MASTER OF PUBLIC HEALTH IN THE FIELD OF ENVIRONMENTAL HEALTH SCIENCE AND POLICY

Program Director K. Applebaum
Practicum Director P. LaPuma

Mission
The Mission of the Environmental Health Science and Policy MPH program is to educate individuals who are committed to public health protection to apply critical analytic skills to the development, implementation, and evaluation of practices and policies aimed at preventing or minimizing the adverse impact of environmental and occupational hazards on human health.

Goals
Our graduates will possess a multidisciplinary knowledge base and skill set that will provide them a framework for addressing environmental and occupational health (EOH) issues. They will understand three distinct scientific foundations of environmental health in order to:

• Assess and control environmental and occupational exposures;
• Understand the effects of these exposures on human health; and
• Interpret epidemiologic and other research findings related to environmental risks.

Furthermore, graduates will be prepared to build on this science base in order to:

• Analyze policy implications and participate in policy development, implementation, and evaluation; and
• Assess and manage environmental and occupational risks.

COMPETENCIES
Upon Completion of the Master of Public Health program in the field of environmental health science and policy, students should possess the following functional competencies.

Epidemiology & Biostatistics
Critically assess existing epidemiologic research.
• Summarize goals, design, methods, and results of published research.

PUBH 6121 Environmental and Occupational Epidemiology

• Identify biases and evaluate the extent to which they threaten study validity.

PUBH 6121 Environmental and Occupational Epidemiology

Design appropriate studies for investigating EOH problems.
• Identify appropriate resources and databases to plan and conduct studies.

PUBH 6015 Culminating Experience

PUBH 6121 Environmental and Occupational Epidemiology

PUBH 6131 Applied Data Analysis in EOH

• Given a research question, identify appropriate study design, choose appropriate study populations, describe relevant exposure assessment methods, identify appropriate data collection instruments and processes, and describe procedures for protecting human subjects.

PUBH 6121 Environmental and Occupational Epidemiology

PUBH 6126 Assessment&Control/Env Hazards

Conceptualize and carry out data analysis to address study goals.
• Conceptualize research questions.

PUBH 6015 Culminating Experience

PUBH 6121 Environmental and Occupational Epidemiology

PUBH 6131 Applied Data Analysis in EOH

• Utilize appropriate approaches to manage and analyze data.

PUBH 6015 Culminating Experience

PUBH 6131 Applied Data Analysis in EOH

Exposure Assessment and Control
Assess environmental and occupational exposures.
• Describe the principle of operation, capability, and limitations of assessment instrumentation.

PUBH 6126 Assessment&Control/Env Hazards

• Assess severity of potential hazards and select the appropriate instrument and measurement method.

PUBH 6126 Assessment&Control/Env Hazards
• Interpret exposure measurements to assess the severity of a chemical, physical, or biological hazard.

PUBH 6124  Problem Solving in EOH
PUBH 6126  Assessment&Control/Env Hazards

• Compare exposure data against established occupational & environmental health standards and guidelines.

PUBH 6124  Problem Solving in EOH
PUBH 6126  Assessment&Control/Env Hazards

• Evaluate the strengths and weaknesses of epidemiologic exposure assessments.

PUBH 6126  Assessment&Control/Env Hazards

**Recommend strategies to prevent and control environmental and occupational exposures.**

• Recommend appropriate control strategies, such as; environmental health interventions, protective equipment, behavior change campaigns, to mitigate health hazards.

PUBH 6124  Problem Solving in EOH
PUBH 6126  Assessment&Control/Env Hazards

**Toxicology**

Identify the adverse effects of chemical, biological, and physical exposures on human health.

• Apply key concepts in toxicology including: dose-response relationships; absorption, distribution, metabolism and excretion of xenobiotics; acute and chronic effects.

PUBH 6123  Toxicology: Applications for Public Health Policy

• Describe the biological basis for the adverse effects of toxicants on specific organs and tissues and identify specific compounds that interact with specific organs.

PUBH 6123  Toxicology: Applications for Public Health Policy

• Describe biological basis for the systemic effects of toxicants (e.g., carcinogenicity, genotoxicity, developmental toxicity) and identify specific compounds that elicit these effects.

PUBH 6123  Toxicology: Applications for Public Health Policy

**Interpret toxicological research findings in the context of human health risk assessment.**

• Explain key aspects of toxicological tests as well as their strengths and weaknesses.

PUBH 6123  Toxicology: Applications for Public Health Policy

• Explain how risk assessment is used to translate toxicologic information for regulatory decisions including: evaluating a body of data and applying weight of evidence approaches; calculating and using the reference dose (RfD); calculating and using of cancer slope factors.

PUBH 6122  Protecting Public Health and the Environment: Policies, Politics, and Programs

PUBH 6123  Toxicology: Applications for Public Health Policy

**Policy**

Synthesize scientific evidence in order to inform EOH policy and reduce and prevent environmental and occupational disease and injury.

• Describe the authority and approaches of U.S. public and environmental health agencies.

PUBH 6122  Protecting Public Health and the Environment: Policies, Politics, and Programs

• Apply the risk assessment, risk management, and Source-to-Effect frameworks.

PUBH 6124  Problem Solving in EOH

• Explain the role of scientific, economic, ethical, and political interests in development and implementation of human health and environmental health policy.

PUBH 6122  Protecting Public Health and the Environment: Policies, Politics, and Programs

PUBH 6123  Toxicology: Applications for Public Health Policy

**Conduct policy analysis relevant to EOH problems.**

• Discuss the control of public health hazards on a global basis.

PUBH 6126  Assessment&Control/Env Hazards

• Analyze approaches to environmental or occupational health policy development.

PUBH 6122  Protecting Public Health and the Environment: Policies, Politics, and Programs

• Analyze the role of environmental and occupational health policies and politics in promoting sustainability.

PUBH 6122  Protecting Public Health and the Environment: Policies, Politics, and Programs
Risk Management

Synthesize relevant information in order to assess and manage environmental and occupational risks.

- Given a specific context, design a plan to collect relevant information to fully characterize EOH hazards and related human health effects.

PUBH 6124 Problem Solving in EOH

- Evaluate data and other information to characterize potential EOH hazards, sources of those hazards, potential for human exposure, and potential or actual health effects.

PUBH 6123 Toxicology: Applications for Public Health Policy

PUBH 6124 Problem Solving in EOH

- Recommend possible approaches to reduce the risk and/or impact of exposure to EOH hazards, and evaluate these approaches with regard to ethical issues, technical feasibility, resource requirements, and policy context.

PUBH 6124 Problem Solving in EOH

PUBH 6126 Assessment&Control/Env Hazards

- Communicate with relevant stakeholder groups about environmental and occupational health issues and recommendations, using appropriate terminology and data.

PUBH 6122 Protecting Public Health and the Environment: Policies, Politics, and Programs

PUBH 6123 Toxicology: Applications for Public Health Policy

PUBH 6124 Problem Solving in EOH

Identify ethical issues in environmental health policy and practice.

- Discuss how scientific principles and societal values such as equity and environmental justice influence decision-making about environmental and occupational health problems in research, public health practice, policy, and management contexts.

REQUIREMENTS

The following requirements must be fulfilled: 45 credits, including 15 credits in core courses, 18 credits in program specific courses, 8 credits in elective courses, and 4 credits in practicum/culminating experience.

Required core courses (15 credits):

PUBH 6001 BiologicalConcepts/PublicHlth

PUBH 6002 Biostatistical Applic for PubH

PUBH 6003 Prin & Practice/Epidemiology

PUBH 6004 Environmental and Occupational Health in a Sustainable World

PUBH 6006 Mgt & Policy Approaches to PH

PUBH 6007 Social&BehaviorAppr-Pub.Hlth

Required program-specific courses (18 credits):

PUBH 6121 Environmental and Occupational Epidemiology

PUBH 6122 Protecting Public Health and the Environment: Policies, Politics, and Programs

PUBH 6123 Toxicology: Applications for Public Health Policy

PUBH 6124 Problem Solving in EOH

PUBH 6126 Assessment&Control/Env Hazards

PUBH 6131 Applied Data Analysis in Environmental and Occupational Health

Program-specific electives (4 credits):

Two of the following

PUBH 6127 Germs: An Introduction to Environmental Health Microbiology

PUBH 6128 Global Environmental and Occupational Health

PUBH 6130 Sustainable Energy and the Environment

PUBH 6133 Social Dimen Clim Chnge & Hlth

PUBH 6134 Communicating Science for Public Health

Electives (4 credits):

Any SPH graduate course

Practicum and culminating experience:

PUBH 6014 Practicum

PUBH 6015 Culminating Experience

Graduation Requirements

1. Graduate credit requirement: 45 graduate credits
2. Course requirements: Successful completion of core and program-specific courses
3. Grade point requirement: 3.0 (B average) overall grade point average
4. Time limit requirement: The degree must be completed within four years.

5. Transfer credit policy: Up to 12 graduate credits that have not been applied to a previous graduate degree may be transferred to the Master of Public Health program. Up to 18 credits may be transferred to the Master of Public Health from the SPH graduate certificate. Credits must have been earned from an accredited institution in the last 3 years with a grade point of 3.0 or better.