ENVIRONMENTAL AND OCCUPATIONAL HEALTH

The Department of Environmental and Occupational Health (EOH) works to further the student’s understanding of how natural and human-made environments impact human health. The department offers public health 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.

Visit the Department of Environmental and Occupational Health website (https://publichealth.gwu.edu/departments/environmental-and-occupational-health) for additional information.

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.M. Gray, L.R. Goldman, D. Michaels, M.J. Perry (Chair), L.B. Price
Associate Professors  S. Anenberg, K.M. Applebaum, P.T. LaPuma, C. Liu, S. McCormick, M. Attene Ramos
Assistant Professors  A.L. Northcross, A.R. Zota

COURSES

Explanation of Course Numbers

• Courses in the 1000s are primarily introductory undergraduate courses
• Those in the 2000s to 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 and Environmental Health. 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 to 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, PUBH 6123 and PUBH 6126.

**PUBH 6126. Assessment and Control of Environmental 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 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. Prerequisite: PUBH 6004.

**PUBH 6128. Global Environmental and Occupational Health. 2 Credits.**
Examination of the global environmental and occupational health factors that contribute significantly to the global burden of disease, focusing primarily on low- and middle-income countries; principles from behavioral sciences, development economics, risk assessment, and epidemiology are included; potential solutions to environmental health problems, metrics used to measure impacts, and areas for future research. Prerequisite: PUBH 6004.

**PUBH 6130. Sustainable Energy and the Environment. 2 Credits.**
The sustainability of various energy strategies, including energy conservation, green building principles, renewable energy, and mitigation and adaption policies for climate change. Emphasis on the life cycle framework. Topics include natural resource depletion, water and energy consumption, and air, water, and solid waste pollutant emissions. Prerequisite: PUBH 6004.

**PUBH 6131. Applied Data Analysis in Environmental and Occupational Health. 3 Credits.**
Application of biostatistical and epidemiologic concepts and methods to analysis of environmental and occupational health (EOH) data. Students manage datasets, conduct data analyses, present data graphically, and interpret data for relevance to EOH research, policy, and practice. Development and practice of skills needed for analyzing complex exposures and communicating environmental and occupational research findings. Prerequisites: PUBH 6002, PUBH 6003 and PUBH 6004.

**PUBH 6132. Water, Sanitation, and Hygiene (WASH) in Low-Income Countries. 2 Credits.**
Introduction to working in both disaster and development settings in countries where contaminated water, inadequate sanitation, and poor hygiene (WASH) cause serious health problems. Students gain practical experience applying WASH methods in the field. Prerequisite: PUBH 6004.

**PUBH 6133. Social Dimensions in Climate Change and Health. 3 Credits.**
The drivers of climate change and outcomes with particular focus on health dimensions; obstacles, vulnerabilities, inequality, and adaptation as well as technical and social solutions.

**PUBH 6199. Topics in EOH. 0-3 Credits.**
In-depth examination of a particular facet of public health. Topics and prerequisites vary.