ENVIRONMENTAL AND OCCUPATIONAL HEALTH

The Department of Environmental and Occupational Health (EOH) works to further our understanding of how natural and human-made environments impact human health. We offer programs that challenge students to explore both the underlying science and policy remedies for topics including sustainable cities and food systems, climate change mitigation, workplace safety and risk management. With our Washington, D.C. location and active alumni network, students gain practical work experience and make important connections in a variety of industries, nonprofit organizations and government agencies.

GRADUATE

Master's programs

• Master of Public Health in environmental health science and policy (http://bulletin.gwu.edu/public-health/environmental-occupational-health/mph-environmental-health-science-policy)
• Master of Public Health in global environmental health (http://bulletin.gwu.edu/public-health/environmental-occupational-health/mph-global-environmental-health)

Doctoral program

• Doctor of Public Health in environmental and occupational health (http://bulletin.gwu.edu/public-health/environmental-occupational-health/drph)

FACULTY

Professors  G. Gray, L. Goldman, D. Michaels (Research), M. J. Perry (Chair), L. B. Price

Associate Professors  P.T. LaPuma, S. McCormick

Assistant Professors  K.M. Applebaum, J. Graham, A.L. Northcross, A.R. Zota

COURSES

Explanation of Course Numbers

• Courses in the 1000s are primarily introductory undergraduate courses
• Those in the 2000–4000s are upper-division undergraduate courses that can also be taken for graduate credit with permission and additional work
• Those in the 6000s and 8000s are for master’s, doctoral, and professional-level students
• The 6000s are open to advanced undergraduate students with approval of the instructor and the dean or advising office

PUBH 2114. Environment, Health, and Development. 3 Credits.
Survey of the relationship between health and development and environmental trends. Topics include deforestation, urban contamination, and desertification.

PUBH 3150. Sustainable Energy & Env Hlth. 3 Credits.
Sustainability issues from the perspective of environmental health. Technical, social, and health implications of specific energy sources. Energy conservation and efficiency in the context of population growth, food and water resources, and maintenance of a healthy environment for future generations.

PUBH 6004. Environmental and Occupational Health in a Sustainable World. 2 Credits.
Examination of the connection between population health and exposures to chemical, physical, and biological agents in the environment. Problem-solving frameworks familiarize students with data sources, methodologies, and policy approaches being used to address the public health impacts of environmental and occupational health hazards, including the consequences of climate change, natural resource degradation, and industrial chemicals. Integration of key concepts of environmental health with principles of sustainability illustrate how public policies and practices on the local, national, and global level affect population health.

PUBH 6121. Environmental and Occupational Epidemiology. 3 Credits.
Demonstration and application of epidemiologic methods for the study of environmental and occupational health problems. Epidemiologic exposure assessment methods and methods relevant to cohort, case-control, cross-sectional, and case cross-over studies. Survey design and sources and evaluation of biases and confounding. Emphasis on written and oral communication skills. Prerequisites: PUBH 6002, PUBH 6003 and PUBH 6004.

PUBH 6122. Protecting Public Health and the Environment: Policies, Politics, and Programs. 3 Credits.
The legislative, regulatory, judicial, and political system in the United States developed to protect human health and the environment. National and global public and environmental health agencies, policy development, and current topics. Prerequisites: PUBH 6004 or permission of the instructor.

PUBH 6123. Toxicology: Applications for Public Health Policy. 3 Credits.
Toxicology as both a scientific discipline and a source of information for public health policy with respect to the regulation of foods, pesticides, drugs (pharmaceuticals), environmental chemical pollutants, and other chemicals that may affect human and environmental health. How chemicals interact with biological systems to produce adverse effects. The ways in which toxicologic information is developed and applied to regulatory decision making and the use of toxicology in regulatory risk assessment. Prerequisite: PUBH 6004.
**PUBH 6124. Problem Solving in EOH. 3 Credits.**
This culminating course uses problem-based learning methods to examine a variety of real-world EOH issues in depth. Cases stimulate students to integrate their cumulative knowledge across all required courses and demonstrate their professional competencies. Students conduct activities characteristic of EOH practice: evaluating a variety of technical, public, and media reports; integrating and interpreting environmental, exposure, and health information effectively; designing analytic and communication strategies; presenting in writing and orally relevant materials to address EOH issues; and, making appropriate policy and/or program decisions and recommendations. Prerequisites: PUBH 6121, 6123, 6126.

**PUBH 6125. Intro-Children's Health & Env. 2 Credits.**
Describes the impact of environmental toxicants on children’s health and reviews some of the major policy issues in the field of children’s environmental health. Prerequisite: PUBH 6004.

**PUBH 6126. Assessment&Control/Env Hazards. 3 Credits.**
Introduces the anticipation, recognition, assessment, and control of hazards in the workplace and the ambient environment. It emphasizes an understanding of the characteristic features of specific hazards, which may be chemical, biological, or physical/ergonomic.

**PUBH 6127. Germs: An Introduction to Environmental Health Microbiology. 2 Credits.**
Basics of public health microbiology as it relates to the environment, food, water, and bioterrorism. Examines from an environmental health perspective how the principles of microbiology are applied to current and emerging public health issues, whether from intentional or unintentional contamination of the environment. Specific topics will include: industrial animal production and increasing prevalence of antibiotic resistance; effectiveness of various point of use technologies for water purification; recent advances in quantitative microbial risk assessment; one medicine (where public and veterinary health meet); detection strategies for microorganisms (including bioterrorism agents); and current approaches in food defense and agroterrorism. Prerequisites: PUBH 6004.

**PUBH 6128. Global Envrnmtl & Occptnl Hlth. 2 Credits.**
Examines environmental and occupational health issues at various stages in the development process. Emphasis will be placed on principles of development economics and associated environmental health issues. Prerequisites: PUBH 6004.

**PUBH 6130. Sustainable Energy & Environmt. 2 Credits.**
Public Health professions play a vital role in shaping sustainable energy strategies in the context of environment & human health impacts. Sustainability of various energy strategies including energy conservation, green building principles and renewable energy. Mitigation & adaption policies for climate change. Emphasizes the life cycle framework which focuses on natural resource depletion, water & energy consumption as well as air, water & solid waste pollutant emissions. Prerequisite: PUBH 6004.

**PUBH 6131. Applied Data Analysis in EOH. 3 Credits.**
Apply biostatistical concepts & methods to analysis of EOH data. Students manage datasets, conduct data analyses using Stata, present data graphically, & interpret data for relevance to EOH research, policy & practice. Skills developed and practiced will help students synthesize data, consider findings in terms of risk management options, and communicate findings for intended audiences. Prerequisites: PUBH 6002, 6003, & 6004.

**PUBH 6132. Design, Implementation and Evaluation of Global Water, Sanitation and Hygiene (WASH) Programs. 1 Credit.**
Course designed for students working in both disaster and development settings of developing countries where contaminated water, inadequate sanitation and poor hygiene (WASH) are the cause of serious health problems. Fundamental concepts will be taken from classroom to the field for first hand experience applying WASH methods. Prerequisite PUBH 6004.

**PUBH 6133. Social Dimenensions in Climate Change and Health. 2 Credits.**
The drivers of climate change and outcomes with particular focus on health dimensions. Drivers, obstacles, vulnerabilities, inequality, and adaptation as well as technical and social solutions.

**PUBH 6134. Communication Science for PubH. 2 Credits.**
Learn how to evaluate primary scientific literature & communicate research findings in outlets ranging from peer-reviewed journals to tweets. Identify target audiences & shape the message to maximize impact while staying true to supporting evidence. Prerequisites: PUBH 6002, PUBH 6003 Science-based research is the foundation to successful public health interventions, but research findings must be effectively communicated to the public health community, policymakers, and the general public before they can affect practice. In this course, students will learn how to evaluate the primary scientific literature and communicate research findings in outlets ranging from peer-reviewed journals to 140 character Tweets. Students will learn to identify their target audience and shape their message to maximize impact, while staying true to the supporting evidence. Written and oral communication as well as critical evaluation will be emphasized throughout this course.

**PUBH 6199. Topics in EOH. 1-3 Credits.**
In-depth examination of a particular facet of public health. Topics and prerequisites vary.