Milken Institute School of Public Health
THE GEORGE WASHINGTON UNIVERSITY

Department of Environmental & Occupational Health
Department of Global Health

Master of Public Health
Global Environmental Health
2018-2019
Note: All curriculum revisions will be updated on the GWU SPH website

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Mission

The Mission of the Global Environmental Health MPH program – a joint program between the Departments of Global Health and Environmental and Occupational Health – is to educate individuals who are committed to working in resource-poor settings and applying analytic skills to prevent or mitigate the adverse impact of environmental hazards on human health. The program has a particular focus on traditional environmental health hazards—that is, health risks that are a consequence of a lack of access to clean water, inadequate sanitation, poor hygiene, household air pollution, solid waste disposal, and vector-borne diseases such as malaria.

Goals

Our graduates will hold a multidisciplinary knowledge base and skill set that will provide them a framework for addressing environmental health issues from environmentally mediated disease in the poorest performing regions of the world. They will understand the scientific and cultural foundations of environmental health in order to:

- Assess environmental exposures and understand the effects of these exposures on human health;
- Interpret epidemiologic and other research findings related to global environmental health risks; and
- Assume leadership roles in designing, implementing and evaluating programs that focus on modification of environmental health-related behaviors at local, regional, national and/or global levels.

Course Requirements

All Milken Institute School of Public Health (SPH) MPH students who select the Global Environmental Health program enroll in Core Courses (15 credits), Program-Specific Courses (17 credits), and Electives (9 credits). The total 45 credit degree program also includes a Practicum (2 credits) and a Culminating Experience (2 credits) where students apply their didactic education in a real world setting.

Program-Specific Competencies

Upon Completion of the MPH Program in Global Environmental Health, students should possess the following functional competencies.

Epidemiology & Biostatistics

- *Critically assess existing epidemiologic research.*
  - Summarize goals, design, methods, and results of published research. Relevant Courses: PUBH 6121, 6131, 6400, 6411, 6137
  - Identify biases and evaluate the extent to which they threaten study validity. Relevant Courses: PUBH 6121, 6131, 6411
  - Apply statistical principles to interpret epidemiologic data. Relevant Courses: PUBH 6121, 6131

- *Design appropriate studies for investigating EOH problems.*
  - Identify appropriate resources and databases to plan and conduct studies. Relevant Courses: PUBH 6121, 6128, 6400, 6411, 6137
  - 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. Relevant Courses: PUBH 6121, 6126, 6131, 6411, 6137

- *Conceptualize and carry out data analysis to address study goals.*
  - Conceptualize research questions. Relevant Courses: PUBH 6121, 6128, 6411, 6137
  - Utilize appropriate approaches to manage and analyze data. Relevant Courses: PUBH 6131, 6411, 6137

Assess Global Environmental and Occupational Risks

- *Assess environmental and occupational exposures.*
  - Describe the principle of operation, capability, and limitations of assessment instrumentation. Relevant Courses: PUBH 6126
  - Assess severity of potential hazards and select the appropriate instrument and measurement method. Relevant Courses: PUBH 6126
  - Interpret exposure measurements to assess the severity of a chemical, physical, or biological hazard. Relevant Courses: PUBH 6126, 6435
  - Compare exposure data against established occupational & environmental health standards and guidelines. Relevant Courses: PUBH 6126, 6128
  - Evaluate the strengths and weaknesses of epidemiologic exposure assessments. Relevant Courses: PUBH 6121, 6128

- *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. Relevant Courses: PUBH 6126, 6128, 6400, 6435

Global Environmental Health Policy Analysis

- *Synthesize scientific evidence in order to inform global environmental health policy and reduce and prevent environmental health related disease and injury.*
  - Describe the authority and approaches of global environmental health agencies. Relevant Courses: PUBH 6128, 6435.
  - Apply the risk assessment, risk management, and Source-to-Effect frameworks. Relevant Courses: PUBH 6126, 6128
  - Explain the role of scientific, economic, ethical, and political interests in development and implementation of global environmental health policy. Relevant Courses: PUBH 6126, 6128, 6400, 6435.

- *Conduct policy analysis relevant to global environmental health problems.*
  - Discuss interventions used in global environmental health. Relevant Courses: PUBH 6126, 6128, 6400, 6435.
  - Analyze approaches used in global environmental health policy development. Relevant Courses: PUBH 6128, 6400, 6435.
  - Analyze the role of global environmental health policies and politics in promoting sustainability. Relevant Courses: PUBH 6128, 6435.

Design, Implement, Monitor and Evaluate Global Environmental Health Programs

- *Synthesize relevant information in order to assess and manage environmental and occupational risks.*
  - Characterize political, social, cultural, religious and economic context to determine feasible interventions. Relevant Courses: PUBH 6128, 6400, 6435.
  - Given a specific context, design a plan to collect relevant information to fully characterize global environmental health hazards and related human health effects. Relevant Courses: PUBH 6121, 6128, 6435.
  - Evaluate data to characterize potential global environmental health hazards, potential for human exposure and health effects. Relevant Courses: PUBH 6121, 6128, 6400, 6411, 6435.
  - Recommend possible approaches to reduce the risk and/or impact of exposure to global environmental health hazards, and evaluate these approaches with regard to ethical issues, technical feasibility, resource requirements, and policy context. Relevant Courses: PUBH 6126, 6128, 6400, 6435.
  - Communicate with relevant stakeholder groups about environmental and occupational health issues and recommendations, using appropriate terminology and data. Relevant Courses: PUBH 6128, 6435, 6138.

Potential Culminating Experiences (actual projects completed and underway, as well as illustrative examples):

- Exploring Changes in Open Defecation Rates in Sub-Saharan Africa based on National Level Indices
- Cookstoves, Greenhouse Gasses, and Global Climate Change: A Case Study in sub-Saharan Africa
- Water Collection in Rural Sub-Saharan Africa: Do Increases in Access to Protected Sources Lead to a Decrease in Water Collection Times? A Study of 19 Sub-Saharan African Countries
- Examining Household Barriers to Latrine Access in Rural Tanzania
- Integration of WASH Interventions into HIV Treatment Programs in Sub-Saharan Africa
- Changes in Access to Sanitation and Water Supply in 31 Cities of Sub-Saharan Africa: A Study of Contributing Factors
- Evaluation of a Clean Cookstove Intervention in Nigeria
- Examining the Role of the Health Sector in Reducing Time and Energy Spent Collecting Solid Fuel and Mitigating Health Outcomes Associated with Indoor Air Pollution
- Factors Determining Success or Failure of Market-based Technologies for Environmental Health Hazards in Low-income Countries
- The Economics of Collecting, Transporting, and Treating Human Excreta from On-site Sanitation Systems in Urban Settings
- Assessing the Microbial Risks Associated with Animal Wastes from Concentrated Animal Feeding Operations
- Water Quality Assessment of Streams Impacted by Large-scale Poultry Operations

Please see the curriculum sheets that follow.

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Master of Public Health
Global Environmental Health

Program-at-a-Glance
2018-2019

Begin Planning Your Culminating Project 11-12 Months Prior to Program Completion

Required Core Courses				
Required Core Course		**Credits**	**Semester Offered**	**Grade**
PUBH 6001	Biological Concepts for Public Health	2	Fall, Spring, Summer I	
PUBH 6002	Biostatistical Applications for Public Health	3	Fall, Spring, Summer 10 wk	
PUBH 6003	Principles and Practice of Epidemiology	3	Fall, Spring, Summer 10 wk	
PUBH 6004	Environmental & Occupational Health in a Sustainable World	2	Fall, Spring, Summer I	
PUBH 6006	Management & Policy Approaches to Public Health	3	Fall, Spring, Summer 10 wk	
PUBH 6007	Social and Behavioral Approaches to Public Health	2	Fall, Spring, Summer 1	
Total	**Core Credits**	**15**		
Required EOH Courses				
Required EOH Specific Courses		**Credits**	**Semester Offered**	**Grade**
PUBH 6121	Environmental and Occupational Epidemiology	3	Fall	
PUBH 6126	Assessment and Control of Environmental Hazards	3	Fall	
PUBH 6128	Global Environmental and Occupational Health	2	Online Spring I and Summer	
PUBH 6131	Applied Data Analysis in EOH (PUBH 6412 can be substituted with advisor's consent)	3	Spring	
Total	**EOH Required Credits**	**11**		
Required GH Courses				
Required GH Specific Courses		**Credits**	**Semester Offered**	**Grade**
PUBH 6400	Global Health Frameworks	2	Fall	
PUBH 6411	Global Health Qualitative Research Methods	2	Spring, Summer	
PUBH 6435	Global Health Program Development & Implementation	2	Spring, Summer	
Total	**GH Required Credits**	**6**		
Elective Courses (Select 9 credits from this sample list, or any PUBH graduate level course				
PUBH 6123	Toxicology: Applications for Public Health Policy	3	Spring	
PUBH 6127	Germs: An Introduction to Public Health Microbiology	2	Spring	
PUBH 6130	Sustainable Energy and Environment	2	Fall	
PUBH 6132	Design, Implementation & Evaluation of Global Water, Sanitation and Hygiene (WASH) Programs	2	Online Fall, Spring II	
PUBH 6133	Social Dimensions of Climate Change and Health	3	Online Fall, Spring II	
PUBH 6135	Researching Climate Change and Health	2	Online Fall, Spring II	
PUBH 6262	Introduction to Geographic Information Systems	1	Summer, Fall, Spring II	
PUBH 6271	Disaster Epidemiology: Methods and Applications	1	Summer	
PUBH 6437	Global Health Program Evaluation	2	Fall	
PUBH 6441	Global Health Organizations and Regulations	3	Fall	
PUBH 6199	Special Topics in Environmental and Occupational Health - Global Climate Change and Air Pollution: Science, Impacts, and Solutions	2	Summer	
Practicum and Culminating Experience				
PUBH 6014.12	Practicum	2	See Advisor	
PUBH 6137	Culminating Experience Part 1	1	Fall	
PUBH 6138	Culminating Experience Part 2	1	Spring	
Total		**45**		

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Global Environmental Health

Advising Tips

NOTE: Always see your advisor for course scheduling and sequencing strategies, but remember that proper course selection, fulfilling requirements, and on-time graduation are your responsibilities.

The Master of Public Health (MPH) curriculum consists of four types of courses:

- Required Core Courses (PUBH 6001, 6002, 6003, 6004, 6006, and 6007)- 15 credits
- Required Program-Specific Courses in EOH and Global Health- 17 credits
- Electives Chosen from a List of Program-Relevant Courses - 9 credits
- Required Practicum and Culminating Experience – 4 credits

The MPH core courses are designed to provide students with a broad public health context as well as a critical foundation for subsequent coursework. Early completion of these core courses ensures that students will have the base of knowledge to successfully complete the program specific courses and to get as much as possible out of them. As such, entering students are expected to enroll in MPH core courses in accordance with the following guidelines:

- We expect MPH students to complete the MPH core courses in their first year of graduate study (fall/spring/summer).
- Students may take core courses in any order.

Part-time students (who generally take 5 to 7 credits per semester) will typically concentrate on taking just core courses in their first year, and then take program-specific courses in their second and third years.

In order to help assure that all students complete core courses in the first year of study, Milken Institute SPH will offer all core courses during all three semesters (fall, spring, and summer). This will allow students who wish to complete their MPH degree within two years to do so, and will allow every student to make steady progress toward completing the MPH degree.

We recognize that there may be exceptional circumstances that make it difficult for a student to complete core courses in the first year as outlined above. Any such student should discuss this situation with his or her academic advisor.

For additional information and resources regarding registration, course descriptions, schedule of classes, etc. follow this link: http://publichealth.gwu.edu/academics/.

Table 1 presents a sample course schedule for full-time Global Environmental Health MPH students. It is noteworthy that fully 45 credits are required, including core courses (15 credits), required program specific courses, including 11 EOH and 6 GH credits, elective credits chosen from a list of program-relevant courses (9 credits), and the practicum (2 credits) and culminating experience (2 credits).

Graduation Requirements

MPH

1. **Graduate Credit Requirement.** 45 graduate credits are required.

2. **Course Requirements.** Successful completion of the Core Courses and the Program-Specific Courses are required.

3. **Grade Point Requirement.** A 3.0 (B average) overall grade point average is required.

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 MPH. Up to 18 credits may be transferred to the MPH from the Milken Institute 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.

Course Descriptions and Registration information can be found on the website: http://publichealth.gwu.edu/academics/.

Milken Institute School of Public Health

MPH in Global Environmental Health (45 credits)

Sample Schedule for 2-Year completion (Fall start / May completion[+]). All course times are tentative.

Semester	Cr	Course #	Course Name	Time
Fall 1st year	3	PUBH 6003	Principles and Practice of Epidemiology	Tues 6:10 – 9:00 pm or Fri 3:10 – 6:00 pm
10 credits	2	PUBH 6004	Environ & Occup Health in a Sustainable World	Tues 4:10 – 6:00 pm
	2	PUBH 6400	Global Health Frameworks	Thurs 4:10 – 7:00 pm
	3	PUBH 6002	Biostatistical Application for Public Health	Mon 6:10 – 9pm
Spring 1st year	2	PUBH 6007	Social & Behavioral Approaches to Public Health	Weds 3:10 – 5:00 pm
10 credits	3	PUBH 6006	Management and Policy Approaches to Public Health	Mon 6:10 – 9pm
	3	PUBH 6131	Applied Data Analysis for EOH	Thurs 4:10 – 6:00 pm / Lab Thurs 6:00 – 8:00 pm
	2	PUBH 6001	Biological Concepts for Public Health	Tues 4:10 – 6:00 pm
			-- Plan Practicum --	
Summer 1st year	2	PubH 6128	Global Environmental & Occupational Health	Online Spring I and Summer
6 credits*	2	Electives*	Electives	
	2	PUBH 6014.25	Practicum[+]	
Fall 2nd year	3	PUBH 6121	Environmental & Occupational Epidemiology	Weds 5:10 – 8:00 pm
10 credits*	3	PUBH 6126	Assessment & Control of Environmental Hazards	Mon 3:10 – 6:00 pm
	1	PUBH 6137	Culminating Experience Course	Wednesday 3:10 – 5:00 pm
	3	Electives*	Electives	
Spring 2nd year	2	PUBH 6411	Global Health Qualitative Research Methods	Weds 4:10 – 6:00 pm
9 credits*	2	PUBH 6435	Global Health Program Development & Implementation	Tues 6:10 – 8:00 pm
	1	PUBH 6138	Culminating Experience Course	Wednesday 3:10 – 5:00 pm
	4	Electives*	Remaining Electives	

*Your program includes 9 credits of electives to be chosen from the list above. With guidance from your advisor, complete these 9 credits in any combination during your second year.

[+] Make sure that you complete Practicum training and start planning your Practicum the semester before you wish to conduct it.