

Master of Public Health  
Environmental Health Science and Policy  
2018-2019

Note: All curriculum revisions will be updated immediately on the website  
<http://www.publichealth.gwu.edu>

**Program Director**

Kate Applebaum, ScD, MSPH  
Assistant Professor  
Department of Environmental and Occupational Health  
950 New Hampshire Avenue, NW  
Washington, DC 20052  
Tel: 202-994-8043  
Email: [kapplebaum@gwu.edu](mailto:kapplebaum@gwu.edu)

**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.

**Course Requirements**

All Milken Institute School of Public Health (SPH) MPH students who select the Environmental Health Science and Policy program enroll in Core Courses (15 credits), Program-Specific Courses (22 credits), and additional Electives (4 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 Environmental Health Science and Policy, students should possess the following functional competencies.

- ◆ **Assess environmental and occupational exposures.**  
Students will be able to assess human exposures to environmental and occupational hazards for the purposes of evaluating human health hazards, conducting epidemiological research, and preventing and controlling hazards. Relevant courses: PUBH 6121, 6126, 6127, 6131.
- ◆ **Prevent and control environmental and occupational hazards.**  
Students will be able to recommend appropriate interventions – such as engineering controls, behavior change, or material substitution – for reducing human exposures to environmental and occupational hazards. Relevant courses: PUBH 6124, 6126, 6127, 6128, 6130.
- ◆ **Identify the adverse effects of chemical, biological, and physical exposures on human health.**

Students will be able to describe the structure and function of human organ systems and identify environmental and occupational agents that disrupt these systems to cause disease and injury. Students will be able to identify the main mechanisms by which environmental and occupational agents gain access to and adversely affect human health, as well as factors which affect susceptibility to such adverse effects. Relevant courses: PUBH 6123, 6124, 6127.

◆ **Interpret epidemiologic and other research findings related to environmental risks, and assist in designing and conducting research.**

Students will be able to critically assess existing epidemiologic research, to assist in designing and carrying out appropriate studies for investigating EOH problems, to conceptualize data analysis to address study goals, and to utilize appropriate approaches to manage and analyze data. Relevant courses: PUBH 6121, 6122, 6128, 6131.

◆ **Synthesize relevant information in order to analyze EOH policy implications and participate in policy development.**

Students will be able to apply various risk assessment approaches. They will be able to synthesize relevant information, including values, for the purposes of assessing risk and evaluating policy strategies to reduce and prevent environmental and occupational disease and injury. Relevant courses: PUBH 6122, 6123, 6124, 6128, 6130, 6133.

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

Students will be able to apply various risk management and risk communication frameworks. They will be able to synthesize relevant information, including values, for the purposes of assessing risk and evaluating management strategies to reduce and prevent environmental and occupational disease and injury. Relevant courses: PUBH 6122, 6124, 6126, 6127, 6130, 6133.

◆ **Engage in public health communication and risk communication activities.**


Students will be able to communicate clearly and effectively in professional and community settings on public health issues and on environmental and occupational health hazards. Relevant courses: PUBH 6121, 6122, 6123, 6124.

◆ **Identify ethical issues in environmental health policy and practice.**

Students will be able to 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. Relevant courses: PUBH 6121, 6122, 6123, 6124, 6128, 6130, 6133.

**Examples of EHS&P Culminating Experiences Completed since January 2011**

- ❖ Injury Rates at Massey Energy Coal Mines Compared to Rates at Coal Mines Operated by 4 Other U.S. Mining Companies
- ❖ State Hlth Agency Workforce Shortages & Implications for Public Hlth: A Case Study of Restaurant Inspections in Louisiana
- ❖ Work-Related Injuries: A Look at Performance of Duty Illnesses/Injuries for Firefighters and EMS Workers
- ❖ Bedbug, Mice, and Rat Complaints and Pesticide Use among Washington DC Residents by Ward
- ❖ Fatal Crashes Among Commercial Motor Vehicle Drivers Licensed in Self-Certification and Medical Certification States
- ❖ A Comparison of the Benchmark Dose between Acute and Chronic Toxicological Studies
- ❖ Assessing Noise Exposure in Locomotive Engineers
- ❖ Ozone Concentrations and EMS Calls in the City of Alexandria, VA
- ❖ Assessing Patterns of Disability among Sheet Metal Workers
- ❖ Breewood Neighborhood Storm Water Runoff Characterization and Sensitivity Analysis
- ❖ Children and Pesticides in Washington DC: Regulation, Education and Communication
- ❖ Predicting Health Impacts of Electricity Production: A Comparison of Models
- ❖ Solar Power Capacity on GWU Foggy Bottom Campus Rooftops
- ❖ Comparing the Burden of Food- & Water-borne Diseases in 4 World Regions Using Informal Reporting Methods, 2009-2010
- ❖ Indoor Air Quality & Asthma: School Nurse Perspectives on Environmental Factors Affecting Children's Health
- ❖ Federal Worker Commuter Choices, Greenhouse Gas Emissions, and Implications for Public Health
- ❖ Roughed Up on the Road: Perceptions of Violence among New York City Taxi Drivers
- ❖ Childhood Exposure to PAH Contaminated Soil on a Formerly Used Defense Site: Cancer and Non-Cancer Risk Assessment
- ❖ Advisory Effectiveness and Subsistence Fishing - A Study to Analyze and Assess Subsistence Fishing of the Anacostia River
- ❖ Heat Exposure Assessment of Utility Plant Workers at the National Institutes of Health
- ❖ A Descriptive Analysis of Metal/Nonmetal Miners with Reported Hearing Loss, 1999 to 2010
- ❖ Exploring Changes in Open Defecation Rates in Sub-Saharan Africa based on National Level Indices
- ❖ Environmental Factors Associated with Atrazine in Shenandoah River Tributaries
- ❖ Do Socio-Demographic Factors Modify the Relationship between Work Type and Leisure-Time Physical Activity?
- ❖ An Electromagnetic Field Survey of Amtrak's Ivy City Facility Shop
- ❖ 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
- ❖ Dog Park Visits as a Risk Factor for Transmitting *E. coli*
- ❖ Self-Reported Psychological Stress and Prevalence of Methicillin-resistant Staphylococcus Aureus (MRSA) among Beef Meatpacking Workers in Nebraska
- ❖ Childhood Lead Levels in Fairfax County, VA

		<b>School of Public Health and Health Services</b>  <b>Master of Public Health</b> <b>Environmental Health Science and Policy</b> <b>2018-2019</b> <b>Program-at-a-Glance</b>		
<i>Begin Planning Your Culminating Project 11-12 Months Prior to Program Completion</i>				
<b>Required Core Courses</b> <b>15 Credits</b>				
<b>Required Core Course</b>		<b>Credits</b>	<b>Semester Offered</b>	<b>Grade</b>
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	
<b>Total</b>	<b>Core Credits</b>	<b>15</b>		
<b>Required Program-Specific Courses</b> <b>18 Credits</b>				
<b>Required Program Specific Course</b>		<b>Credits</b>	<b>Semester Offered</b>	<b>Grade</b>
PUBH 6121	Environmental and Occupational Epidemiology	3	Fall	
PUBH 6122	Protecting Public Health and the Environment: Policies, Politics, and Programs	3	Spring	
PUBH 6123	Toxicology: Applications for Public Health Policy	3	Spring	
PUBH 6124	Problem Solving in Environmental and Occupational Health	3	Spring	
PUBH 6126	Assessment and Control of Environmental Hazards	3	Fall	
PUBH 6131	Applied Data Analysis in EOH	3	Spring	
<b>EHS&amp;P Program-Specific Electives</b> <b>Select a minimum of 4 credits from this list</b>				
PUBH 6127	Germes: An Introduction to Environmental Health Microbiology	2	Spring	
PUBH 6128	Global Environmental and Occupational Health	2	Online, Spring I & Summer	
PUBH 6130	Sustainable Energy and the Environment	2	Fall	
PUBH 6133	Social Dimensions in Climate Change and Health	3	Online, Fall & Spring II	
PUBH 6135	Researching Climate Change and Public Health	3	Online, Fall & Spring II	
PUBH 6199	TOPICS: Veterans Deployment and Environmental Disease	1	Summer	
<b>Other Electives</b>	<b>Any PUBH Graduate Course(s)- with guidance from advisor. If coursework from the program-specific electives above exceeds 4 credits, the additional credits will count toward these "other electives"</b>	<b>4</b>	Fall, Spring, Summer	
<b>Practicum and Culminating Experience*</b>				
PUBH 6014.12	Practicum	2	See Advisor	
PUBH 6137*	Culminating Experience- Part 1	1	Fall	
PUBH 6138*	Culminating Experience-Part 2	1	Spring	
<b>NOTE: * Options for Culminating Experience as one 2-credit course (PUBH 6015) or two 1-credit courses taken sequentially over 2 semesters may be discussed with Advisor.</b>				
<b>Total</b>		<b>45</b>		

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

## 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. External credits must have been earned from an accredited institution in the last 3 years with a grade of 3.0 (B) or better. SPH Graduate Certificate students can transfer as many credits as meet program requirements, up to 18 credits, to the MPH. Graduate Certificate students wishing to transfer to a degree program may apply to do so via the online change of concentration petition after completion of 3 or more courses and a cumulative GPA of 3.0 or better. A grade of B or better is required for a course to be eligible for transfer.
6. **CITI Training requirement:** All students are required to complete training regarding human subject protection regulation and the Health Insurance Portability and Accountability Act of 1996 (HIPAA). To fulfill this requirement, you must complete the Collaborative IRB Training Initiative (CITI) Course in The Protection of Human Research Subjects.
7. **Integrity Quiz & Plagiarism Quiz requirement:** All students are required to review the George Washington University Code of Academic Integrity and take the quiz within their first semester of study. The Code of Integrity and step-by-step instructions can be found here: <http://publichealth.gwu.edu/integrity>
8. **Professional Enhancement requirement:** Students must participate in 8 hours per degree program of advisor pre-approved Public Health-related lectures, seminars, and symposia, related to your field of study. Professional Enhancement activities supplement the academic curriculum and help prepare students to participate actively in the professional community. Opportunities for professional enhancement are regularly publicized via the Milken Institute SPH Listserv and through your department or advisor. Students must submit documentation of Professional Enhancement activities to the Office of Student Records. The documentation consists of the Professional Enhancement Form <http://publichealth.gwu.edu/academics/forms> (which includes a prior approval signature from the student's advisor, a description of the program agenda, and proof of attendance. Remember to submit your documentation before you apply to graduate!

**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)
- Required Program-Specific Courses, including 4 EOH selective credits
- General Electives
- Required Practicum and Culminating Experience

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 (full time students) and Table 2 (part time students) present sample course schedules that Environmental Health Science & Policy MPH students are required to take during their tenure at the Milken Institute SPH. It is noteworthy that fully 45 credits are required, including core courses (15 credits), program specific courses, including 4 EOH selective credits (22 credits), general elective credits (4 credits), and the practicum (2 credits) and culminating experience (2 credits). See below.

**MPH in Environmental Health Science and Policy (45 credits)**

Table 1. Sample Schedule for 5-semester Completion (Fall start / May completion) - All course times are tentative

Semester	Cr	Course #	Course Name	Time
Fall 1 <sup>st</sup> year 10 credits	3	PUBH 6003	Principles and Practice of Epidemiology	Tues 6:10 – 9:00 pm or Wed 3:10 – 6:00 pm
	3	PUBH 6002	Biostatistical Applications for Public Health	Wed 6:10 – 9:00 pm or Mon 3:10 – 6:00 pm
	2	PUBH 6001	Biological Concepts for Public Health	Thurs 4:10 – 6:00 pm
	2	PUBH 6004	Environ & Occup Health in a Sustainable World	Tues 4:10 – 6:00 pm
Spring 1 <sup>st</sup> year 11 credits	3	PUBH 6006	Management and Policy Approaches to Public Health	Mon 6:10 - 9:00 pm
	3	PUBH 6123	Toxicology: Applications for Public Health Policy <sup>&amp;</sup>	Mon 3:10 – 6:00 pm
	2	Electives	Electives	
	3	PUBH 6131	Applied Data Analysis in EOH -- plan Practicum --	Thurs 3:10 – 6:00 pm
Summer 1 <sup>st</sup> year 5 credits	2	PUBH 6007	Social & Behavioral Approaches to Public Health	Tues/Thurs 3:10 - 5:30 pm
	1	Electives	Electives	
	2	PUBH 6014	Practicum <sup>+</sup>	
Fall 2 <sup>nd</sup> year 10 credits	3	PUBH 6121	Environmental & Occupational Epidemiology	Wed 5:10 – 8:00 pm
	3	PUBH 6126	Assessment and Control of Env Hazards	Mon 3:10 – 6:00 pm
	1	PUBH 6137	EOH Culminating Experience Course Part 1	Wed 3:10 - 5:00 pm
	3	Electives	Electives	
Spring 2 <sup>nd</sup> year 9 Credits	3	PUBH 6122	Policies, Politics and Programs	Thurs 6:10 – 9:00 pm
	3	PUBH 6124	Problem Solving in EOH	Wed 5:10 – 8:00 pm
	1	PUBH 6138	EOH Culminating Experience Part 2	Wed 3:10 - 5:00 pm
	2	Electives	Electives	
<b>TOTAL</b>	<b>45</b>			

4 credits of EOH Program-Specific Electives – Select a minimum of 4 credits from the following courses, preferably during your last three semesters:

PUBH 6127 Germs: An Introduction to Environmental Health Microbiology 2 Spring, Tues 4:10 – 6:00 pm

PUBH 6128 Global Environmental and Occupational Health 2 online, Spring I & Summer

PUBH 6130 Sustainable Energy and the Environment 2 Fall, Tues 6:10 - 8:00 pm  
PUBH 6133 Social Dimensions of Climate Change & Health 3 online, Fall & Spring II  
PUBH 6135 Researching Climate Change and Public Health 3 online, Fall & Spring II

PUBH 6199 TOPICS: Veterans Deployment and Environmental Disease 1 Summer

4 credits of Electives – With guidance from your advisor, complete 4 credits of electives from any School of Public Health course (preferably during last three semesters). If the credits taken from the Program-Specific Electives exceed 4 credits, the additional credits will count towards your any SPH electives

Table 2. Sample Schedule for 8-semester Completion (Fall start / May completion) - All course times are tentative

Semester	Cr	Course #	Course Name	Time
Fall 1 <sup>st</sup> year	3	PUBH 6003	Principles and Practice of Epidemiology	Tues 6:10 – 9:00 pm or Wed 3:10 – 6:00 pm
5 credits	2	PUBH 6004	Environ & Occup Health in a Sustainable World	Tues 4:10 – 6:00 pm
Spring 1 <sup>st</sup> year	2	PUBH 6007	Social & Behavioral Approaches to Public Health	Tues 4:10 – 6:00 pm
7 credits	3	PUBH 6002	Biostatistical Applications for Public Health	Wed 6:10 – 9:00 pm
	2	PUBH 6001	Biological Concepts for Public Health	Tues 4:10 – 6:00 pm
Summer 1 <sup>st</sup> year	3	PUBH 6006	Management and Policy Approaches to Public Health Plan Practicum	Mon/Wed 12:10 - 3:00 pm
Fall 2 <sup>nd</sup> year	3	PUBH 6126	Assessment and Control of Env Hazards	Mon 3:10 – 6:00 pm
6 credits	2	PUBH 6014	Practicum	
	1	Electives	Electives	
Spring 2 <sup>nd</sup> year	3	PUBH 6123	Toxicology: Applications for Public Health Policy <sup>&amp;</sup>	Mon 3:10 – 6:00 pm
8 Credits	3	PUBH 6131	Applied Data Analysis in EOH	Thurs 3:10 – 6:00 pm
	2	Electives	Electives	
Summer 2nd year	3	Electives	Electives	
Fall 3 <sup>rd</sup> Year	3	PUBH 6121	Environmental & Occupational Epidemiology	Wed 5:10 – 8:00 pm
6 Credits	1	PUBH 6137	EOH Culminating Experience Course Part 1	Wednesday 3:10 – 5:00 pm
	2	Electives	Electives	
Spring 3 <sup>rd</sup> Year	3	PUBH 6122	Policies, Politics and Programs	Thurs 6:10 – 9:00 pm
7 Credits	3	PUBH 6124	Problem Solving in EOH	Wed 5:10 – 8:00 pm
	1	PUBH 6138	EOH Culminating Experience Course Part 2	Wednesday 3:10 – 5:00 pm
<b>Total</b>	<b>45</b>			

4 credits of EOH Program-Specific Electives – Select a minimum of 4 credits from the following courses, preferably during your last three semesters:

PUBH 6127 Germs: An Introduction to Environmental Health Microbiology 2 Spring, Tues 4:10 – 6:00 pm	PUBH 6127 Germs: An Introduction to Environmental Health Microbiology 2 Spring, Tues 4:10 – 6:00 pm
PUBH 6128 Global Environmental and Occupational Health 2 online, Spring I & Summer	PUBH 6128 Global Environmental and Occupational Health 2 online, Spring I & Summer



PUBH 6130 Sustainable Energy and the Environment 2 Fall, Tues 6:10 - 8:00 pm

PUBH 6133 Social Dimensions of Climate Change & Health 3 online, Fall & Spring II

PUBH 6135 Researching Climate Change and Public Health 3 online, Fall & Spring II

PUBH 6199 TOPICS: Veterans Deployment and Environmental Disease 1 Summer

4 credits of Electives – With guidance from your advisor, complete 4 credits of electives from any School of Public Health course (preferably during last three semesters). If the credits taken from the Program-Specific Electives exceed 4 credits, the additional credits will count towards your any SPH electives

PUBH 6130 Sustainable Energy and the Environment 2 Fall, Tues 6:10 - 8:00 pm

PUBH 6133 Social Dimensions of Climate Change & Health 3 online, Fall & Spring II

PUBH 6135 Researching Climate Change and Public Health 3 online, Fall & Spring II

PUBH 6199 TOPICS: Veterans Deployment and Environmental Disease 1 Summer