factors, reporting/treatment protocols, and current/potential intervention efforts and prevention initiatives. Emphasizes interdisciplinary contributions to violence prevention/control.

- 5130 Occupational Medicine: Principles and Practice**
Pathogenesis of diseases caused by occupational hazards; evaluating work-related illnesses; overall regulatory framework governing occupational health and safety.
- 5140 Occupational and Environmental Epidemiology**
Principles/concepts in identifying health effects in workplace. Strategies for identifying excess risk, evaluating strengths/weaknesses of research techniques, assessing bias/confounding.
- 5150 Interdisciplinary Evaluation of Occupational Health and Safety Field Problems**
Guided evaluation of potential health and safety problems at the work site, recommendations and design criteria for correction, and evaluation of occupational health and safety programs.
- 5160 Physiological Disposition of Xenobiotics**
Pharmacokinetics/toxicokinetics and xenobiotic metabolism. Mechanisms by which phase I and II enzymes bioactivate and detoxify xenobiotics. Implications of these biochemical reactions for human health.
- 5161 Regulatory Toxicology**
In-depth introduction to laws (and associated regulations) of U.S. federal regulatory agencies, such as CPSC, EPA, FDA, OSHA, and DOT, that both require and use toxicological data/information in their mission of protecting human and environmental health.
- 5170 Introduction to Occupational Health and Safety**
Introduction to major concepts/issues in occupational health/safety. Application of public health principles/decision-making process in preventing injury/disease, promoting health of adults, and protecting worker populations from environmental hazards. Observational visit to manufacturing facility.
- 5171 Properties, Behavior, and Measurement of Airborne Contaminants**
Airborne contaminants in outdoor/indoor environments. Emphasizes workplace environments. General physical properties of matter in gaseous/aerosol forms. Measurement/characterization of airborne concentrations of pollutants, human exposures to them. Setting of health-related environmental standards.
- 5174 Control of Exposure to Physical and Chemical Hazards**
Hierarchy of options for controlling human exposures to airborne contaminants, both gaseous and aerosol. Science/practice of process control and exhaust ventilation in workplaces and other indoor air spaces and in air cleaning. Control of emissions to ambient environment.
- 5175 Industrial Hygiene Measurements Laboratory**
Broad treatment of occupational health field. Role of industrial hygienist. Emphasizes practical application of industrial hygiene concepts/methods. Lectures/demonstrations, lab exercises, project.
- 5180 Environmental Microbiology**
Survival, dissemination, significance, and monitoring of microbes in the human environment. Principles of biological safety, including risk assessment, lab design and operation, lab animals, shipping and transport, and sterilization, disinfection, and decontamination.
- 5200 Environmental Health**
Principles of environmental health relating to macro- and microenvironments and to products consumed or used by people.
- 5201 Issues in Environmental and Occupational Health**
The field, current issues, and principles and methods of environmental and occupational health practice.
- 5299 Public Health Practice: Introductory Seminar for Health and Human Resources Professionals**
Science/art of public health. Emphasizes interdisciplinary linkages to practice communities. National/local priorities as outlined in "Healthy People 2010" serve as framework for presentations on current issues/trends by public health leaders.
- 5301 Perspectives: Interrelationships of People and Animals in Society Today**
Social, psychological, economic, and health consequences of people/animal relationships. Diversity of cultural perspectives on human/animal relationships. Animals and people sharing an urban environment. Hunting and wildlife conservation. Biomedical research. Animal rights and human/animal bond.
- 5320 Fundamentals of Epidemiology**
Basic concepts and knowledge of epidemiology, a methodology used to study the etiology, distribution, and control of diseases in human populations.
- 5330 Epidemiology I**
Basic epidemiologic principles applicable to infectious and noninfectious disease; host-agent environment complex; factors underlying spread of infectious disease; laboratory applications of statistical and epidemiologic methods.

- 5335 Epidemiology and Control of Infectious Diseases**
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.
- 5337 Analysis of Infectious Disease Data**
Methods to analyze/model infectious disease data. Emphasizes critical understanding of methods, statistical analysis specific to infectious disease areas. Infection models, surveillance/epidemic modeling, transmission models, pathogenesis models.
- 5340 Epidemiology II**
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.
- 5345 Epi Methods: Data Collection**
Methods/techniques for collecting/managing epidemiologic research data. Practical aspects of sampling, response rates/bias, forms design, selecting/training interviewers. Data preparation, entry, cleaning, management. Ethical issues in research.
- 5348 Writing Research Grants**
Focuses on NIH-type grants. Mechanics of grant development/writing, principles of informed consent, budget development, grant-review process, and identifying funding sources.
- 5365 Epidemiology of Aging**
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.
- 5370 Alcohol and Other Drugs: Epidemiology, Prevention, and Control**
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.
- 5381 Genetic Epidemiology**
Etiology, distribution, and control of diseases in groups of relatives; inherited causes of disease in populations. Associations (case-control family studies), concordance (twin studies), disease transmission (segregation analysis), gene localization (gene mapping), and applications in studies of disease etiology.
- 5386 Public Health Aspects of Cardiovascular Disease**
Detailed perspective on well-established risk factors for CVD, prevention of CVD, and national recommendations for treatment/prevention. Introduces emerging risk factors and current controversies in CVD.
- 5387 Cancer Epidemiology**
Epidemiologic aspects of cancer, including theories of carcinogenesis, incidence, site-specific risk factors, and issues of cancer control and prevention.
- 5389 Nutritional Epidemiology**
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.
- 5390 Smoking Intervention**
Impact of smoking on U.S. public health. Review of research on onset/prevention. Factors maintaining dependence, cessation/intervention strategies. Public health campaigns. Public policies, second-hand smoking controversies. International issues.
- 5394 Mass Communication and Public Health**
Role, functions, effects of mass media on public health. Planned/unplanned effects. Review of literature on how theories, models, assumptions of mass communication research relate to public's health.
- 5395 Obesity and Eating Disorders**
Definition, measurement, and prevalence; social, behavioral, physiological causes; health consequences; treatment, prevention.
- 5398 Public Health Policy as a Prevention Strategy**
Philosophical, ethical, economic, political, efficacy rationale for policy approach to prevention. Historical/current application of prevention policy to public health problems.
- 5399 Topics: Epidemiology**
Topic title for 2001-2002:
• Pathophysiology of Human Disease - Compendium of human diseases relevant to public health professionals with a focus on cancer, cardiovascular, and infectious disease. Significance of diseases.
- 5414 Biostatistical Methods I**
Descriptive statistics, graphical methods. Use of Excel. Proportions, relative risk, odds ratios. Random sampling. Estimates of mean, medians, measures of variability. Normal distribution, t-/chi-square tests. Confidence intervals. Correlation/regression. Inference/causality.

- 5415 Biostatistical Methods II**
Statistical computing using SAS. Multiple regression. Data transformations. Relative risk, odds ratio estimation. Logistic regression. Survival analysis. Kaplan-Meier tables, survival curves.
- 5420 Statistical Computing I: Using Statistical Packages**
Use of SAS for analysis of biomedical data. Data manipulation, description. Basic statistical analyses (t-tests, chi-square, simple regression).
- 5421 Statistical Computing II: Advanced Computational and Graphical Methods**
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.
- 5450 Biostatistics I**
Descriptive statistics. Gaussian probability models, point/interval estimation for means/proportions. Hypothesis testing, including t, chi-square, and nonparametric tests. Simple regression/correlation. ANOVA. Health science applications using output from statistical packages.
- 5452 Biostatistics II**
Two-way ANOVA, interactions, repeated measures, general linear models. Logistic regression for cohort and case-control studies. Loglinear models, contingency tables, Poisson regression, survival data, Kaplan-Meier methods, proportional hazards models.
- 5462 Clinical Trials: Design, Implementation, and Analysis**
Introduction to and methodology of randomized clinical trials: design issues, sample size, operational details, interim monitoring, data analysis issues, and overviews.
- 5465 Biostatistics: Regression**
T-tests, confidence intervals, power, type I/II errors. Exploratory data analysis. Simple linear regression, regression in matrix notation, multiple regression, diagnostics. Ordinary least squares, violations, generalized least squares, nonlinear least squares regression. Introduction to general linear model. SAS and S-Plus used.
- 5466 Biostatistics: ANOVA and Design**
Single factor ANOVA, diagnostics, classical non-parametrics, multifactor ANOVA, multiple comparisons, power and sample size determination, calculating expected mean squares, random/mixed effects models. ANOVA in regression notation. Randomized block designs, nested designs, repeated measures designs, crossover designs. SAS and S-Plus used.
- 5467 Analysis of Categorical Data**
Contingency table, odds ratio, relative risk, chi-square tests, log-linear models, logistic regression, conditional logistic regression, Poisson regression, matching, generalized linear models for independent data. SAS/S-Plus used throughout.
- 5470 Topics: Biostatistics**
Topic titles for 2001-2002:
 - Latent Variable Models - Questionnaire design for measuring concepts. Factor analysis as a mathematical model to relate theory to data. Estimation of the factor model. Path analysis with observed variables. Structural equation and latent class models.
 - Biostatistical Thinking - Introduction to the diversity of problems and approaches used by faculty in biostatistical practice.
 - Methods for Correlated Data - Correlated data often arises from data collected over time or space, group randomizations cluster sampling, nested designs, or random effects assumptions. This course will cover modeling, analysis, and interpretation appropriate for such data, for normally or non-normally (e.g. binary, Poisson, gamma) distributed outcomes. SAS used.
 - Statistics in Genetics and Molecular Biology - Introduction of statistical applications in genetic mapping, DNA or protein sequence alignment, analyses of gene expression data, and design of microarray experiments.
- 5501 Fundamentals of Clinical Research**
Concepts of clinical research design/implementation. Concepts that aid in applied investigation in epidemiology/biostatistics.
- 5502 Clinical Research Literature Review Seminar**
Students review clinical research literature, critique: hypotheses/goals, methodology of population selection, study design, subject measurement.
- 5503 Clinical Research Project Seminar**
Students to present their master's project/thesis, give/receive feedback.
- 5550 Clinical Research: Introductory Seminar for Health Professionals**
Design/implementation of clinical research protocols. IRB, FDA, other regulations. Practical tools for survey management. Taught by Clinical Research graduate faculty and guest lecturers.
- 5606 Health of Children**
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.

- 5607 Adolescent Health: Issues, Programs, and Policies**
Major public health issues of adolescents in the United States. Emphasis on prevention and health promotion strategies and on effectiveness of programs and policies.
- 5610 Principles of Maternal and Child Health**
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.
- 5613 Chronic Illness and Disability in Childhood: Principles, Programs, and Policies**
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/coordinated service delivery, and advocacy.
- 5627 Sexuality Education: Criteria, Curricula, and Controversy**
Issues/controversies affecting K-12 sexuality education. Current research/guidelines for effective, responsible education and curricula selection. Various curricula being used in the United States. Challenges in teaching sensitive issues inherent in sexuality education.
- 5628 Seminar: Race, Class, and Family Formation**
Impact of race/class on family formation, family dynamics, and family resiliency/maintenance. Explores whether traditional approaches in family intervention are effective among individuals who are not engaged in traditional social institutions.
- 5634 Advocating for Change for Children**
Strategies for changing systems, building skills in public policy research, information/perception management, coalition building, personal persuasion, advocacy.
- 5648 Topics: Maternal and Child Health**
Topic title for 2001-2002:
• Women's Health - Programs, services, and policies that affect women's health. Methodological issues in research. Emphasis on social, economic, environmental, behavioral, and political factors.
- 5654 Adolescent Sexual Identity: Teen Risk and Professional Responsibility**
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.
- 5655 Sexual Orientation Issues for Adolescents**
Adolescent 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.
- 5661 Community Organizing for Public Health**
Introduces students to principles of community organizing and identifies challenges and strategies for public health professionals engaged in community organizing. Decreasing barriers to community participation; encouraging leadership; building coalitions and alliances; sustaining community organizing efforts.
- 5693 Grant Writing for Public Health**
Hands-on workshop. Focuses on children, youth, and families. Identifying successful elements of a grant application. Grant review process. Critiquing a grant. Writing an application.
- 5700 Foundations of Public Health Administration Practice**
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.
- 5705 Community Health Assessment**
Two of three core functions of public health: health assessment, assurance. Lectures, group activities, individual presentations.
- 5708 Analysis of Administrative Data**
How to use data for various research designs. Origin, quality, strengths, limitations of data. Files based on Medicare/Medicaid data are used for hands-on learning. Emphasizes broad concepts/skills.
- 5711 Public Health Law**
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.
- 5717 Decision-making Under Uncertainty**
Introduction to theory/application of decision analysis. Focuses on normative (as opposed to descriptive) modeling of decision-making under uncertainty.

- 5724 The Health Care System and Public Health**
Overview of health care delivery, finance systems within public health context. Components of health care system: financing, role of employers/public programs, health care delivery system, managed care. Collaborative interventions between managed care, public health.
- 5726 Medical Device Industry: Business and Public Policy**
Business, public policy, regulatory, technology management issues concerning medical device/biotechnology industries. Nature/effects of private-public sector interactions. Involvement by leaders in Minnesota organizations.
- 5740 Organizational Behavior**
Human behavior in organizations; motivation, leadership, influence of organizational structure, informal group behavior, interpersonal relations, supervision. Preventing and solving problems among individuals and groups in organizations.
- 5741 Ethics in Public Health: Professional Practice and Policy**
Introduction to ethical issues in public health practice/policy. Ethical analysis, recognizing/analyzing moral issues.
- 5742 Ethics in Public Health: Research and Policy**
Introduction to ethical issues in public health research/policy. Ethical analysis. Recognizing/analyzing moral issues.
- 5751 Principles of Management in Health-Services Organizations**
Role of health-care services administrators, principles of management, administrative process. Lectures, case studies.
- 5752 Public Health Management**
Managing projects and organizations in public health. Focuses on the skills and knowledge necessary to determine the mission of the organization and plan for the future, structure the organization to support individuals in their work, and motivate and manage activities to achieve goals.
- 5780 Topics: Public Health Administration**
Topic title for 2001-2002:
• Managing Collaborative Networks - Organizational networks are a common feature of public health practice. While mental health care providers may be located in individual organizations, their activities need to be coordinated so that care of clients is integrated. In other cases, different organizations in a community band together in network organizations to achieve community based goals that no one organization could achieve alone. This course teaches you how to manage these organizational networks effectively.
- 5802 Seminar: Technology of Data Operations in Health Care Studies**
Overview of data collection tools in health care studies: workflow design; scanned/faxed, web-based forms; voice response; palmtop computers; relational databases. Managing workflow. Selecting tools to ensure data quality and low cost. Case studies.
- 5806 Principles of Public Health Research**
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.
- 5812 Managed Care**
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.
- 5852 Program Evaluation in Health and Mental Health Settings**
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.
- 5861 Health Insurance**
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.
- 5862 Cost-Benefit, Cost-Effectiveness, and Decision Analysis in Health Care**
Government regulations. New technologies. Diagnosis/treatment protocols. Strengths, limitations, appropriateness of different approaches.
- 5863 Understanding Health Care Quality**
Introduction to assessing and assuring quality of care. Emphasizes both process and outcomes approaches, paralleling interest in the appropriateness and effectiveness of care. Issues around creating needed behavioral changes.
- 5864 Conducting Health Outcomes Research**
Major concepts/principles in conducting health outcomes research that evaluates medical care. Developing study designs matched to research questions. Frequently used study designs. Evaluating health outcomes. Analytical approaches.

- 5893 Economics of the Health Care System**
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.
- 5894 Health Services Policy**
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.
- 5900 Public Health Nutrition: Principles and Programs**
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.
- 5905 Human Nutrition and Health**
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.
- 5907 Assessment of Dietary Intake**
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.
- 5908 Anthropometric Assessment of Nutritional Status**
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.
- 5910 Critical Review of Research in Public Health Nutrition**
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.
- 5911 Biochemical Assessment**
Use of biochemical measurements for evaluation of nutritional status. Biochemical measurement methods, data analysis, and application of reference data; protein, vitamin, and mineral status.
- 5914 Community Nutrition Intervention**
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.
- 5932 Nutrition: Adults and the Elderly**
Current literature and research on nutrition needs and factors affecting nutritional status of adults and the elderly.
- 5933 Nutrition: Health/Disease Relationships**
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.
- 5935 Child and Adolescent Nutrition**
Current issues and literature. Major nutrition issues of youth; biological, cultural, and psycho-social factors influencing food behaviors; and strategies for improving nutritional health.
- 8100 Topics: Environmental and Occupational Health Research**
Topic title for 2001-2002:
• Doctoral Seminar on Observational Inference - Practice of fundamentals of epidemiologic inference. Methods for designing, analyzing, and interpreting epidemiologic studies. Critical discussion of methods papers. Designing of studies.
- 8120 Occupational Injury Epidemiology and Control Program (OIECP) Research Seminar**
Facilitates student research efforts in occupational injury epidemiology and control through roundtable discussions and interdisciplinary involvement.
- 8140 Validity Concepts in Epidemiologic Research**
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.
- 8160 Advanced Toxicology**
Cellular and molecular mechanisms by which xenobiotics cause toxicity; investigative approaches to current research problems in toxicology and carcinogenesis. Apoptosis, cell cycle regulation, genetic toxicology, molecular mechanisms of chemical carcinogenesis, and genetic basis for susceptibility to environmental toxicants.
- 8161 Current Literature in Toxicology**
Modern methods in toxicology, critical thinking skills. Topics vary each semester. Students read/discuss toxicological literature.

- 8170 Advanced Industrial Hygiene Applications**
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.
- 8377 Seminar: Chronic Disease and Behavioral Epidemiology**
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.
- 8388 Special Topics and Issues in Epidemiology**
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.
- 8420 Survival Analysis**
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.
- 8429 Probability Models for Biostatistics**
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.
- 8431 Bayesian Decision Theory and Data Analysis**
Bayes and empirical Bayes methods in a decision-theoretic framework for biostatistical analysis, including advanced data analytic and computing issues.
- 8433 Advanced Longitudinal Data Analysis**
Methods of inference for outcome variables measured repeatedly in time or space. Linear/nonlinear models with either normal or non-normal error structures. Random effects. Transitional/marginal models with biomedical applications.
- 8434 Advanced Survival Analysis**
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.
- 8436 Spatial Biostatistics**
Introduces statistical methodologies for analyzing spatial data. Tests for spatial autocorrelation, spatial prediction through kriging, random spatial processes, and tests for disease clustering.
- 8801 Health Services Policy Analysis: Theory**
Integrated overview of U.S. health-services policy; theoretical and empirical literature related to this field. Analysis of alternative policy-making models and political and philosophical underpinnings of those models.
- 8802 Health Services Policy Analysis: Applications**
Emphasizes relationships between health services research and policy, and uses case studies to examine how research influences policy and vice versa.
- 8805 Sociology of Health and Illness**
Effect of social structure on health outcomes/behaviors. Current/historical events/issues from perspective of sociological/social psychological theories. Students apply theories to a topic they identify.
- 8806 Sociology of Health Occupations and Organizations**
Sociological theories of occupations/organizations as applied to health care. Functional, conflict, evolutionary theories applied to health care reorganization such as managed care, technology on organization of work/occupations. Emphasizes application of theories to develop hypotheses.
- 8810 Seminar: Research Studies in Health Care**
Review and appraisal of design, measurement, analysis, and findings of contemporary studies.
- 8811 Research Studies in Health Care**
Research methods commonly used in analysis of health services research and health policy problems.
- 8813 Measurement of Health-related Social Factors**
How social factors such as innovativeness, compliance, religiosity, and stress are measured and tested for reliability and validity. Relationships among theory, concepts, variables, data.
- 8820 Health Economics I**
Application of micro-economic theory to health care decisions of consumers and producers under different assumptions about market structure and behavior.
- 8821 Health Economics II**
Examines application of micro-economic theory to health services research through selected reading from published and unpublished health economics literature.

Student Services Center (SSC)

From initial inquiry to alumni career counseling, student services at the SPH are available for life long learning in public health. The SSC, a school-wide office, coordinates functions including recruitment, applications, and graduation clearance. The SSC works closely with coordinators in each of the majors who are the first point of contact. We are happy to serve you. Contact us at 612.626.3500/800.774.8636 or sph-ssc@umn.edu.



Photo courtesy of Asha Tobing

(From left to right) Sharon Goodyear, Rita Baker-Cody, Carol Francis, Guy Piotrowski, Joan Pasiuk

Career Services

SPH Career Services assists students and alumni to maximize employment opportunities, enhance career skills, and develop professional contacts.

- Public Health Mentor Program matches students with professionals in their career field and helps students develop professional networks, locate internships, and explore career options.
- Career Resource Library provides students with access to career information such as books on resume writing and job search, professional newsletters and journals, company information, and an Alumni Network directory.
- Announcements of local and national jobs are posted in the career center and on the Web site.
- Individual career counseling and coaching is available to assist students with resume writing, networking, and interviewing skills.
- Job search workshops teach career trends and job search strategies.
- Panels on topics of interest to graduates include employer visits and presentations on special topics.
- Career fairs provide an opportunity for students to meet employers to discuss job and internship opportunities.

For more information, see <http://www.sph.umn.edu/career.htm>. Applicants will receive a password for the Web and information to subscribe to a listserv posting graduate assistantships and job opportunities.

Degrees

| Major | M.P.H. | M.S. | Accelerated Master's Program ¹ | Ph.D. | Dual or Joint Degrees |
|---------------------|--------|------|---|-------|---|
| BIO | Δ | Δ | | Δ | |
| CR | | Δ | | | |
| CHE | Δ | | | | M.P.H. with M.S.W. (social work) M.P.H. with M.S. (nursing) |
| EH | Δ | Δ | | Δ | M.P.H. with M.S. (nursing) M.S. with J.D. (law) Ph.D. with J.D. (law) |
| EPI | Δ | | Δ | Δ | M.P.H. with M.S. (nursing) |
| HSRP & A | | Δ | | Δ | M.S. with M.P.P. (public policy) Ph.D. with M.D. (medicine) M.S. with J.D. (law) Ph.D. with J.D. (law) |
| MCH | Δ | | Δ | | M.P.H. with M.S.W. (social work) M.P.H. with M.S. (nursing) |
| PHA | Δ | | Δ | | M.P.H. with M.B.A. (bus. admin.) M.P.H. with M.S. (nursing) |
| PH NUTR | Δ | | Δ | | M.P.H. with M.S.W. (social work) M.P.H. with M.S. (nursing) |
| PHP | Δ | | Δ | | M.P.H. with M.D. (medicine) |

¹ for students with prior advanced degrees

Grand Avenue Shops, St. Paul

Photo courtesy of Asha Tobing

Dual/Joint Degrees

By applying some credits to both degrees, students can move more quickly to earning dual degrees. In most cases, students can also apply one internship and final project to the graduation requirements for both programs. Applicants must apply and be admitted into each program separately.

Financial Aid

Students finance their SPH education using a number of strategies, including:

- Graduate assistantships
- Loans
- Traineeships
- Campus or off-campus jobs
- SPH awards
- Division and major awards
- Tuition reciprocity
- Graduate School resources
- Employer reimbursement
- Awards from other University departments and colleges
- Outside scholarships
- Tax benefits
- Personal savings

SPH research activities support more than 50 graduate assistantships every year. All SPH students may also apply for graduate assistantships across campus. These are a primary means of student support. In addition to a salary, assistantships usually provide tuition waivers and eligibility for low-cost health insurance. For current postings see <http://www1.umn.edu/ohr/gao/>. For benefits and policies see <http://data.ohr.umn.edu/webfm/gaopost/gaopost.html>.

The SPH funds numerous awards each year for new and continuing students. These include:

- James L. Craig Fellowship in Public Health
- Vivian V. Drenckhahn Scholarship in Public Health
- Mary A. Johnson Memorial Scholarship
- Samuel Paul Kingston Scholarship
- Long-Term Care Award
- Health Equity Tuition Waiver
- Roberta A. Craig Fellowship in International Public Health
- Dr. J. Arthur Myers Endowment for International Experience in Public Health
- William Foege Scholarship
- Cecilia Goetz Scholarship in Public Health

See the SPH Web site for much more information about financial aid.



"From the first time I contacted the SPH I could tell that the atmosphere is really supportive of students. Faculty and staff of the school are very approachable as well as extremely knowledgeable and tops in their fields. There are also an incredible number of opportunities here to take advantage of, including RA/TA positions, committees to serve on, internships, mentoring, volunteer positions, etc. I've also been pleased to discover that Minneapolis and St. Paul are really active cities, with lots of outdoor and cultural activities to do."

- Maia Dock
M.P.H. Student

Tuition Rates for 2001 - 2002

| | | Resident | Nonresident |
|--------------------------------|-------------------------------|----------|-------------|
| School of Public Health | | | |
| (M.P.H. students) | per credit | \$305 | \$599 |
| Graduate School | | | |
| (M.S. and Ph.D. students) | 6 - 14 credits | \$2,932 | \$5,759 |
| | per credit up to 6 or over 14 | \$489 | \$960 |

Degree Requirements (For learning objectives, see SPH Web site for each major)

M.P.H.

| | |
|-------------------------|---|
| Credits: | Varies by major. Upon approval by major and dean, up to 12 semester credits may be transferred |
| Coursework: | Approved by major and adviser; no coursework older than seven years may be transferred to a degree program |
| Core courses: | One course in six areas: administration, behavioral sciences, biostatistics, environmental health, epidemiology, ethics |
| Minor: | Not recognized |
| Field Placement: | 90 hours or more in approved placement; varies by major |
| Exam: | Pass written or oral comprehensive exam |
| GPA: | Cumulative GPA of 3.00 for all required courses taken A-F |
| Registration: | At least two semesters totaling 12 credits in the SPH |
| Duration: | Complete degree requirements within seven years |

M.S.¹

Plan A: Master's Degree With Thesis

| | |
|------------------------|---|
| Credits: | Varies by major |
| Thesis credits: | 10 credits, ungraded; cannot be applied toward course credit requirements |
| Minor: | 6 credits or more; approved by DGS in minor field |
| GPA: | 3.00 for all courses in program (2.80 for Clinical Research) |

Plan B: Master's Degree Without Thesis

| | |
|-----------------|--|
| Credits: | Varies by major |
| Minor: | 6 credits or more; approved by DGS in minor field |
| GPA: | 3.00 for all courses in program (2.80 for Clinical Research) |

Ph.D.¹

| | |
|--------------------|---|
| Coursework: | Courses in major field and supporting minor (varies by academic program) |
| Credits: | 24 thesis credits |
| Exams: | Varies by academic program; includes preliminary oral exam, preliminary written exam, final oral exam |

¹ Subject to Graduate School credit-hour and residence minimum requirements

Minneapolis Skyline from St. Anthony Main

Photo courtesy of Asha Tobing



"Coming from a large state university, I was pleased to see that even though this is also a large school, students in SPH are not just numbers. There is a great deal of effort put forth by the faculty to get to know the students."

- Hema Khanchandani
M.P.H. Student
Co-President, SPH Student Senate

Academic Calendar 2001-2002

With Selected SPH Events

AUGUST

- 8 International Student Orientation Program for new international students (also offered August 15, 21, 23, 30, 31)
- 20 SPH orientation
- 15-27 Orientation in SPH majors (one designated day for each major)
- 23-28 Graduate School orientation

SEPTEMBER

- 4 Fall semester classes begin
- 5 President's reception for incoming and professional students
- 6 Academic Health Center student welcome
- 13 Orientation for Public Health Mentor Program

OCTOBER

- 30 Public Health Mentor Program kick-off
- 31 Student Services Center Halloween Bash

NOVEMBER

- 2 Public Health Roundtable: Aging
- 9 SPH Open House for prospective students
- 12 Enrollment begins for spring semester and May session 2002
- 19 SPH Open House for prospective students
- 22-23 Thanksgiving holiday

DECEMBER

- 14 Last day of fall semester instruction
- 15-16 Study days
- 17-22 Final exams

JANUARY

- 22 Spring semester classes begin

The North Shore, Lake Superior

FEBRUARY

- 25 Nonprofit Career Fair

MARCH

- 18-22 Spring break

APRIL

- 1-5 Filmfest and other events in celebration of Public Health Week
- 9 Enrollment begins for May session and summer session 2002 for admitted students
- 11 Enrollment begins for fall 2002
SPH Career fair

MAY

- 10 Last day of spring semester instruction
- 11-12 Study days
- 13-18 Final exams
- 20 SPH commencement
- 20 SPH scholarship reception
- 28 May session begins

JUNE

- 14 May session ends
- 17 Summer session classes begin

JULY

- 4 Independence Day holiday

AUGUST

- 9 Last day of summer session instruction

Photo courtesy of John Finnegan

Admission Requirements Fall 2002

Admission requires a baccalaureate or higher degree from an accredited college or university. Applications are reviewed by a committee in each major. Committees select the strongest candidates from the pool each year. The table below identifies minimum admission requirements. In many cases, applicants meeting but not exceeding minimum requirements are not competitive. The SPH reserves the right to deviate from minimum requirements to recognize extenuating circumstances or compelling qualifications.

| ACADEMIC MAJOR | GPA ¹ (4.00 scale) | STANDARDIZED TEST ^{1, 2, 3} | PREREQUISITES |
|--|---------------------------------------|--|---|
| Biostatistics M.S., M.P.H. | 3.10 overall 3.40 statistics, math | GRE 450 V, 550 Q, 550 A Test not required for applicants with M.D. or Ph.D. from a U.S. school | <ul style="list-style-type: none"> • Math: multivariate calculus, linear algebra • Applied statistics • Computer programming (e.g., fortran, C) |
| Ph.D. | 3.70 statistics, math | GRE 550 V, 650 Q, 650 A Test not required for applicants with M.D. or Ph.D. from a U.S. school | <ul style="list-style-type: none"> • M.S. in statistics or biostatistics • Coursework in real analysis, mathematical statistics, applied statistics |
| Clinical Research M.S. | 3.00 | GRE not required | <ul style="list-style-type: none"> • Advanced health professional degree (see page 26 for details) |
| Community Health Education M.P.H. | 3.00 | GRE 1500 Test not required for applicants with a doctoral-level degree from an accredited U.S. or Canadian school | <ul style="list-style-type: none"> • One year of relevant experience • One quantitative methods course (statistics preferred) • Three behavioral and social science courses (four to five recommended) |
| Environmental Health M.P.H., M.S., Ph.D. | 3.00 | GRE 1500 or GMAT 500 MCAT | <ul style="list-style-type: none"> • Sciences and engineering prereqs vary by major • Occupational Health Nurse: Baccalaureate nursing degree |
| Epidemiology M.P.H. | 3.00 | GRE 1500 Test not required for applicants with a doctoral-level degree from an accredited U.S. or Canadian school | <ul style="list-style-type: none"> • Life sciences background • Demonstrated analytic and quantitative aptitude on GRE (70th percentile) or in college level coursework |
| Ph.D. | 3.00 | GRE 1500 Test not required for applicants with a doctoral-level degree from an accredited U.S. or Canadian school | <ul style="list-style-type: none"> • Advanced degree in related field • Life or behavioral sciences background • Demonstrated analytic and quantitative (70th percentile) or in college level coursework |

APPLICATION DATES ⁴

TOEFL ^{5,6}

SUBSTITUTE REQUIREMENTS

Dec 31 for first round of financial aid
June 15 final deadline

600/250
Applicants scoring \geq 600/250
will be considered even if
Verbal GRE is below 450

No substitutes

Dec 31 for first round of financial aid
June 15 final deadline

600/250
Applicants scoring \geq 600/250
will be considered even if
Verbal GRE is below 450

No substitutes

March 1 for priority consideration

600/250

ECFMG or UMN fellow with
minimum 24 academic credits
substitutes for TOEFL

March 1 for priority consideration

600/250

ECFMG substitutes for
GRE and TOEFL

March 1 for priority consideration

600/250

ECFMG substitutes
for GRE and TOEFL

March 1 for priority consideration

600/250

ECFMG substitutes for
GRE and TOEFL

January 15

600/250

ECFMG substitutes for
GRE and TOEFL

¹ GPA and standardized test results are required. Applicant is considered if either minimum is met.

² GRE score is for general test; no subject test is required.

³ Scores for standardized tests taken within five years of SPH enrollment are acceptable.

⁴ International applicants should submit application packet one month prior to indicated deadlines.

⁵ Score of 600 on paper test compares to 250 on computer test.

⁶ TOEFL is the most common English proficiency test. English proficiency test is required for international applicants **except** for those from an English-speaking country, or those who have studied in an English-speaking country for two years at the college level or five years at the secondary school level.

| ACADEMIC MAJOR | GPA ¹ (4.00 scale) | STANDARDIZED TEST ^{1,2,3} | PREREQUISITES |
|--|-------------------------------|---|--|
| Health Service Research Policy & Administration M.S. | 3.00 | GRE 1500 | <ul style="list-style-type: none"> • Calculus • Statistics • Intermediate microeconomics |
| Ph.D. | 3.00 | GRE 1800 | <ul style="list-style-type: none"> • Calculus • Statistics • Intermediate microeconomics |
| Maternal and Child Health M.P.H. | 3.00 | GRE 1500 Test not required for applicants with a doctoral-level degree from an accredited U.S. or Canadian school | <ul style="list-style-type: none"> • One year of experience • Basic understanding of physiological or psychological human development |
| Public Health Administration M.P.H. | 3.00 | Preferred tests: GRE 1500 or GMAT 500. Also acceptable: LSAT, DAT, MCAT. Test not required for applicants with a doctoral-level degree from a U.S. school | <ul style="list-style-type: none"> • One year of experience preferred • Letter of intent: description of college major, honors, research projects, leadership experience, career interest |
| Public Health Nutrition M.P.H. | 3.00 | GRE 1500 Test not required for applicants with a doctoral-level degree from an accredited U.S. or Canadian school | <ul style="list-style-type: none"> • 24-mo option: 3 credits biology, 6 credits general chemistry, 6 credits organic chemistry with lab, and 3 credits biochemistry • 16-mo option: nutrition or dietetics degree, R.D. or R.D.-eligible • 13-mo option: R.D. or R.D.-eligible, and three years full-time nutrition experience |
| Public Health Practice M.D./M.P.H. (Program in Public Health Medicine) | 3.00 | Must pass USMLE Step 1 exam before or during matriculation in the program | <ul style="list-style-type: none"> • Currently enrolled in Medical School |
| M.P.H. (Executive Program) | 3.00 | Test not required for applicants with an advanced health professional degree from an accredited U.S. or Canadian school | <ul style="list-style-type: none"> • Advanced health professional degree (eg. M.D., D.D.S., D.V.M., M.S.N., Pharm.D.); Ph.D. or Sc.D. or M.B.B.S. may be considered |
| Public Health Certificate in Core Concepts | NA | Not required | <ul style="list-style-type: none"> • Baccalaureate degree |

APPLICATION DATES ⁴**TOEFL** ^{5,6}**SUBSTITUTE REQUIREMENTS**

| | | |
|------------------------------------|---------|--|
| March 1 for priority consideration | 600/250 | No substitutes |
| March 1 for priority consideration | 600/250 | No substitutes |
| March 1 for priority consideration | 600/250 | ECFMG substitutes for TOEFL (GRE required) |
| March 1 for priority consideration | 600/250 | ECFMG substitutes for GRE and TOEFL |
| March 1 for priority consideration | 600/250 | ECFMG substitutes for GRE and TOEFL |
| Nov 15 | 600/250 | No substitutes |
| March 1 | 600/250 | ECFMG substitutes for GRE and TOEFL |
| Continuous application | 600/250 | |

¹ GPA and standardized test results are required. Applicant is considered if either minimum is met. See exception for certificate program in Public Health Practice.

² GRE score is for general test; no subject test is required.

³ Scores for standardized tests taken within five years of SPH enrollment are acceptable.

⁴ International applicants should submit application packet one month prior to indicated deadlines.

⁵ Score of 600 on paper test compares to 250 on computer test.

⁶ TOEFL is the most common English proficiency test. English proficiency test is required for international applicants **except** for those from an English-speaking country, or those who have studied in an English-speaking country for two years at the college level or five years at the secondary school level.

Biostatistics

William Dunsmuir, Ph.D., major chairperson for M.P.H.

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William Thomas, Ph.D., director of graduate studies

for M.S. and Ph.D. will@biostat.umn.edu

612.624.4655 or 800.774.8636

<http://www.biostat.umn.edu>

Coordinator: Sally Olander

sally@biostat.umn.edu

612.625.9185 or 800.774.8636



Photo courtesy of John Finnegan

Minnesota State Fair

The Field of Biostatistics

Biostatistics combines statistics, biomedical science, and computing in health research. Biostatisticians design, direct, and analyze clinical trials; develop new statistical methods; and analyze data from observational studies, laboratory experiments, and health surveys. This is an ideal field for students with strong mathematical backgrounds who enjoy working with computers, collaborating with investigators, and want to participate in health research.

Biostatistics at the University of Minnesota

Our Biostatistics Division 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 and ex-smokers
- Pathogenesis and treatment of otitis media (ear infection) in children
- Prevention and treatment of colon cancer
- Spatial clustering of diseases using GIS
- Effects of risk-factor intervention on death rates from coronary heart disease

Faculty methodological research covers a broad spectrum: 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.

Qualifications for 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 two years of coursework beyond the master's degree, plus the dissertation. Students are admitted in the fall only.

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

Admission to the M.S. and M.P.H. requires:

- Mathematics through multivariable calculus (three semesters or four quarters)
- Linear algebra
- 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
- GRE scores of 450 (verbal), 550 (quantitative), and 550 (analytic). A score of 600/250 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 applied statistical methods
- GPA of 3.70 or above in math/statistics coursework
- GRE scores of 550 (verbal), 650 (quantitative), and 650 (analytic)

Financial Aid

All applicants are considered for financial support. Among the complete applications received by December 31, the highest ranked applicants are offered support early in March. Financial support is usually given as a research assistantship or teaching assistantship. Research assistants may work on NIH-sponsored projects or in the Boen Consulting Lab, a resource for design and analysis of health science studies. Teaching assistants work one-to-one with students answering questions and grade homework.

Career Prospects

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 \$70,000 for master's graduates, and from \$75,000 to \$125,000 for doctoral graduates.

For Further Reading

(Books)

- Medical Uses of Statistics, 2nd ed., Bailor and Mosteller
 - The Human Side of Statistical Consulting, Boen and Zhan
- (Journals)
- Statistics in Medicine
 - Controlled Clinical Trials
 - Biometrics
 - Biometrika

Web sites

- <http://www.amstat.org>
- <http://www.enar.org>
- <http://www.public.iastate.edu/~chance99>

Sample Field Placements

- 3M
- Mayo Clinic
- Merck Research Laboratories
- Eli Lilly
- Medtronic
- National Institutes of Health
- University of Iowa
- Texas A&M University

Sample Final Projects

M.S.

- "Hierarchical Models for Mapping Ohio Lung Cancer Rates"
- "Options for Controlling Overdispersion in Poisson and Logistic Regression"
- "Piecewise Exponential Models With Smooth Transitions and Covariates for Kidney Transplant Survival Data"
- "Predicting Disease Status Using Correlated Data"

Ph.D.

- "Assessing the Accuracy of Normal Approximations From Proportional Hazards Regression"
- "Model-based Methods for Spatially Misaligned Data: A Bayesian Approach to the Modifiable Areal Unit Problem"



"This is a place where research, teaching, learning, and action all converge. Our research and participation in health promotion allows us to be in continual contact with the community, and that becomes part of what is taught in our classes. For students who want to be active members of the community in solving public health problems, this is a terrific environment with many opportunities!"

- Cheryl Perry, Ph.D.
Professor

Distinguished Women Scholar Award, 2001

Clinical Research

Stephen P. Glasser, M.D., director of graduate studies
glasser@epi.umn.edu 612.626.8802 or 800.774.8636
<http://www.epi.umn.edu>

Coordinators: Shelley Cooksey, Amy Douglas, Andrea Kish
gradstudies@epi.umn.edu
612.626.8802 or 800.774.8636



Photo courtesy of John Finnegan

Minneapolis Farmers Market

The Field of Clinical Research

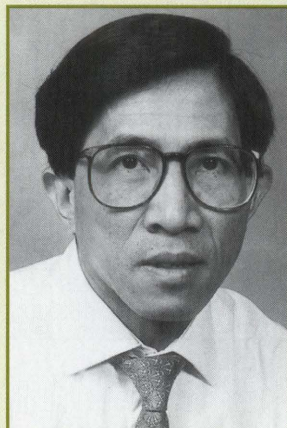
Clinical research is defined by the National Institutes of Health Director's Panel on Clinical Research (CRP) as "the elucidation of human biology and disease, and its control." The field encompasses

- 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
 - a. Mechanisms of human disease
 - b. Therapeutics interventions
 - c. Clinical trials
 - d. 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. The M.S. in clinical research focuses mainly on patient-oriented research and less on outcomes research, health services research, or classic epidemiologic and behavioral studies. (Students interested in the latter might be better served by seeking an M.P.H.)

Clinical Research at the University of Minnesota

The clinical research program at the University is on the frontier of this new academic discipline. To satisfy the demand for improved and formal training in clinical research, faculty representing all the Twin Cities AHC schools 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. An interdisciplinary approach offers a broad range of mentoring and clinical research involvement. Each academic unit offers excellent support services for student research and training activities. The clinical research M.S. is housed in the SPH, Division of Epidemiology.



"I said at the time I won my first teaching award that 'good teaching comes from the heart,' and that is what's special about faculty at this School of Public Health. For some, like myself, teaching—like preaching—is a high calling; others treat public health almost as a religion. We care about the people, we care about the environment, we care about what we do and, of course, we care about our students."

- Chap T. Le, Ph.D.
Distinguished Teaching Professor of Biostatistics
Award for Outstanding Contributions to Post-Baccalaureate,
Graduate, and Professional Education

Research Activities

A wide variety of clinical trials are ongoing at AHC. Examples of research include studies in osteoporosis prevention, heart disease prevention, and the role of inflammatory dental disease in the genesis of atherosclerosis; interventional research into AIDS, cancer, congestive heart failure, arterial stiffness, and hypertension; genetic epidemiology; pharmacogenetics, and behavioral research.

Qualifications for Admission

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 such as M.D., D.D.S., D.V.M., Pharm.D., Ph.D. or any other advanced doctoral degree in a clinical biomedical field; or an advanced nursing degree (such as M.S. in Nursing, or M.S.N.). In addition, students must have completed or be at an advanced state of their clinical practice training, and be affiliated with someone at the University of Minnesota who can provide advising and access to a clinical project. The admissions committee will consider exceptions on an individual basis.

Degree Program

The 38-credit program includes 26 credits in required courses, 2 elective credits, and 10 thesis credits. Elective credits may be taken from any academic unit within AHC or from other related fields by permission of the adviser. The thesis requires an active role in an ongoing clinical research project. In a final oral examination, the thesis project is presented and defended before a faculty committee. The committee consists of at least three members: two from the clinical research M.S. graduate faculty, one from another graduate faculty body at the University.

Career Prospects

The degree is aimed at training future clinical research principal investigators at either academic or private institutions. Some graduates choose a path to industry, where they become clinical project directors (e.g., a pharmaceutical or medical device firm).

For Further Reading

- Designing Clinical Research, S.B. Hulley and S.R. Cummings, editors
- Careers in Clinical Research: Obstacles and Opportunities, Division of Health Sciences Policy, Institute of Medicine
- Fundamentals of Clinical Trials, Lawrence Friedman, Curt Furberg, and David DeMets

Sample Final Projects

- "A Randomized Clinical Trial of Exercise and Spinal Manipulation for Chronic Neck Pain"
- "Late Outcomes After Bone Marrow Transplant for Aplastic Anemia"
- "Randomized Clinical Trial of Thalidomide, Cyclosporine, and Prednisone Versus Cyclosporine and Prednisone as Initial Therapy for Chronic Graft Versus Host Disease"
- "Long Term Outcome of Endoscopic Therapy for Sphincter of Oddi Dysfunction"
- "Phase II Trial of Gemcitabine for Gastric Cancer"
- "Epidural Analgesia Versus Intrathecal Narcotics for Labor Pain Management"
- "Angiotensin II Receptor Blockade in the Prevention of Cortical Interstitial Expansion and Graft Loss from Chronic Allograft Nephropathy in Renal Transplant Recipients"
- "Treatment of Advanced Neoplasia and Quality of Life of Older Patients (TRANQOL) Study"

KEY UNIVERSITY CONTACTS

- Disability Services
612.626.1333; <http://www.disserv.stu.umn.edu>
- Graduate School Admissions
612.625.3014; e-mail: gsadmit@umn.edu
<http://www.grad.umn.edu>
- Graduate Assistantships
<http://data.ohr.umn.edu/webfm/gaopost/gaopost.html>
- Housing and Residential Life
612.624.2994; e-mail: housing@umn.edu
<http://www.umn.edu/housing/>
- International Student and Scholar Services
612.626.7100; (fax) 612.626.7361
e-mail: isss@umn.edu; <http://www.isss.umn.edu>
- Office of Student Finance
612.624.1665 or 800.400.8636;
e-mail: osfa@umn.edu
- One-Stop (class schedule, registration, etc.)
<http://onestop.umn.edu/>

ADMISSIONS OFFICES OF DUAL & JOINT DEGREE PROGRAMS

- Carlson School of Management (M.B.A.)
612.624.0006; <http://www.csom.umn.edu>
- Humphrey Institute of Public Affairs (M.P.P.)
612.624.3800; e-mail: admissions@hhh.umn.edu
<http://www.hhh.umn.edu/>
- Law School (J.D.)
612.625.1000; <http://www.law.umn.edu>
- Medical School (M.D.)
612.624.1188; <http://www.med.umn.edu/>
- School of Nursing (M.S.)
612.624.4454; e-mail: nurseoss@umn.edu
<http://www.nursing.umn.edu>
- School of Social Work (M.S.W.)
612.624.4704 or 800.779.8636
<http://ssw.che.umn.edu>

OTHER

- Metro Transit (public bus service)
612.373.3333; <http://www.metrotransit.org>

community health education

Community Health Education

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Photo courtesy of Shirley Fernandez

Art talent of local kids

The Field of Community Health Education

Community health education promotes healthy behaviors and social conditions. Community health educators develop, administer, and evaluate community and organizational programs to support changes in high-risk behaviors such as alcohol use and poor eating habits; work with policymakers and community leaders to change health policies and practices; promote wellness; and coordinate the work of public and private agencies and health-care organizations for maximum benefit to the community.

Community Health Education at the University of Minnesota

Students benefit from numerous aspects of the program.

- A curriculum emphasizing skills of public health community organization and advocacy, policy advocacy, program evaluation, and program planning and design
- Faculty who are recognized nationally and internationally for innovative health education strategies
- A low student-to-faculty ratio
- Opportunities to collaborate with faculty on research and other projects
- Preparation for a career in public health practice or for continued education to a doctoral level
- Opportunities to acquire experience working for community-based projects in Minnesota
- Excellent support services for student research

Research Activities

Research activities focus on behavioral epidemiology and community health education. Faculty are involved in assessing population behavior patterns and psychosocial risk factors; designing community-wide prevention and treatment programs for heart disease, cancer and AIDS; preventing alcohol and drug abuse; influencing health policies; and evaluating outcomes of behavior change efforts in schools, worksites, and physicians' offices.

Qualifications for Admission

Applicants are admitted from a wide variety of academic backgrounds, including social and behavioral sciences (e.g., psychology, sociology, anthropology), the humanities, basic sciences, and mathematics. There is no single appropriate undergraduate major, but applicants should meet prerequisites by the time of admission.

College-level courses are highly recommended in the following areas: social and behavioral science (at least three courses) and quantitative methods (e.g., statistics). To enable graduates to step into leadership roles, the program seeks students with practical as well as academic strengths. Preference is for applicants who have at least one year of paid or significant volunteer experience in a public health, social service, or community setting.

Degree Program

Coursework is organized around six general areas:

1. Social and behavioral theory and foundations of health education practice
2. Intervention strategies
3. Program planning and evaluation methods (including biostatistics and program evaluation research methods)
4. Public health core courses (including epidemiology, health management, and environmental health)
5. Elective coursework (selected from the SPH and other schools and departments at the University)
6. Fieldwork experience in a community setting

The fieldwork requirement can be fulfilled either by completing a project (needs assessment, evaluation, or program development) for a community organization or by participating in an internship in such an organization. Students choosing the latter demonstrate their research skills through an additional master's project. An oral defense of the project is required for both options.

The M.P.H. in community health education is a good path for students planning to pursue a Ph.D. degree in social and behavioral epidemiology, which is available at the University.

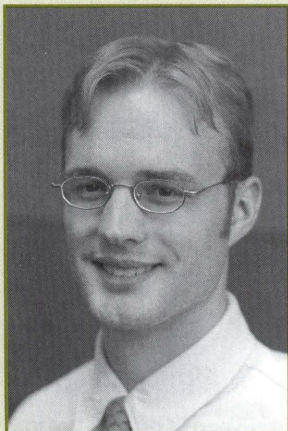
Dual Degrees

M.P.H./M.S.W. in social work

M.P.H./M.S. in nursing

Career Prospects

The professional field of community health education once was practiced mainly in classrooms and health care facilities. Now, community health educators work in a variety of settings, including all levels of government, voluntary and social service agencies, medical care organizations, workplaces, and schools. Sample job titles of graduates include coordinator, tobacco research program; coordinator, high risk youth project; program manager, school district; community health planner in an HMO; health program coordinator in a non-profit agency.



"My experience here has been extremely rewarding. The school's proximity to and relationship with the Department of Health, and faculty willingness to meet one-on-one, provide great opportunity for making connections and gaining research experience as a student."

- Ryan Demmer, M.P.H.
Ph.D. student
SPH alumnus



Photo courtesy of Asha Tobing

For Further Reading

- [The American Journal of Public Health](#) (journal of the American Public Health Association)
- [The Health Education and Behavior Journal](#) (journal of the Society for Public Health Education)
- [Health Behavior and Health Education Theory, Research, and Practice](#), K. Glanz, F.M. Lewis and B. Rimer, editors
- "Resources" link on the Division of Epidemiology Web site <http://www.epi.umn.edu>

Sample Field Placements

- Allina (HMO) clinic
- American Cancer Society
- Breaking Free
- Children, Youth, and Family Consortium
- Children's Hospitals and Clinics, Health Care Coalition on Violence
- Hennepin County Community Health Department
- Minnesota State Legislature

Sample Final Projects

- "An Evaluation of the Political Activity Among Neighborhood Associations in Minneapolis and St. Paul"
- "Knowledge and Attitudes of Hmong Health Care Workers About Hmong Traditional Healing Practices: A Needs Assessment"
- "Resiliency in Urban Native American Youth and Substance Abuse"
- "The Smoke You Don't See: Uncovering Tobacco Industry Strategies Against ETC and the EPA"
- "The Social Environment and Adolescent Nutritional Beliefs and Behaviors: Analysis of Focus Group Data"
- "The Association of Perinatal Violence and Gestational Weight Gain"
- "The Model of Basic HIV/AIDS Information for Health Care and Social Services Personnel"
- "Violence at a Family Planning Clinic"

Environmental Health

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Photo courtesy of the Minnesota History Center

Minnesota History Center

The Field of 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.

Environmental Health at the University of Minnesota

The program offers high-quality laboratory facilities, small classes, individual faculty attention, excellent financial assistance, proximity to a large academic health center, and opportunities to participate in faculty research. A multidisciplinary and highly collaborative faculty provides exciting educational and research opportunities for students. Curriculum stresses the application of basic scientific principles to environmental and occupational health issues, and provides an understanding of regulatory, legal, and policy aspects.

The EH graduate educational programs are organized into three teaching cores. Students take a required course in each area: health effects, environmental exposures, and environmental health policy.

Research Activities

Faculty members have diverse research interests. Current projects include exposure assessment in industrial settings; small business interventions to improve worker health and safety; pesticide exposures in children; concentrations, bioavailability, and fate of toxic chemicals in aquatic and wetland environments; tumor promoters' contribution to carcinogenesis; methods for evaluating bias in geographic information systems and epidemiological studies; evaluation of devices to minimize or eliminate microbial contamination; cancer prevention; initiatives to design and implement a community-based research initiative on violence prevention and control.

Qualifications for Admission

Applications are reviewed for admission throughout the year. To insure admission priority and consideration for financial assistance, students should submit applications before April 15. Minimum requirements include a baccalaureate degree with coursework in the basic sciences. Each specialty track requires slightly different preparation. General requirements include a cumulative undergraduate GPA of at least 3.00, and a GRE score of at least 1500. TOEFL scores above 600 are required for international students. Occupational health nursing applicants are required to have a baccalaureate degree from an accredited school of nursing. Final admission is based on careful review of the applicant's file and availability of space within the specialty area. Doctoral applicants are expected to substantially exceed the minimum requirements.

Probationary Admissions

Applicants may be admitted to the M.P.H. program on a probationary basis. Each applicant for probationary admission will be evaluated and considered individually. Full time students will be required to take three courses in the first semester (PubH 5320, Fundamentals of Epidemiology; PubH 5414,

Biostatistical Methods I; and one of three core Environmental and Occupational Health courses) and maintain a minimum GPA of 3.2. Part-time students will be required to take the same courses over a period of two semesters and maintain a GPA of 3.2. Students who successfully complete these requirements will be admitted to regular student status.

Degree Programs

Three degree options are offered: M.P.H., M.S., and Ph.D.

M.P.H. vs. M.S.

Applicants interested in pursuing a master's level degree must choose between the M.P.H. and M.S. The primary distinction is career path. Some areas of the field hire candidates with the professional degree (M.P.H.), and other areas hire candidates with the traditional research degree (M.S). There is some, though minimal, difference in curriculum. Below is a summary of the features of each degree. Please also consult with the coordinator, major chair, or director of graduate studies for advice about these options.

| M.P.H. | M.S. |
|---|--|
| <ul style="list-style-type: none"> • Career: recognize and prevent human disease and injury and control environmental hazards | <ul style="list-style-type: none"> • Career: recognize and prevent human disease and injury and control environmental hazards |
| <ul style="list-style-type: none"> • For practitioners | <ul style="list-style-type: none"> • For practitioners and those planning careers in research or academia |
| <ul style="list-style-type: none"> • Admitted into the SPH | <ul style="list-style-type: none"> • Admitted into Graduate School |
| <ul style="list-style-type: none"> • Minimum of 30 credits | <ul style="list-style-type: none"> • Minimum of 30 credits |
| <ul style="list-style-type: none"> • EH required courses plus SPH core courses: epidemiology, biostatistics, health administration, behavioral science | <ul style="list-style-type: none"> • EH required courses plus epidemiology, biostatistics |
| <ul style="list-style-type: none"> • Specialty courses and electives | <ul style="list-style-type: none"> • Specialty courses and electives |
| <ul style="list-style-type: none"> • Master's project | <ul style="list-style-type: none"> • Plan B final project or Plan A thesis |
| <ul style="list-style-type: none"> • Graduates usually do work that is more applied | <ul style="list-style-type: none"> • Graduates usually do work that is more theoretical or research-oriented |
| <ul style="list-style-type: none"> • Broad perspective of environmental and occupational health; and in-depth exposure in discipline of choice | <ul style="list-style-type: none"> • Solid technical background; proficiency in applied or basic research |
| <ul style="list-style-type: none"> • Opportunities to synthesize and apply academic experiences to professional settings through research and required internship placements | <ul style="list-style-type: none"> • Internship optional |

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.

Options for Study

Master's level students may elect to pursue the general program in environmental and occupational health, which is designed to provide a broad perspective of the field, or may elect to concentrate in a specialty area:

- Environmental chemistry examines the interactions of pollutants with air, water, soil, and their exposures to humans and wildlife. The curriculum emphasizes the processes that control chemical behavior, transport, and fate as a function of environmental factors and chemical properties. Coursework is interdisciplinary and includes civil or mechanical engineering, chemistry, geology, soil science, ecology, and public policy.

In addition to the following specialty tracks, the division is developing new programs in biosafety, global environmental health, exposure assessment, and risk assessment. Please contact the division for updates if you are interested in these areas.

- Environmental and occupational epidemiology studies the causal relationship between environmental and occupational exposures and human health. The curriculum comprises epidemiologic methods, biostatistics, basic sciences, toxicology and environmental health, and core public health. Students may focus in one of three components: exposures related to cancer, exposures related to injury, or environmental and occupational epidemiologic methods.

- Environmental health policy provides broad, multidisciplinary training in environmental health issues, including occupational health, risk assessment, risk management, decision making, and policy analysis. The curriculum includes core public health, environmental health, research methods, biostatistics, exposure and risk assessment, environmental and occupational health policy, and policy economics.

- Environmental microbiology is the study of the occurrence, significance, and control of microorganisms in the environment, microorganisms that may affect human health. Coursework emphasizes the public health core, with additional courses in microbiology, infectious disease epidemiology, contamination control for microorganisms, principles and practice of biological safety from an occupational health perspective, and food safety.

- Environmental toxicology teaches students to protect human health through research and the development of environmental policy and regulations. In addition to the public health core, the curriculum emphasizes basic biological sciences, including physiology, biochemistry, cellular and molecular biology, toxicology, and environmental health.

- Industrial hygiene concerns the health and safety of people at work. The curriculum emphasizes core public health as well as industrial hygiene applications, study of airborne contaminants, physical agents, safety, hazardous waste management, and materials management. Students may sub-specialize in hazardous substances, with an emphasis in hazardous wastes, hazardous materials health, and safety management.

- Occupational health nursing provides broad training in occupational health and safety for nurses interested in management. Students are trained to develop, manage, and evaluate health and safety programs. The master's level curriculum includes core public health and occupational health sciences, research methods and biostatistics, management and financial management, public health nursing, and occupational health nursing. A dual degree option with the School of Nursing is available. The doctoral curriculum focuses on policy and program evaluation in occupational health and safety.

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Photo courtesy of Mario Duarte, La Prensa Newspaper



Photo courtesy of Chris Gregerson, <http://www.phototour.minneapolis.mn.us>



Photo courtesy of The St. Paul Saints

In addition, EOH and the Division of Health Services Research and Policy offer a joint doctoral-level program in occupational health services research and policy. EOH students will receive a minor in health services research, policy and administration (for more information see <http://www.umn.edu/eoh/ohsrp>). EOH also offers a focus in occupational medicine, the academic component of an occupational medicine residency program for physicians.

Dual and Joint Degrees

M.P.H./M.S.N. in occupational health nursing
 M.S./J.D. in law
 Ph.D./J.D. in law

Financial Aid

Division research activities support approximately 15-20 research assistants and 4-5 teaching 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 specifically designated for environmental health students.

Career Prospects

M.P.H. graduates play prominent roles as environmental/occupational health practitioners in various settings, including industry, hospitals, government agencies, and private practice. Many progress into upper-level positions. Sample job titles of graduates include environmental epidemiologist, health and safety officer, infection control practitioner, occupational health analyst, environmental chemist, hazard communication specialist, and supervisor of occupational medicine clinic.

For Further Reading

- Dark Remedy: The Impact of Thalidomide and Its Revival as a Vital Medicine, Trent D. Stephens, Rock Brynner (2001)
- Something New Under the Sun: An Environmental History of the Twentieth-Century World, J. R. McNeill, Norton (2000)
- Water: The Fate of Our Most Precious Resource, Marq De Villiers, Houghton-Mifflin (2000)
- Mosquito: A Natural History of Our Most Persistent and Deadly Foe, Andrew Spielman, Michael D'Antonio, Hyperion (2001)
- Critical Issues in Global Health, C. Everett Koop, ed., Jossey-Bass (2001)

Sample Field Placements

- MacNeil Environmental, Inc, Twin Cities
- Metro Transit, Twin Cities
- U.S. Department of Labor

Sample Final Projects

- "A Retrospective Exposure Assessment of Workers in a Nickel Smelter Using Bayesian Methodology"
- "Efficacy of Epidural Steroid Injections for Treatment of Low Back Pain"
- "Employee Medical Files: Guidelines for Content and Disclosure in Corporate Health Facility"



"I left the SPH with both more skills in public health and greater passion for social justice. I hope to see the School continue to be that kind of place for students from all different backgrounds."

-Jane Liu, M.P.H.
 SPH alumnus
 Health Program Officer,
 The Urban Coalition



Photo courtesy of Chris Gregerson, <http://www.phototour.minneapolis.mn.us>



Photo courtesy of Shirley Fernandez

(From top) The Coffee Gallery, Minneapolis; Northrup Mall, University of Minnesota, Minneapolis Campus

Epidemiology

Pam Schreiner, Ph.D., M.S., major chairperson for M.P.H.
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The Field of Epidemiology

The scientific tasks of epidemiology are description, quantification, and analysis of patterns of health and disease in populations. The work incorporates the study of biological, environmental, behavioral, and social patterns of health and disease. Epidemiologists usually work in collaboration with multidisciplinary teams of other professionals, such as physicians, laboratory scientists, exercise physiologists, nutritionists, statisticians, and behavioral scientists.

Epidemiologists analyze public health problems, design studies, implement them, analyze study data, and interpret the results for policy development. Their work extends beyond investigation of disease causation. They also design and test intervention strategies to prevent disease and promote health.

Epidemiology at the University of Minnesota

The program in epidemiology provides students with the core methodological skills needed to address chronic or acute diseases, long-term or newly-emerging health problems, and behavioral and biologic aspects of health and disease. The exceptional and diversified faculty include national leaders in epidemiology and prevention of cardiovascular disease, cancer, and infectious diseases; nutrition; genetic epidemiology; behavioral interventions; and epidemiologic research methods. They have a solid foundation of funded research that provides students with many opportunities for research support and material for research projects.

Qualifications for Admission

The major admits applicants with a variety of backgrounds, including biology, mathematics, microbiology, genetics, medicine, dentistry, veterinary medicine, and behavioral sciences. Strong preference is given to applicants with excellent quantitative and analytic abilities and a solid foundation in a life science. Admitted students must be comfortable learning statistical methods to address problems in human health and disease. Applicants are expected to demonstrate quantitative aptitude with at least a 70th percentile ranking on the quantitative and analytic sections of the GRE and satisfactory grades in college-level quantitative courses such as algebra, statistics, calculus, or trigonometry. Relevant experience in a public health setting is preferred. Ph.D. applicants must have completed or be near completion of a master's degree in a related field.

Degree Programs

Master's degrees in epidemiology are offered through the School of Public Health (M.P.H.) or the Graduate School (M.S.). Applicants, including those planning to pursue a doctoral-level degree, are strongly encouraged to select the M.P.H. degree. Curriculum and requirements for the M.P.H. and the M.S. are identical. The M.P.H. degree in epidemiology prepares students for careers in epidemiologic research in health agencies, medical institutions, universities, research institutes, regulatory agencies, and industries such as pharmaceuticals and health insurance. Applicants interested in the M.S. should contact a coordinator in Epidemiology before applying.



Photo courtesy of Chris Gregerson, <http://www.phototour.minneapolis.mn.us>

Students complete a 45-credit curriculum that includes 37-38 credits of required coursework plus 7-8 credits of electives. Many epidemiology and other health-related graduate-level courses are available as electives. These allow students to develop a specialty emphasis in either specific public health topics or methodological areas. An accelerated 31-32 credit, M.P.H. 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.

In addition to coursework, all epidemiology master's students are required to complete

- A master's project (three formats: paper, written literature review of publishable quality, or NIH-type grant application)
- A comprehensive oral examination
- A field experience of at least 90 hours

The Ph.D. program is designed for students interested in research and teaching careers in the health sciences. The core curriculum totaling 66-72 credits emphasizes epidemiologic and public health aspects of cardiovascular disease; cancer; alcohol, tobacco, and other substance abuse; infectious diseases; and maternal and child health. Students must pass written and oral preliminary examinations, write and defend a dissertation, and prepare a first-authored manuscript for publication. Students may select one of two concentrations; both have an empirical perspective that emphasizes study design, measurement, quantitative analysis, and interpretation.

Ph.D. Concentrations

- Behavioral Epidemiology focuses on origins and development of human behavior patterns and how they are influenced and formed by personality, family, culture, and environment.
- Etiologic Epidemiology focuses on the biological causes of disease states, especially determinants of cardiovascular disease, cancer, and infectious diseases.

Dual Degrees

M.P.H./M.S. in nursing

Career Prospects

The current national job market for epidemiology M.P.H. graduates is extremely strong, and the degree is expected to remain very marketable

in the future. The epidemiology M.P.H. is also an appropriate foundation for several Ph.D. degrees. Some graduates go on to earn M.D., D.D.S., or D.V.M. degrees. Sample job titles of graduates include epidemiologist in acute diseases, state department of health; research associate, department of family practice; field epidemiologist, state department of health; manager of analytics and business statistics, pharmaceutical company.

For Further Reading

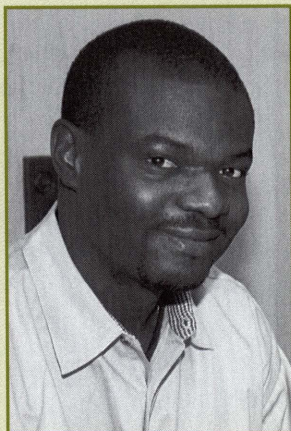
- [The American Journal of Epidemiology](#)
- [Foundations of Epidemiology](#), Lilienfeld and Stolley
- [Epidemiology](#) (journal)
- "Resources" link on the Division of Epidemiology Web site: <http://www.epi.umn.edu>
- [Epidemiology for Public Health Practice](#), Friis and Sellers

Sample Field Placements (M.P.H.)

- Centers for Disease Control and Prevention
- General Mills
- Health Partners
- Mano a Mano Medical Resources
- Minnesota Department of Health
- Nonprofit Center of Milwaukee
- Veteran's Affairs Medical Center

Sample Final Projects (M.P.H.)

- "Characteristics of Government-Sanctioned Torture"
- "Survivors Treated at the Center for Victims of Torture in Minnesota"
- "Improving Adherence to Screening Mammography"
- "Tuberculosis Infection Among Children of Migrant Farmworkers in Minnesota"
- "Practices and Characteristics Associated With Establishment Participation in an Alcohol Risk Management Training Program"
- "Behaviors, Attitudes, and Beliefs of Minneapolis Gay Bar Patrons - A Minnesota AIDS Project Survey"
- "A Pilot Study to Evaluate a Tobacco Diversion Program"
- "Disability after Fracture in Postmenopausal Osteoporotic Women: The Fracture Intervention Trial (FIT)"



"I'm a medical graduate from Nigeria. I choose to attend the School of Public of University of Minnesota because of the vast resources of the faculty in terms of teaching and research. Minneapolis is a very pleasant and culturally diverse place to study."

-Ayokanmi Adeniyi
M.P.H. Student

health services research, policy & administration

Health Services Research, Policy & Administration

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Photo courtesy of Chris Gregerson, <http://www.phototour.minneapolis.mn.us>

Uptown, Minneapolis

The Field of Health Services Research

Health services research focuses on the organization, financing, and delivery of health care services. It deals with policy issues related to costs, access, and quality of health services and equitable access to health resources.

Health Services Research at the University of Minnesota

Students learn from and work with an internationally acclaimed faculty actively engaged in research. Faculty research is funded by international, federal, and state agencies, and by private industry. Faculty members work closely with state and national policymakers to link their research results to policy initiatives. Students become involved in these projects as soon as they enter their educational programs and work with faculty through all phases of research projects. A mentoring philosophy is an important tradition of the program. The major is housed in the Division of Health Services Research and Policy, a national leader in health services education and research.

Minnesota is known widely for its innovative health policies and health care delivery systems.

- The concept of hospital systems was initiated in Minnesota.
- Medical group practices have been the main mode of physicians' practice since the early 1960s.
- HMOs were pioneered in Minnesota, and Integrated Service Networks were developed as the second generation of the HMO concept.
- Minnesota has been a leader in extending health insurance to low-income individuals and families, and to people with high cost of illness who have difficulty obtaining private insurance.

Through classroom presentations, internships, conferences, speaker series, and research projects, students interact with the faculty and policymakers who are shaping the future health care system.

Research Activities

Faculty research interests include health insurance theory; Medicare reform; effects of managed competition on the structure of physician practices; health outcomes research; 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 health care reform on rural providers and consumers; diffusion of technology and its impact on rural providers; integrated health-delivery systems; organizational influences on the quality of health care; and psychoactive drug use by nursing homes. Faculty publish in all the major peer-reviewed health services research journals.

Qualifications for Admission

This is an ideal field for persons interested in affecting policy or administering health care systems. Students come from a variety of educational backgrounds, including economics, political science, public affairs, and sociology. Strong quantitative skills are essential; a health services background is helpful, but not required.

Degree Programs

Master's Degree

The 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. Courses in research design, survey and sampling methods, health care organizations, and cost-benefit analysis complete the required curriculum. Electives can be taken throughout the University. The two-year, full-time program offers concentrations in research analysis and clinical outcomes research (designed for students with previous clinical training).

Ph.D. Degree

The program is designed primarily for students interested in academic careers or senior research positions in government or the private sector, though a number of graduates from the doctoral program also work in private industry. 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. Coursework includes research methods, health economics, organizations, medical sociology, health policy, statistics, research design, and research methods. Students take a supporting program or minor. During their course of study, students may also work as research assistants on a project with a faculty member in the student's area of interest. This collaborative experience allows students to gain hands-on experience on complex research projects.

Dual and Joint Degrees

M.S./M.P.P. in public policy

Ph.D./M.D. Students complete the first two years of medical school, then complete the entire Ph.D. program during the next four to five years. Students return to the Medical School to finish their final two years and their chosen residency.

M.S./J.D. in law

Ph.D./J.D. in law

Separate entrance applications to each degree program are required.

The combined degree options with law are new and exciting. Minnesota is training experts in the legal, ethical, and policy problems posed by health, the sciences, and the environment in the 21st century. Graduates become leaders in areas such as managed care and health policy, intellectual property issues, biotechnology, and environmental law and policy. Students in the program are able to obtain a J.D. together with an M.S. or Ph.D. in less time and with more academic support and potentially more financial support than if they pursued the two degrees separately.

The Divisions of Health Services, Research and Policy, and Environmental and Occupational Health offer a collaborative doctoral-level program in occupational health services research and policy. HSRP&A students will receive a minor in environmental health.

Financial Aid

Graduate School fellowships, training grants, research assistantships, and tuition fellowships are available through HSRP. Student loans and college work-study are available through the University's Office of Student Finance.

Career Prospects

Positions held by our graduates include the following:

M.S. Graduates:

- American Medical Association, Chicago, IL
- Health Care Financing Administration (HCFA), Baltimore, MD
- Ingenix, Minneapolis, MN
- Kaiser Permanente, Los Angeles, CA
- Minnesota Department of Health, Minneapolis, MN
- Rand Corporation, Santa Monica, CA
- United Health Group, Minneapolis, MN
- Wilder Clinic, St. Paul, MN

Ph.D. Graduates:

- Agency of Health Research and Quality, Rockville, MD
- Centers for Disease Control (CDC), Atlanta, GA
- Cornell University, Ithaca, NY
- Emory University, Atlanta, GA
- RAND Corporation, Washington, DC
- University of Chicago, Chicago, IL
- University of Florida, Gainesville, FL
- University of Pittsburgh, Pittsburgh, PA
- University of Rochester, Rochester, NY
- University of Washington, Seattle, WA

Web sites

<http://www.nlm.nih.gov/nlmhome.html>

Sample Internships for M.S. Students

- Allina Medical Group, MN
- Blue Cross Blue Shield, MN
- Minnesota Department of Health, MN
- United HealthCare, MN

Sample Dissertation Titles (Ph.D.)

- "A Comparison of Medicare Service Utilization in a Social HMO and a TEFRA Risk HMO"
- "Choice of Health Insurance Plans by Enrollees of a State High Risk Pool"
- "The Impact of Infant Feeding Method on Health Care Costs and Utilization in a Medicaid Population"
- "Assessing The Relationship Hospital Competition and Guideline Adherence for Acute Myocardial Infarction."
- "Selection of Healthcare Provider Systems in a Direct Contracting Model."
- "Capital and Health Status in Near-old Adults"

Maternal and Child Health

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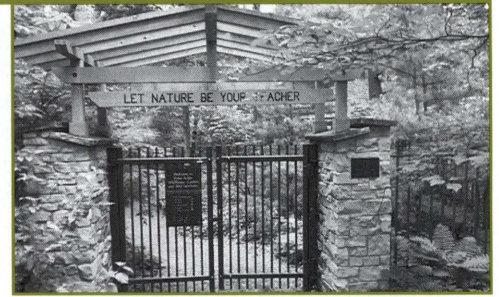


Photo courtesy of Chris Gregerson, <http://www.phototour.minneapolis.mn.us>

Eloise Butler Garden, Minneapolis

The Field of Maternal and Child Health

The field of maternal and child health requires expertise in theories of human growth and development; social ecology; and public health (epidemiology, biostatistics, environmental health, management, and behavioral sciences). MCH practitioners assess maternal and child health needs; develop and manage programs; and formulate and advocate for effective policies in areas such as reproductive and perinatal health, and health of children, adolescents (including those with special needs), and families.

Maternal and Child Health at the University of Minnesota

Minneapolis and St. Paul have long been known for innovation and research in the health sciences. The Twin Cities are home to many not-for-profit and for-profit community agencies that play a vital function in training our students and employing our graduates.

The MCH program draws from a legacy in Minnesota; a long record of accomplishments in improving the health status of mothers, children, adolescents, and their families in Minnesota, the upper Midwest, and the nation. The MCH faculty and community leaders are especially concerned about race- and status-based income disparities and social inequalities, which are manifest in health status disparities.

The multidisciplinary faculty has expertise in epidemiology, medicine, nursing, psychology, nutrition, family studies, and health education. Faculty members in MCH work collaboratively with faculty throughout the SPH and the University, with particularly strong linkages to the Adolescent Health Program in the Medical School, the School of Nursing, the Department of Family Social Science, and the Institute of Child Development.

Students admitted to the MCH program often bring a wealth of knowledge and experience that they are encouraged to share with other students. The MCH curriculum is comprehensive, 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 service expertise on reproductive and perinatal health; family planning; child, adolescent, and family health promotion, risk reduction, and resiliency; child and family adaptation to chronic health conditions; and preventive interventions in the areas of adolescent pregnancy, childhood obesity, and fetal substance exposure. MCH faculty research is strengthened by close collaborations with other faculty in the Division of Epidemiology who have breadth and depth of biologic and behavioral expertise. The faculty's research and community service activities afford additional opportunities for student training.

Qualifications for Admission

Students who want to 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; or managing programs that serve the needs of MCH populations.

Applicants must have at least one year's work or volunteer experience in an area of public health, preferably pertaining to families, mothers, or 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. The option of a Ph.D. in epidemiology with an emphasis in maternal and child health is available.

Degree Program

The M.P.H. in maternal and child health can be earned through a one- or two-year option, based on full-time enrollment. Students in both options are strongly encouraged, but not required, to attend full time.

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

The one-year option, consisting of at least 32 semester credits, is designed for individuals with a doctorate, extensive knowledge in a health-related area, or at least five 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 is considered for the two-year option.

In addition to coursework, students in both options are also required to:

- Complete a 120-hour supervised field experience conducted in the community
- Conduct a master's project which can take the form of a research project, technical field report, or critical literature review
- Pass an oral examination

Dual Degrees

M.P.H./M.S.W. in social work

M.P.H./M.S. in nursing

Financial Aid

Completed applications received by March 1 are given first consideration for financial aid. Aid that may be offered each year to select admitted applicants includes the Robert W. ten Benschel Scholarship, Colleen Berney Scholarship, Public Health Service grant(s), and MCH research assistantships. Several maternal and child health traineeships are available for MCH students who are U.S. citizens and wish to specialize in maternal, child, or adolescent health. Financial aid is generally awarded to the strongest applicants as defined by academic merit, congruence with the program's goals and objectives, or public health experience.

The department also has funds to support one Ph.D. student each year in the biological or behavioral epidemiology program who is specializing in MCH.

Career Prospects

MCH leaders work to identify and promote social and environmental conditions contributing to the health of mothers, children, and families. MCH leaders also develop public health programs that may include health

promotion and disease prevention, as well as primary care services. MCH-focused epidemiologic skills are increasingly required in city, county, and state health departments. Sample job titles of graduates include project coordinator, director of program services, lead health associate, and youth center coordinator. Graduates work in non-profit organizations, government agencies, universities, school districts, and research institutes.

For Further Reading

- American Journal of Public Health
- Annual Review of Public Health
- Family Planning Perspectives (journal)
- Health and Welfare for Families in the 21st Century, Wallace, Green, Jaros, Paine, Story (editors)
- Healthy People 2010 <http://web.health.gov/healthypeople/2010>
- Maternal and Child Health Journal
- Maternal and Child Health: Programs, Problems and Policy, J. Kotch

Web sites

- MCH Bureau: <http://www.mchb.hrsa.gov>
- Future of Children: <http://www.futureofchildren.org>
- MCH Information Resource Center: <http://www.mchirc.net>
- Children's Defense Fund: <http://www.childrensdefense.org>
- Association of MCH Programs: <http://www.amchp1.org>
- National Center for Education in MCH: <http://www.ncemch.org>
- Alan Guttmacher Institute: <http://www.agi-usa.org>

Sample Field Placements

- Children's Defense Fund, St. Paul
- Division of Family Health, Minnesota Department of Health, St. Paul
- Minnesota Organization on Adolescent Pregnancy Prevention and Parenting (MOAPPP), St. Paul
- Minneapolis American Indian Center, Minneapolis
- Powderhorn-Phillips Cultural Wellness Center, Minneapolis
- AIDS/STD Prevention on Services, Minnesota Dept. of Health, St. Paul
- Child Family Health International, San Francisco

Sample Final Projects

- "A Multidisciplinary View of Current Knowledge and Future Training Needs of Adolescent Pregnancy Prevention"
- "A Profile of Adolescent Fathers: A Review of Research and Interventions"
- "Development of a Culturally Sensitive Asthma Action Plan for American Indian Children and Their Families"
- "Early Postpartum Hospital Discharge: An Analysis of Legislative Initiatives in the States"
- "Sexual Abuse and Eating Disorders Among American Indian Adolescent Females"
- "Assessment of the Reliability Between Minnesota Birth Certificates and Telephone Survey Data About Maternal Parental Behaviors and Characteristics"
- "Unmet Service Needs for Preadolescents With Chronic Illnesses and Disabilities"

Public Health Administration

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Photo courtesy of Mario Duarte, La Prensa

Annual May Day Parade, Mpls

The Field of Public Health Administration

This management discipline advocates for the public interest and promotes health through population-focused administration, development and implementation of health-enhancing policy, and evidence-based public health.

Public Health Administration at the University of Minnesota

The M.P.H. program in Public Health Administration (PHA) reflects a unique synergy between theory and applied learning. It combines classroom rigor in policy research and health administration with professional preparation for public health leadership. The major is housed in the Division of Health Services Research and Policy, a national leader in health services education and research.

The PHA program is a vibrant learning community of small classes, congenial colleagues, and close interaction between students and faculty. In addition to ongoing communication in classrooms and offices, PHA students and faculty also gather more informally at semester luncheons and other events.

Research Activities

PHA students have rich learning opportunities. Faculty members hire PHA students for funded research and outreach activities and mentor students in the design and implementation of students' projects. Students also benefit from the program's strong ties to local health care, public policy, and business communities. The Twin Cities has a long-standing reputation as one of the country's most fertile settings for health services and policy innovation, and provides excellent field placement and career opportunities.

Qualifications for Admission

Applicants should have a strong commitment to formulating policies or assuming organizational leadership with the goal of preventing disease and promoting health across populations.

Degree Program

All students complete a master's research project in an area of interest. In addition, they design a fieldwork experience to develop competencies in public health administration practice and to enhance career prospects after graduation.

Two-Year Plan

If enrolled full time, students may complete the required 50 semester credits in 21-24 months. This is the appropriate plan for applicants with a baccalaureate degree and limited or no public health experience. Students complete the PHA required core courses and the public health core courses. They also choose one of the following areas of focus: management, information and analysis, or policy.

In addition, students can select electives or concentrations in areas such as health services management, finance, managed care, evaluation, long-term care administration, and bioethics.

One-Year Plan

Applicants with advanced degrees or with extensive and progressively more responsible work experience in public health practice may qualify for the shorter plan (upon approval of the faculty). Students complete 32-35 semester credits in a curriculum of administration/management, policy and program development, implementation and evaluation, evidence-based public health, and the core areas of public health.

Dual Degrees

M.P.H./M.B.A. in management

M.P.H./M.S. in nursing

Separate entrance applications to each degree program are required.

Financial Aid

The Stauffer Award is offered 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. Student loans and college work-study are also available through the University's Office of Student Finance.

Career Prospects

Graduates assume administrative positions in public health organizations at the local, state, federal, and international level in planning agencies, voluntary health organizations, mental health agencies, human services organizations, long-term care agencies, international health organizations, managed care plans, community clinics, and alternative health care delivery settings. Graduates share a strong commitment to preventing disease, promoting health, and serving defined populations. Some graduates are working as:

- Assistant chief of cancer control section of a state health department
- Assistant commissioner of health of a state health department
- Chief of immunization programs of a state health department
- County health officer
- Director of HIV/STD prevention of a national youth organization
- Health services coordinator of a large urban school district
- Coordinator of a county healthy family initiatives program
- President and COO of an infection control advisory network company
- Regional coordinator of a breast/cervical cancer control program for a state health department
- Research project coordinator in a center for tobacco reduction and health improvement of an HMO



"This is one of the most collaborative and interesting places I've ever worked. I like the positive attitude to get things done. Students have a lot of opportunities to get involved in things that make a difference in people's lives."

- Lisa Brosseau, Sc.D.
Associate Professor



Photo courtesy of Chris Gregerson, <http://www.phototour.minneapolis.mn.us>

The Decotah Apartments in Linden Hills, Minneapolis

For Further Reading

- Introduction to Public Health, Mary-Jane Schneider
- Leading Organizations: Perspectives for a New Era, Gill Robinson Hickman
- "Leadership That Gets Results" Harvard Business Review, Daniel Goldman (March-April 2000)
- Principles of Public Health Practice, Douglas F. Scutchfield and William C. Keck
- Public Health Administration and Practice, George Pickett and John Hanlon
- The Future of Public Health, Institute of Medicine
- The Leader's Shadow: Exploring and Developing Executive Character, William Judge
- The Nation's Health, Phillip R. Lee and Carroll L. Estes

Sample Field Placements

- Health Policy and Planning Section, St. Paul/Ramsey County Department of Public Health
- Health Systems Development Section, Minnesota Department of Health, MN
- Mental Health Division, Community University Health Care Center
- Office of Program Planning Evaluation, Centers for Disease Control, Atlanta GA
- Population Health, Blue Cross Blue Shield of Minnesota

Sample Final Projects

- "Health and Wellness of Mexican American Immigrant Women on St. Paul's West Side"
- "School-Based Health Centers and Managed Care: Collaboration May Promote a Healthier Future for Adolescents"
- "The Use of a Mammography Outreach Program to Increase Mammography Rates in Rural Minnesota"
- "Public Health Informatics: An Evolving Discipline"

Public Health Nutrition

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Minneapolis/St. Paul Int'l Airport

Photo courtesy of Chris Gregerson, <http://www.phototour.minneapolis.mn.us>

The Field of 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

- Analyzing the relationship of diet to health and disease
- Developing, implementing, and evaluating programs to achieve and maintain healthful eating patterns
- Assuring delivery of nutrition-related services as a basic component of health care
- Providing access to a safe and adequate food supply

Public Health Nutrition at the University of Minnesota

The public health nutrition major emphasizes nutritional assessment, program planning, health behavior change and intervention strategies, research and evaluation methods, and policy development. A new emphasis on nutritional epidemiology helps prepare public health nutrition professionals to address significant issues in the field with up-to-date epidemiologic methods. It combines the strengths of our public health nutrition faculty with the expertise of other faculty in the Division of Epidemiology. All students are provided with practical experience in different agencies and organizations, and networking opportunities among public health nutrition professionals.

Research Activities

Faculty members are internationally recognized for their expertise in public health nutrition and related areas. Specific research interests include nutrition and pregnancy outcomes; nutrition and women's health; child growth and nutrition; child and adolescent nutrition and eating behaviors; obesity and eating disorders 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. The research vigor in the major and a low student-to-faculty ratio create unique opportunities for student-faculty collaboration.

Qualifications for Admission

The public health nutrition major welcomes applicants with career goals in public health and applied nutrition, nutrition education, community intervention, and nutritional epidemiology. 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.

| <u>Program Option</u> | <u>Qualifications of Applicant</u> |
|-----------------------|--|
| 13-month program | Registered dietitian (R.D.) or R.D.-eligible; at least three years of full-time professional experience in public health nutrition |
| 16-month program | Degree in nutrition or dietetics; R.D. or R.D.-eligible |
| 24-month program | No nutrition degree, but has completed specific science prerequisites outlined on R.D. |

(Criteria or Science Prerequisite forms available from the SSC)

Degree Programs

Coursework is organized around six general areas:

1. A foundation in basic public health through courses in epidemiology, biostatistics, health management, behavioral sciences, and environmental health
2. Nutrition core courses, including public health nutrition programs and principles, maternal and infant nutrition, child and adolescent nutrition, adult and elderly relationships, and community nutrition intervention planning
3. Research methods courses and an applied master's under the guidance of a faculty adviser
4. Elective credits in other specialty areas in the SPH and across the University
5. Hands-on field experience credits in the community
6. Additional food science and nutrition courses (required for those in the 24-month program only)

Students may focus coursework and experiences around public health nutrition programs or nutritional epidemiology. Nutritional epidemiology includes advanced courses in epidemiology, biostatistics, and specialty areas within epidemiology (e.g., obesity and eating disorders).

Dual Degrees

M.P.H./M.S.W. in social work

M.P.H./M.S. in nursing

Financial Aid

Students interested in working as graduate research or teaching assistants may apply for a number of competitive assistantships, including the Marguerite J. Queneau Research Assistantship. For more information, request a Marguerite J. Queneau Research Assistantship brochure from the SSC.

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 SSC.

For students seeking R.D. licensure, a six-month Dietetic Internship for Graduate Students (DIGS) is available. For more information, contact the 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.

Career Prospects

Overall, approximately 60 percent of graduates work in public health agencies (e.g., local and state health departments), 20 percent in educational institutions, and the remainder in health promotion and education programs in HMOs, hospitals, clinics, and private industry. Other graduates are public relations and media consultants, internship directors, and private practice dietitians. Some M.P.H. graduates continue their graduate work in Ph.D. or

other professional degrees. Examples of jobs obtained by current graduates include: public health nutritionist, dietetic internship director, state WIC director, breastfeeding coordinator for state health department, and senior researcher at the National Cancer Institute.

The M.P.H. in public health nutrition may be an appropriate degree for students who wish to proceed to a Ph.D. degree at the University. The Ph.D. program in nutrition offers a concentration in public health nutrition; the Ph.D. degree in epidemiology offers a focus on nutritional aspects of epidemiology. Several of our M.P.H. graduates currently are following this career path.

For Further Reading

- [American Journal of Clinical Nutrition](#)
- [Journal of the American Dietetic Association](#)
- [Public Health Nutrition](#)
- [American Journal of Public Health](#)
- [Journal of Nutrition](#)
- "Resources" link on the Division of Epidemiology Web site
- [International Journal of Obesity](#)
- [Journal of Nutrition Education](#)

Web site

<http://www.epi.umn.edu>

Sample Field Placements

- FoodShare, MN
- March of Dimes, MN
- St. Paul Ramsey Nutrition Program, MN
- HealthPartners Nutrition Services, MN
- RAP Head Start, MN
- Extension Services, Hennepin/Ramsey Counties
- Department of Families, Children and Learning

Sample Final Projects

- "A Community-Based Approach to Teaching Preadolescent Girl Scouts About Healthy Eating, Exercising, and Feeling Good About Their Bodies"
- "Behaviors Related to Fruits and Vegetables Consumption in Low-Income Women"
- "Minnesota Foodshare 1999 Legislative Proposal: The Special Supplement Food program for Women, Infants, and Children (WIC)"
- "The Better Restaurant Challenge: A One-Month Contest to Promote and Stimulate Diner Interest in Low-Fat Foods"
- "Dash Your Way to Better Health"
- "Needs Assessment and Curriculum Development in Early Childhood and Family Education (ECFE)"
- "Parental Perceptions on the Food Intake of Preschool-Aged Children"

Public Health Practice

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Coordinator: TBA

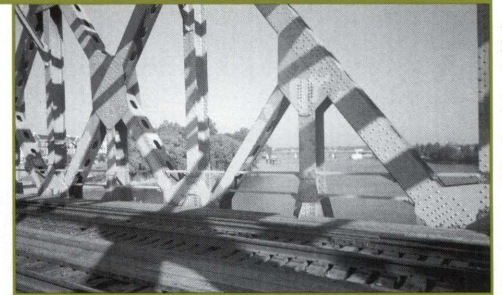


Photo courtesy of Asha Tobing

Mississippi at Nicollet Island, Mpls

The new major in Public Health Practice serves working health and human service professionals and medical students who wish to enhance their practice with knowledge and skills in population science.

The Programs in Public Health Practice

The major focuses on public health knowledge and skills to understand, assess, and manage population health in public health, health care, and human services settings. Applicants must indicate an interest in one of the following career-oriented concentrations within this major:

- Program in Public Health Medicine (PHM), leading to a dual M.D./M.P.H. degree
- Executive Program in Public Health Practice (EPHP), an M.P.H. for working health and human service professionals with completed advanced degrees
- Public Health Certificate in Core Concepts (PHCert-CC) for working health or human service professionals with completed baccalaureate or advanced degrees who wish to develop a credential in public health core concepts.

Public Health Practice at the University of Minnesota

PHP is a collaboration of the SPH, the University of Minnesota campuses in Rochester and Duluth, and the University of Minnesota Schools of Medicine in the Twin Cities and Duluth. The program encourages physicians, nurses, health care and human service professionals, and current public health workers without formal training in public health to pursue advanced study in public health.

Classes are lively and stimulating; PHP students come from all over the world and draw from a wealth of knowledge and experience. Curriculum design assumes students will have minimal time for on-campus attendance. Technology-enhanced and distributed learning opportunities are an integral part of this program.

Research Activities

PHP faculty focus their research, teaching, and community service expertise on the application of population science. The interdisciplinary faculty cuts across the partnering Schools of Public Health and Medicine and offers expertise in epidemiology, environmental health, health services research and policy, biostatistics, and clinical practice specialties. The faculty's research and community service activities afford opportunities for student training.



"As an M.P.H. student at the University of Minnesota, I feel that I can make anything happen. During my first year I sought to integrate an international experience into my curriculum. By the summer I had a research project in Bolivia that served as my required field experience. The University also offers numerous opportunities to become involved in activities that focus on emerging issues in public health, such as the annual Global Health Forum."

- Sarah Nakib
M.P.H. student

Qualifications for Admission

Students should apply to PHP if they seek the ability to address the needs of populations through initiatives that protect, promote, and improve health in a multidisciplinary environment. Applicants' interests typically involve collaboration with clinicians, policy makers, researchers and professionals from communities, public agencies, and private organizations.

1. Program in Public Health Medicine (PHM) leading to an M.D./M.P.H.
Applicants must be currently enrolled in good standing in medical school. Candidates may enter the program after the first year at the Medical School. Students must pass the USMLE Step 1 examination before or during matriculation in the program.

Applicants must submit:

- Signed release to the Medical School to permit data from the admissions file to be forwarded to the School of Public Health
- Completed SPH application and fee
- Completed SPH recommendation form and attached letter
- Letter of intent

Deadline for application is November 15. To explore program opportunities, interested students are encouraged to register for PubH 5299 Public Health Practice Seminar (1 cr) in the fall semester prior to PHM matriculation.

2. Executive Program in Public Health Practice (EPHP) leading to an M.P.H. degree

Applicants must have an advanced health professional degree (eg. M.D., D.D.S., D.V.M., M.S.N., Pharm.D.) and be currently licensed and practicing in their fields. Practicing professionals with other advanced degrees (eg. Ph.D., Sc.D., M.B.B.S.) will also be considered where educational background and prior training are judged to be appropriate.

Applicants must submit:

- Résumé
- Transcript(s) indicating advanced degree with minimum cumulative GPA of 3.0; one official transcript from each university or college attended; official English translations must be submitted if original is not in English
- Completed SPH application and fee
- Completed three letters of recommendation and SPH form of which at least one should be familiar with the student's work experience
- Letter of intent
- A score of at least 600/250 on the TOEFL where English is the candidate's second language
- GRE score if applicant's degree is not an accredited U.S. or Canadian school or if applicant has not passed USMLE

Consult the PHP coordinator for testing criteria if you have a degree or coursework from an international institution. Deadline for application to EPHP is March 1.

3. Public Health Certificate in Core Concepts (PHCert-CC)
The certificate will be awarded upon successful completion of 15 credits in the public health core concepts of biostatistics, environmental and occupational health, epidemiology, ethics, management, and social and behavioral sciences. Students will be required to make application for certificate completion within three years of matriculation.

Credits acquired in PHCert-CC (15 credits maximum) may be credited to an M.P.H. within the Public Health Practice Major under specific circumstances. See the PHCert-CC curriculum sheet for more details.

Applicants must submit:

- Transcript(s) indicating a baccalaureate degree; one official transcript from each college or university attended, official English translations are required if original is not in English
- Completed SPH application and fee
- Brief letter of intent
- A score of at least 600/250 on the TOEFL where English is the candidate's second language

Applications are considered throughout the year.

Tuition

PHM: Tuition for the M.P.H. component is payable separately of Medical School tuition; nonresident tuition waivers will be considered on a case-by-case basis.

EPHP: Students pay a single tuition rate.

PHCert-CC: Students pay the resident tuition rate for the School of Public Health. Certificate processing and technology support fees may be assessed in addition to the application fee.

Career Prospects

Many students in PHP programs will use their public health knowledge and skills to enhance effectiveness and opportunities in their current work or career path. Population science is an increasingly valued area of expertise in many health and human service organizations. Others will use their degree or certificate to move into public health positions. Public health is experiencing workforce shortage. Many practitioners are reaching retirement; the demand for replacement professionals will increase. Health disparities, high rates of child poverty, emerging and reemerging infectious diseases, a greater appreciation for preventive health, and an aging population, and many other factors will create many job opportunities in public health.

For Further Reading

- American Journal of Public Health
- Annual Review of Public Health
- Healthy People 2010, <http://web.health.gov/healthypeople/2010>
- Turncock, B.J. (2001) Public Health : What it is and how it works? Maryland/ Aspen Publishers
- ASPH Council of Public Health Practice Coordinators. "Demonstrating Excellence in Academic Public Health Practice." Washington DC/ ASPH
- Gebbie K., Hwang I. (1998) "Preparing currently employed public health professionals for changes in the health system." Columbia University School of Nursing, Center for Health Policy and Health Services Research. New York/ New York
- US DHHS/PHS (1997) "The public health workforce: an agenda for the 21st century" A report of the health functions project. Washington DC/ US DHHS Web document: <http://web.health.gov/phfunctions>

Frequently Asked Questions

For additional information, including admissions data and a sample schedule, visit <http://www.sph.umn.edu>. Click on "prospective students."

Is the University of Minnesota School of Public Health (SPH) a good school?

This SPH is among the top 10 accredited schools of public health in the United States (#7 in the 2001 Graduate Rankings by U.S. News & World Report). We have been a teaching institution for over 50 years. There are almost 100 full-time faculty and over 100 adjunct faculty. The SPH is the most productive grant-receiving unit at the University and generates more sponsored funding per faculty member than almost any other school of public health in the U.S. This research strength translates into classroom vitality and opportunities for students to work closely with faculty on a broad range of projects. Our graduates become leaders in all sectors of public health practice and research.



Photo courtesy of Emmett Timmons, La Prensa

APPLICATION PROCESS

What kind of background and degree do I need to be a viable applicant?

Our students come from all academic areas: biology, English, social work, chemistry, art, business, statistics, history, psychology... Some undergraduate degrees may be favored for specific majors; refer to descriptions of each major on the previous pages. Admission into some Ph.D. programs requires a prior advanced degree in a related area.

When should I apply?

You improve your prospects by applying early. Some majors continue to consider qualified applicants into the summer; others reach capacity in early spring. Any financial aid deadlines are critical.

Who makes admission decisions?

An admissions committee (comprising faculty) for each major reviews the applications to that major. Committees select the strongest candidates from the pool. To be admitted, applicants must meet minimum requirements, but in many cases applicants meeting but not exceeding minimum requirements are not competitive. The SPH reserves the right to deviate from minimum requirements in rare situations where applicants have extenuating circumstances or compelling qualifications. The SPH dean ultimately approves all M.P.H. admissions; the Graduate School approves all recommendations for M.S. and Ph.D. admissions.

What is a letter of intent (for M.P.H. applicants) or statement of purpose (for M.S. applicants)?

The letter of intent or statement of purpose 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 upon receiving your public health degree. See the description of the major(s) to which you are applying for any specific requirements. (EPI Ph.D. applicants must submit a proposed research statement.) (PH Nutrition requires additional forms.)

Who should complete the recommendation for M.P.H.?

References providing recommendations should be qualified to assess your academic work; clinical, public health, or professional experiences; or leadership potential in public health. Each letter must be accompanied by a SPH recommendation form.

Can I apply to more than one major?

Yes. We require a separate fee and application packet for each major to which you apply. If you are applying to more than one major, indicate this in a memo in your application packet. The first application must contain original transcripts; the second application may contain copies of transcripts. Keep in mind that there is a separate admissions committee for each major.

If I have attended UMN before, do I have to complete the entire application process?

You must complete all processes, including requesting an official transcript from the



Photo courtesy of Chris Gregerson, <http://www.phototour.minneapolis.mn.us>

registrar and paying application fees.

Do I need original transcripts from all colleges/universities I have attended?

Yes. For any course work reported on your application you must provide a transcript. If you attended an academic institution outside of the U.S., allow extra time for a transcript evaluation. This could require an additional three weeks from when your file is complete to the time it reaches the admissions committee.

How do I register to take the standardized tests for admission?

Find test times, dates, and registration forms for the GRE at <http://www.gre.org> or by calling 609.771.7670. Most applicants take the computerized version, which provides us with an official score from Educational Testing Services (ETS) within 10-15 days after the exam date. Use institution code 6874 and department code 0616. Information for the TOEFL is available at <http://www.toefl.org>. Use institution code 6874 and department code 50.

What if I haven't taken the GRE by the application deadline?

Your application is not considered complete until the official score from ETS is received by the SSC. Please make your test-taking plans accordingly. Refer to the admission chart for deadline dates.

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

The Title IV code for the University of Minnesota Twin Cities is 003969. Use this code to complete the Free Application for Federal Student Aid (FAFSA) form.

When is my file ready to be reviewed?

When your file is complete, we send it to the admissions committee for review. It is your responsibility to make sure the file is complete. Mail the application packet when you have assembled all the required documentation.

When we receive your packet, we send you a letter indicating its status. The letter will indicate either that the file is complete or that it is missing materials, as specified.

If the file is incomplete, you are responsible for making sure that the missing materials are sent to the SSC before the deadline. You may call 800.774.8636 or 612.626.3500 or e-mail sph-ssc@umn.edu to check on missing materials. When all the materials arrive, we send a letter confirming that the file is complete.

Note: copies of test scores are unacceptable. To reduce delays, be sure to have official test scores from ETS sent to the SSC (GRE: institution code 6874 and department code 0616; TOEFL: institution code 6874 and department code 50).

How competitive is admission? Am I likely to get in?

Schoolwide over the past several years, approximately 50 percent of all applicants have been offered admission. The profile of admissions each year is partly determined by the caliber of the applicant pool. Successful applicants in almost all cases exceed the school minimum admission requirements. Additional information is included in the description of some majors on the previous pages.



Photo courtesy of Richard Anderson

Will I have to participate in an interview as part of the admission process?

We welcome your visit, but it is not part of the review process and will not affect the admission decision. Open houses scheduled each fall are a good way to learn about the SPH. Because each Ph.D. student must find an adviser with similar research interests, we encourage all Ph.D. applicants to visit during the application process and meet with potential advisers.

Can I be admitted at any time other than fall semester?

Fall admission is typical. Contact the coordinator for a specific major before applying for entrance

other than fall.

When will I know if I've been admitted?

Generally we will notify you of admission four to six weeks after the close of the application period. You may e-mail the relevant coordinator to inquire of your status after this time. We respond as soon as we can; please understand that we process hundreds of applicants simultaneously.

If I am not offered admission, should I lose all hope of attending the SPH?

We hope you will be able to fulfill your aspirations. Sometimes it's just a matter of raising your GRE score, taking a prerequisite, or getting more professional experience. Please follow up with the major chair if you want to understand how you could improve your application for the following year. Applicants may be successful with their second application and go on to become high-achieving students.

Can I transfer courses from another university or college?

For M.P.H.: Credits must be approved by the faculty of the academic major and the dean of the SPH and cannot exceed 12 semester credits. Coursework taken at the UMN before the term to which you are admitted are considered "transfer courses." E-mail the coordinator if you have questions.

For M.S.: Credits must be approved by adviser, DGS, and Graduate School; credits cannot exceed 40 percent of M.S. coursework.

For Ph.D.: See Graduate School Web site <http://www.grad.umn.edu/gsss/>.

If admitted, may I defer my admission?

For M.P.H.: In most cases, you may defer your admission for one year. You must request a deferral in writing from the major. If granted, your name is added to the next year's incoming class list. You do not have to pay the application fee again or submit another application during this one-year period.

For M.S.: There is no deferral. Applicants must reapply and repay the fee.

For Ph.D.: Deferral is rare. Talk with the relevant coordinator for details.

SPECIAL CONCERNS OF INTERNATIONAL APPLICANTS

What documentation do I need?

If you are an international applicant, you must

submit one official transcript from each college or university attended, with an official English translation if the original is not in English. We contract with a professional firm to evaluate transcripts and provide a summary to admission committees. Remember to include official mark sheets and diploma. Your admission file is not forwarded to the admissions committee until all official documentation has been received and evaluated. Please allow one additional month for this processing.

All international students are required to complete a Financial Certification form (to process the I-20) identifying sufficient funding for one academic year. Find an updated Financial Certification form on the SPH Web page. Financial aid is extremely limited at the University. International students are eligible to apply for graduate assistantships. These positions are very competitive; if you do not have an assistantship contract with the major to which you have been admitted, you cannot calculate assistantship income on your Financial Certification form. If you do not have sufficient funding to cover your expenses for the first year, consider delaying your studies; reapply when you have secured sufficient funds.

Is financial aid available for international students?

All students may apply for graduate assistant positions that are posted throughout the year. For fall semester, the number of postings tends to increase in midsummer. For postings see <http://data.ohr.umn.edu/webfm/gaopost/gaopost.html> for the form and details. To be transferred into an M.P.H. plan of study, courses must be approved by the SPH dean and major faculty. A maximum of 12 credits may be transferred. Consult the coordinator in the major to which you are applying. Forms must be approved by SSC after obtaining permission from the instructor.

ACADEMIC OPTIONS

Must I register as a full-time student?

No. Most of our majors allow you to complete your degree as a full-time or part-time student. Note that you will be eligible for federal financial aid only while you are registered as a full-time student (9 credits for M.P.H. students, 6 credits for M.S. and Ph.D. students for fall and spring semesters; 6 credits for M.P.H., M.S., and Ph.D. for summer session).

Can I complete a degree in the evening or summer, or on the Web?

By fall 2002, all core requirements and numerous other courses will be available in distributed learning (ITV, Web) as well as in traditional classroom format. At this point, students in degree programs must complete some of their coursework in a residential setting on campus. We believe this interaction and the intellectual community are critical to the academic development of our students. The Certificate in Public Health Core Competencies is offered in a technology enhanced/distance education format and gives degree-seeking students more flexibility in structuring their education.

How can I study public health and medicine?

There is increased demand for health practitioners who combine clinical and population approaches. The new M.D./M.P.H. program in Public Health Practice provides students an integrated curriculum in medicine and public health. Medical students may also pursue an M.P.H. in a specific public health major (e.g. epidemiology, environmental health) by taking a leave from their Medical School studies.



Photo courtesy of Kathy Buxton

Can I take classes in the SPH before I've been admitted? How should I register?

You may register for a class without being admitted to the school. You may complete the necessary form ("Request for Graduate Credit") on the web <http://www.onestop.umn.edu/Forms/index.html> or contact the SSC (sph-ssc@tc.umn.edu) for the forms and details. To be transferred into an M.P.H. plan of study, courses must be approved by the SPH dean and major faculty. A maximum of 12 semester credits may be transferred. Consult the coordinator in the major to which you are applying. Forms must be approved by SSC after obtaining permission from the instructor.

Is it possible to complete a minor in public health?

A minor is available to students enrolled in graduate programs outside the SPH. Minimum credits—Master's level: 12; Ph.D.: 21 Contact the SSC for more information.

Do you offer an undergraduate degree in public health?

The SPH does not have an undergraduate degree, but UMNTC students may pursue a concentration in public health through the Inter-College Program or Bachelor of Independent Studies.

THE STUDENT EXPERIENCE

How can I apply for graduate assistantships? What are the benefits?

Many of our students receive research or teaching assistantships, working for numerous departments on campus or for numerous community organizations. Once admitted, you may apply by looking at the postings <http://data.ohr.umn.edu/webfm/gaopost/gaopost.html>. The coordinator in the major to which you are applying may also have information about assistantships. Application for any assistantship requires submitting a résumé and cover letter. Hiring is competitive; if you have data analysis, literature review, information management, data gathering, knowledge of statistical software (SPSS, SAS, etc.), or other research skills, you have greater likelihood of being hired. Assistants receive tuition benefits, health insurance, and more. See <http://www1.umn.edu/ohr/gao> for details.

How are students involved in campus and community? What kind of activities and organizations are available?

Many students are involved in school governance and activities through the SPH Student Senate. There are also exciting educational and service opportunities with CHIP, the Center for Health Interdisciplinary Program <http://www.student.ahc.umn.edu/chip/index.html>. Our students have access to a wealth of campus, community, and professional organizations that address every conceivable interest. For a list of campus groups refer to <http://studentgroups.tc.umn.edu/>. Many organizations, including the Minnesota Public Health Association <http://www.mpha.nethome2.html> have strong ties to faculty and students.



Photo courtesy of Joan Pasiuk

What about access to technology? Will I have an e-mail account?

Computer labs in the school and across campus give all students computer access. Every registered student receives an e-mail account that is free throughout registered terms and can be continued at a very reasonable rate through membership in the Alumni Association. Most instructors allow note taking on laptops (asking specific instructors is recommended). Some classrooms have advanced technology—ethernet connection, video teleconferencing, interactive workstations.

What assistance is available in helping to find internships and jobs?

SPH Career Services provides resources to students, prospective students, and graduates. These include job and internship postings, mentor program, information sessions with employers, workshops of job search tools, a resource library, and individual job search coaching.

What services are available for students with disabilities?

The University is a leader in creating inclusive learning environments. Refer to Disability Services at <http://disserv3.stu.umn.edu/index2.html>.

Who will I be studying with? How many women? How many students of color? Are there older students with families?

The majority of students are female. Most are 30 or younger, although the average age is about 32 years. Although we expect growing interest for part-time study, more than half of our students attend full time. Approximately 10 percent of our students are students of color, and we work to increase this percentage. At least 10 percent are international students, from countries including Honduras, Ghana, Ethiopia, China, Tibet, Lithuania, and India. Many of our students already have professional experience or an advanced degree.

How many credits do students usually take each semester?

Most full-time students take 9-14 credits. Students also take at least one course during May session and may opt to take one or more in the summer.

How long does it take to finish the M.P.H. or M.S. degree?

Most majors have designed their curriculum to be completed in two years of full-time study. Some majors have shorter programs designed for students with advanced degrees.

Where do students live?

Many students live in apartments off campus. Come early to find the most convenient and affordable units. The University Web site has info about on-campus and off-campus housing <http://www1.umn.edu/housing/student/index.shtml>. Also refer to the classified listings in the major Twin Cities newspapers <http://www.startribune.com/> or <http://www.pioneerplanet.com/>.



Photo courtesy of Richard Anderson

Do I need a car to live off campus?

Popular areas for student residence are well-served by buses. Parking on campus is limited, and monthly bus passes are offered to UMNTC students at deep discounts. Travel by transit outside the central cities is more limited.

FOR MORE INFORMATION

How can I visit the school?

We host open houses each fall, which include interaction with faculty, coordinators, and current students. Check the Applicant/Prospective Student page on the SPH Web site <http://www.sph.umn.edu> for upcoming events. You may also visit campus at your convenience; contact the coordinator in your major to make arrangements.

What if I have questions not clarified in this catalog?

Additional information on each major and the SPH is available on major specific curriculum sheets and on our Web site at <http://www.sph.umn.edu>. Also, we have a service team ready to help. Call the SSC at 612.626.3500 or 800.774.8636. We can forward your call to the coordinator in your major. Or e-mail us at sph-ssc@tc.umn.edu.

THE TWIN CITIES EXPERIENCE

Is there anything to do in the Twin Cities besides shop at the Mall of America?

This urban area rocks! It continuously scores very high on many measures of quality of life. According to the Morgan Quitno ranking, Minnesota is the nation's most livable state for a record fifth year in a row. See <http://www.morganquitno.com/sr01ml.htm>.

Cultural life includes renowned theatre and music venues. City and regional parks abound; you can enjoy biking, running, canoeing, sailing, cross country and downhill skiing, and golfing without leaving the city. There are world-class zoos and art, history, and science museums, and hundreds of cultural venues....Special events crowd weekend calendars. Interesting Web sites include:

<http://www.tcguides.com/entertainment/>
<http://www.stpaul.gov/>
<http://www.ci.minneapolis.mn.us/>
<http://twincities.msn.com/>
<http://www.startribune.com/>
<http://www.pioneerplanet.com/>

Historically, is there much diversity in Minnesota?

Minnesota has a northern and western European heritage, but demographics are changing rapidly. The Twin Cities are among a dozen cities in the United States experiencing a rapid increase in minority and immigrant residents; in the last decade, nearly a quarter of the state's overall population growth was the result of increases in the number of African Americans, Asians, Hispanics/Latinos, and American Indians. The seven-county metro area has one of the largest urban populations of American Indians and Southeast Asians, and one of the highest rates of Somali immigration in the United States. The Twin Cities has a

thriving GLBT culture; Minneapolis has one of the ten largest GLBT populations of U.S. cities.

Twin Cities media of special interest include:

- The Circle News
<http://www.thecirclenews.org/>
- Spokesman-Recorder
<http://www.spokesman-recorder.com/>
- Insight News
<http://www.insightnews.com/>
- Asian Pages
<http://www.asianpages.com/>
- La Prensa
<http://www.laprensa-mn.com/>
- Lavender Magazine
<http://www.lavendermagazine.com/>
- U of M Gay, Lesbian, Bisexual, Transgender (GLBT) Programs Office
<http://www1.umn.edu/glb/>
- Minnesota Women's Press
<http://www.womenspress.com/>
- MN Ethnic Resources Directory
<http://64.183.218.150/>

AND FINALLY...

What is the weather really like?

Spring, summer, and fall have abundant warm, pleasant days. You are probably most curious about the celebrated winters. Yeah, sure, you betcha it can get cold here. Most students bring their own sled dogs, but you can always rent a few hardy ones when you arrive. Few people shower between November and April because of increased risk of hypothermia. *Just kidding!!!* The winter offers great recreation, and residents enjoy the outdoors year round. The cities function throughout winter weather conditions; roads and public sidewalks are plowed quickly, buses run reliably. Campus and the downtowns have numerous tunnels and skyways to make short walks very comfortable. Students who have moved here from warmer climates have enjoyed the total Minnesota experience and have stayed to build their career after graduation. Don't believe all you've heard about Minnesota winters.



Photo courtesy of Asha Tobing

DIVISION OF BIOSTATISTICS FACULTY

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| Sudipto Banerjee, Ph.D. | Modeling spatial data with emphasis on misalignment, modeling spatial interactions, investigation of smoothness properties of spatial processes; prediction, interpolation and regression methods for misaligned datasets |
| Bradley P. Carlin, Ph.D. | Statistical applications in AIDS research, clinical trial monitoring, longitudinal studies, spatial and spatiotemporal disease mapping, Bayes and empirical Bayes methodology |
| Hegang Chen, Ph.D. | Design and analysis of experiments and survey sampling |
| John E. Connett, Ph.D. | Clinical trials in cardiovascular disease, ophthalmology and pulmonary disease, case-control studies, estimation of odds ratio, random effects models, coefficient-of-variation models for laboratory data, and statistical computing |
| William T.M. Dunsmuir, Ph.D. | Modeling of time series and spatial observation processes with applications to assessing the impact of environmental and policy factors on health |
| Lynn E. Eberly, Ph.D. | Methods for correlated data, including time-to-event, clustered, and longitudinal data; clinical/intervention trials, environmental exposure studies, pharmacoepidemiology, and related applications; Bayesian inference using Markov Chain Monte Carlo techniques |
| Anne I. Goldman, Ph.D. | Applications of biostatistics to health sciences research; design, management and analysis of clinical trials; database management; and computer aided teaching |
| Patricia M. Grambsch, Ph.D. | Stochastic processes and mental health applications |
| Chap T. Le, Ph.D. | Epidemiologic methods, cross-over designs, survival analysis, correlated binary data, ordered alternatives, and ROC curves |
| Thomas A. Louis, Ph.D. (on leave) | Risk assessment including air pollution and health, spatial statistics, laboratory studies, meta-analysis, and methodologic development of Bayesian designs and analyses |
| James D. Neaton, Ph.D. | Design and conduct of clinical trials and the application of statistical models to the analysis of data arising from intervention studies |
| Cavan Reilly, Ph.D. | Bayesian statistics-modeling and computation, spatial statistics, filtering, survey sampling |
| Wei Pan, Ph.D. | Survival analysis, correlated response data analysis, bioinformatics, and computing |
| William Thomas, Ph.D. | Statistics education, statistical diagnostics and nonparametric regression, compliance in epidemiological and clinical trials |
| Melanie M. Wall, Ph.D. | Latent variable modeling, structural equation modeling, spatial data analysis, survey sampling |

DIVISION OF EPIDEMIOLOGY FACULTY

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|---------------------------------------|--|
| Kristin Anderson, Ph.D., M.P.H. | Cancer etiology and laboratory-based cancer epidemiology |
| Donna Arnett, Ph.D., M.S.P.H. | Cardiovascular genetic epidemiology, pharmacogenetics |
| Judith Brown, Ph.D., M.P.H. | Perinatal nutrition and pregnancy outcomes, nutrition and womens health |
| Richard Crow, M.D. | Physiology, exercise physiology, electrocardiography |
| Marsha Davis, Ph.D. | Behavioral interventions for children and families, program evaluation, measurement of health-related behaviors |
| Moise Desvarieux, M.D., Ph.D., M.P.H. | Infectious disease, interface of infectious and chronic diseases (vascular diseases), tuberculosis, international health |
| Susan Duval, Ph.D. | Cardiovascular epidemiology, biostatistical methods, meta-analysis, publication bias, statistical consulting |
| John Finnegan, Ph.D. | Mass communication and public health |
| Aaron Folsom, M.D., M.P.H. | Cardiovascular epidemiology, preventive medicine |
| Jean Forster, Ph.D., M.P.H. | Prevention policy, community and environmental strategies to reduce chronic disease risk |
| Simone French, Ph.D. | Adolescent nutrition, obesity prevention, community nutrition intervention and evaluation |

Stephen P. Glasser, M.D.

Clinical pharmacology, clinical cardiology, prevention, clinical trials, arterial stiffness (compliance), chronobiology

Lisa Harnack, Dr.P.H., M.P.H.

Nutritional epidemiology; dietary assessment methods

Wendy Hellerstedt, Ph.D., M.P.H.

Reproductive/perinatal epidemiology, adolescent pregnancy

Deborah Hennrikus, Ph.D.

Tobacco use, health promotion in clinical settings

John Himes, Ph.D., M.P.H.

Child growth and nutrition, dietary intake, child obesity and body composition

David Jacobs, Ph.D.

Biostatistics, cardiovascular epidemiology, nutritional epidemiology, low cholesterol and disease

Robert Jeffery, Ph.D.

Behavioral epidemiology with emphasis on obesity and diet

Rhonda Jones-Webb, Dr.P.H., M.S.P.H.

Behavioral science, alcohol problems in minority populations, alcohol policy

Kelli Komro, Ph.D., M.P.H.

Adolescent health; community trial research; alcohol, tobacco, other drug use prevention; violence prevention

U. Beate Krinke, Ph.D., M.P.H.

Nutrition, aging, food and nutrition policy development

Harry Lando, Ph.D.

Smoking intervention and policy

DeAnn Lazovich, Ph.D., M.P.H.

Cancer prevention and control; cancer epidemiology

Russell Luepker, M.D., M.S.

Trends in cardiovascular disease risk, effect of interventional cardiology on disease outcomes, community disease prevention

Leslie Lytle, Ph.D.

Health behavior, health education, evaluation of eating change programs

Paul McGovern, Ph.D.

Trends in cardiovascular mortality and morbidity, research design, psychometrics

Dianne Neumark-Sztainer, Ph.D., M.P.H.

Adolescent health/nutrition, obesity, eating disorders, nutrition education program design and evaluation

J. Michael Oakes, Ph.D.

Quantitative methods, social epidemiology, bioethics

James Pankow, Ph.D., M.P.H.

Cardiovascular genetic epidemiology; diabetes epidemiology

Joän Patterson, Ph.D.

Families and health; childhood chronic illness and disability

Cheryl Perry, Ph.D., M.A.

Community-based behavioral interventions with children, adolescents, and families

Phyllis Pirie, Ph.D.

Behavioral epidemiology, women smokers, survey methods

James Rothenberger, M.P.H.

Chemical dependency, AIDS, sexually transmitted diseases

Kathryn Schmitz, Ph.D., M.P.H., M.S.Ed.

Physical activity promotion, cancer, obesity, cardiovascular disease and diabetes

Pamela Schreiner, Ph.D., M.S.

Cardiovascular disease epidemiology and etiology; the perimenopausal transition; osteoporosis

Eyal Shahar, M.D., M.P.H.

Cardiovascular disease epidemiology, methodology of epidemiologic research

Lyn Steffen, PhD, MPH

CVD epidemiology; nutritional epidemiology; obesity and type 2 diabetes in children and adolescents

Mary Story, Ph.D., M.S.

Child/adolescent obesity

Carol Sweeney, Ph.D., M.S.

Molecular epidemiology of cancer

Traci Toomey, Ph.D.

Alcohol and tobacco policy research, injury prevention

Michelle van Ryn, Ph.D., M.P.H.

Formal and informal social relationships and health, race/ethnicity disparities in treatment, intervention design and evaluation

Alexander Wagenaar, Ph.D., M.S.W.

Alcohol epidemiology, program and policy evaluation, impaired driving, injury control, community organizing

DIVISION OF ENVIRONMENTAL AND OCCUPATIONAL HEALTH FACULTY

John Adgate, Ph.D.

Exposure and risk assessment; risk communication; environmental health policy; children's multi-pathway exposures to pesticides; personal exposure to airborne particulate matter and volatile organic chemicals; methods for lead poisoning prevention

Bruce H. Alexander, Ph.D.

Occupational and environmental epidemiology, especially occupational determinants of reproductive health, cancer, and traumatic injury; use of biological markers in epidemiological research

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| Lisa Brosseau, Sc.D. | Measurement of respirator valve leakage, assessment of bioaerosol fluorescence, and control of wood dust in small woodworking shops |
| Timothy Church, Ph.D., M.S. | Design and analysis of screening and prevention studies in cancer and cardiovascular disease; model uncertainty and mathematical representations of causal models |
| Susan Gerberich, Ph.D., M.S. | Injury epidemiology and control; population-based/case-control studies (all ages); brain and spinal cord injuries; occupational injuries including agricultural injuries; intentional injuries, including work-related violence; sports-related injury; general unintentional injury; injury surveillance |
| Ian Greaves, M.D. | Lung disorders caused by airborne exposures; agricultural health and safety issues; health and safety problems of small businesses; workers compensation; international environmental and occupational health issues |
| Craig Hedberg, Ph.D. | Food safety; surveillance of food borne diseases and hazards; prevention and control of outbreaks in commercial food service; ecology of infectious diseases |
| Claudiu Lungu, Ph.D., M.S. | Applied industrial hygiene; evaluation, control, and measurement of gas-phase contaminants; diffusive sampling; multiple component adsorption; health physics including internal contamination, microdosimetry, and radon sampling |
| George Maldonado, Ph.D., M.S.P.H. | Methodology for causal inference, particularly as applied to epidemiology |
| Patricia McGovern, Ph.D., M.P.H. | Occupational health policy including women's use of family medical leave policies in association with postpartum health; workplace violence prevention and control |
| Debra Olson, M.P.H. | Occupational health nursing; injury prevention and control; agricultural safety and health; innovative teaching methods that employ new technologies and involve distance learning |
| Lisa Peterson, Ph.D. | Epigenetic and genotoxic mechanisms of chemical carcinogenesis through bio-organic and analytical chemical techniques; xenobiotic metabolism; characterization of unstable metabolic intermediates; DNA repair |
| Gurumurthy Ramachandran, Ph.D. | Methods development for retrospective exposure assessment; analysis of exposures to chemical mixtures methods for analysis of aerosol measurements; theoretical and experimental studies on design of aerosol samplers; optical remote sensing applications in industrial hygiene |
| Peter Raynor, Ph.D. | Engineering control of occupational hazards; theoretical and experimental filtration studies; measurement of volatile aerosols; protection of workers exposed to metalworking fluids; improving sampling methods used by industrial hygienists |
| Ken Sexton, Sc.D. | Role of science in environmental decision making; assessment, management, and communication of environmental risks; evaluation of human exposures to toxic agents; analysis of public policy related to environmental health |
| Matt Simcik, Ph.D. | Fate and transport of organic contaminants in the atmosphere and their effects on aquatic systems and human health including source apportionment, gas-particle partitioning, air-water and air-terrestrial exchange |
| Deborah Swackhamer, Ph.D. | Chemical and biological processes affecting toxic organic contaminants in the aquatic environment; bioaccumulation of toxic chemicals in foodwebs; endocrine disruptors; ecological risk assessment; pollution issues in the Great Lakes |
| William Toscano, Ph.D. | Environmental signals and sensors; hormone active agents in the environment; effects of environment on fetal development; global environmental health |
| Donald Vesley, Ph.D. | Microbiological contamination control practices; control of airborne microorganisms in building filtration systems; evaluation of biological indicators; endoscope disinfection practices; rapid detection of bioaerosols using natural fluorescent techniques; handwashing practices of health care personnel |
| Elizabeth Wattenberg, Ph.D. | Molecular toxicology; investigation of the mechanisms by which different types of carcinogenic agents modulate cellular signal transduction pathways; risk assessment and environmental regulation |

DIVISION OF HEALTH SERVICES RESEARCH AND POLICY

Boris Bershadsky, Ph.D.

Lynn Blewett, Ph.D.

Lester Block, D.D.S., M.P.H.

Kathleen Call, Ph.D.

Bryan Dowd, Ph.D.

Roger Feldman, Ph.D.

Susan B. Foote, J.D.

Judith Garrard, Ph.D.

Robert Kane, M.D.

Rosalie Kane, D.S.W.

John Krlewski, Ph.D., M.H.A.

A. Marshall McBean, M.D., M.Sc.

Roland Maude-Griffin, Ph.D.

Donna McAlpine, Ph.D.

Ira Moscovice, Ph.D.

John A. Nyman, Ph.D.

David Radosevich, Ph.D.

William Riley, Ph.D.

Todd Rockwood, Ph.D.

Robert Veninga, Ph.D.

Beth Virnig, Ph.D., M.P.H.

Douglas Wholey, Ph.D., M.B.A.

Amy R. Wilson, Ph.D.

Data operations in health care, care quality

Health care policy and analysis, finance and delivery, access to care

Competition, regulation, rationing of health services, health policy

Sociology, access to care and health insurance, health policy

Health economics, policy analysis, econometrics

Health economics

Health policy and politics, medical technology policy, health law

Psychology, behavioral geriatrics, pharmacoepidemiology

Aging and long-term care, care quality, care outcomes

Aging and long-term care, ethics

Medical group practices, managed health care

Use of HCFA data for health policy research, access to care, quality of care

Health care economics, econometrics

Vulnerable populations, mental health services, fundamentals of public health

Operations research, rural health

Health economics, the theory of the demand for health insurance, nursing home and long-term care policy, the behavior of physicians, and cost-effectiveness analysis

Outcome research, epidemiology of aging, diabetes mellitus

Health care management, health care financing

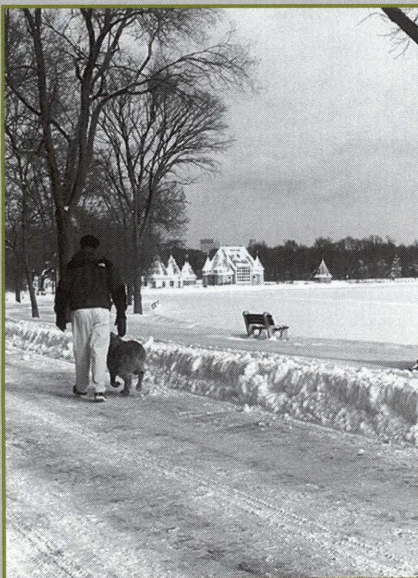
Clinical outcomes research, survey research methods

Management communications, organizational behavior

Administrative data analysis, cancer surveillance and treatment, end of life care

Organizational sociology, health care organization, managed care, informatics, management

Decision analysis and resource allocation



Lake Harriet, Minneapolis

Photo courtesy of Chris Gregerson, <http://www.phototour.minneapolis.mn.us>



Photo courtesy of Emmett Timmons, La Prensa Newspaper

Cinco de Mayo Festivities, St. Paul

University of Minnesota, Twin Cities (UMNTC)

The University of Minnesota is a world-class university, known globally as a leader in teaching, research, and public service. It is both a land-grant university, with a strong tradition of education and public service, and a major research institution, with scholars of national and international reputation. UMNTC consistently ranks among the top 20 public universities in the United States. The classic Big 10 campus, located in the heart of the Minneapolis-St. Paul metropolitan area, provides an exceptional setting for lifelong learning.

The University community is a broad mix of ethnic backgrounds, interests, and cultures. Students come from all 50 states and from more than 100 foreign countries. Many small communities of students, faculty, and staff help to create a welcoming atmosphere on campus.

UMNTC is also a thriving center for culture and the arts, featuring outstanding galleries, museums, concerts, theatre productions, and public lectures. For sports fans, the Golden Gophers offer all the spirit and excitement of Division I college athletics.

The campus in Minneapolis is located just a few minutes east of downtown. Nestled along the bluffs of the Mississippi River, buildings in Minneapolis range from the ultramodern Weisman Art Museum to the classic and stately Northrop Memorial Auditorium. A few miles to the east in St. Paul, rolling hills and quiet lawns create a more rural setting. The Minneapolis and St. Paul parts of the campus are connected by a convenient campus shuttle system.

UMNTC also provides a life beyond the campus like few other Big 10 universities can. The dynamic communities of Minneapolis and St. Paul offer something for everyone—a nationally recognized arts and theatre community, a thriving entertainment industry, a host of Fortune 500 companies, four glorious seasons of outdoor recreation, exciting professional sports, shopping, and restaurants for every taste—all located close to campus.

Bio-Medical Library

Bio-Medical Library contains materials in the areas of allied health, medicine, mortuary science, nursing, pharmacy, public health, and the basic life sciences. Rare and historical items are found in Wagensteen Library, and Drug Information Service provides materials in the area of substance abuse. The entire library collection contains more than 420,000 volumes, 4,000 current journal subscriptions, 1,100 full-text electronic journals, and 1,200 audio-visual and computer programs. Over 15 health science electronic databases include MEDLINE, CINAHL, and HAPI (Health and Psychological Instruments).

In addition, the library provides numerous resources and services such as library instructional classes, research workshops, reference consultations, library mediated searches, and citation clarification. More information is available at the following Web site: <http://www.biomed.lib.umn.edu>.

Disability Services

Many accommodations are available at the University to ensure that students with disabilities participate fully in academic and student life. Academic accommodations include sign language interpreters; lab/library assistants; course and program modifications; exam modifications; classroom relocations; document conversion (audiotape, braille, electronic, and large print); readers; and early registration. Assistive technology includes TTYs, volume-control phones, tactile maps, tape recorders, adapted computer terminals, print enlargers, braille printers, and FM listening devices. Services are available to applicants also. For information about arrangements call Disability Services at 612.626.1333 (V/TTY) or 612.626.9086 (FAX). Also refer to the following Web site: <http://disserv3.stu.umn.edu/Brochures/student.html>.

Rec Center

UMNTC has extensive opportunities for fitness. University Recreation Center houses 2 fitness centers, 14 handball and racquetball courts, 5 international squash courts, 2 gymnasiums, a kitchenette, steam rooms, saunas, locker rooms, family locker rooms, a pro shop, a deli, and numerous lounge spaces. All full-time students pay a student services fee that includes membership to the Rec Center. <http://www.recsports.umn.edu/>.

Academic Health Center

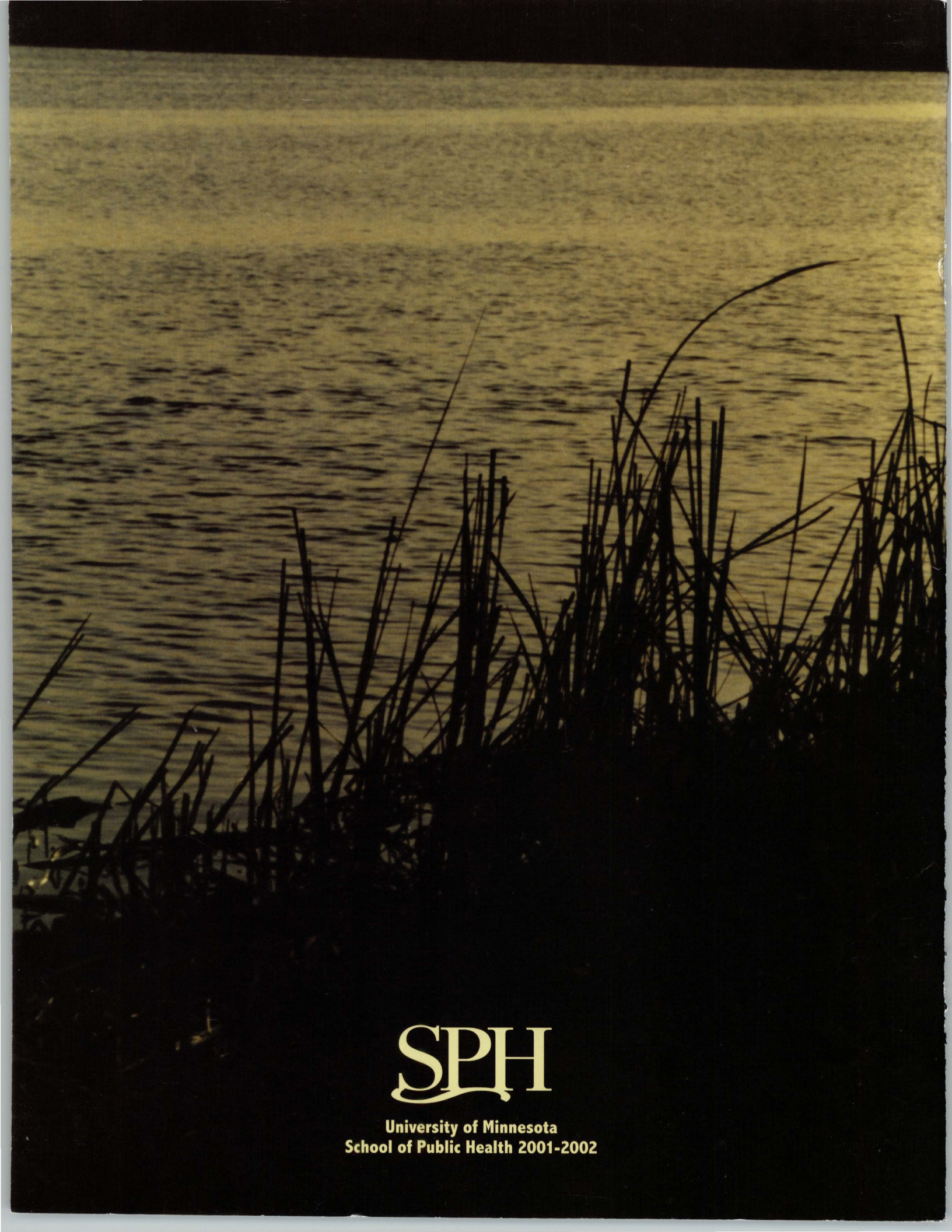
Over the past century and a half the Academic Health Center (AHC) has taken root, grown, and flourished to become one of the most comprehensive health education and research centers in the United States. AHC now comprises seven schools and colleges of medicine, public health, nursing, dentistry, pharmacy, and veterinary medicine; allied health programs in physical therapy, occupational therapy, medical technology, health information science, and mortuary science; and interdisciplinary efforts such as the Cancer Center and the Biomedical Engineering Institute.

Our schools educate professionals who take their UMNTC credentials to all parts of the world. Many choose to build their career in the progressive social setting and thriving economy of Minnesota; 70 percent of Minnesota's health care professionals are/were trained at UMNTC. Perhaps not coincidentally, Minnesota consistently ranks first or second in the U.S. Health Care Index, a nationwide evaluation of health.

Center for Health Interdisciplinary Programs (CHIP)

CHIP is an exciting program of AHC. CHIP fosters relationships and teamwork among the students of the various health programs at UMNTC. This creates an opportunity to simulate the real and emerging relationships of health practice in the communities. CHIP sponsors social events, community service activities, lectures, retreats, and weekend symposia. In addition there are student committees that organize learning experiences: CompuCHIP, Students' International Health Committee, Inegrative Health Committee, Wilderness Health Society, and Student Committee on Bioethics. For more information see <http://www.student.ahc.umn.edu/chip/>.





SPH

**University of Minnesota
School of Public Health 2001-2002**