

Milken Institute School of Public Health

THE GEORGE WASHINGTON UNIVERSITY

Department of Environmental and Occupational Health

Master of Public Health Environmental Health Science and Policy 2020 - 2021

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

Program Director

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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 (19 credits) to include the Culminating Experience, Program-Specific Courses (22 credits), and General Electives (4 credits).

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, 6134.
- ◆ **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.

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Master of Public Health Environmental Health Science and Policy 2020-21 Program-at-a-Glance

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

Required Core Courses 19 Credits

Required Core Course	Credits	Semester Offered	Grade	
PUBH 6002	Biostatistical Applications for Public Health	3	Fall, Spring, Summer	
PUBH 6003	Principles and Practice of Epidemiology	3	Fall, Spring, Summer	
PUBH 6007	Social and Behavioral Approaches to Public Health	2	Fall, Spring, Summer	
PUBH 6009	Fundamentals of Program Evaluation	2	Fall, Spring, Summer	
PUBH 6011	Environmental & Biological Fundamentals of Public Health	3	Fall, Spring, Summer	
PUBH 6012	Fundamentals of Health Policy	2	Fall, Spring, Summer	
PUBH 6021	Essentials of Public Health Leadership & Practice 1: Leading Self and Teams in Public Health	1	Fall, Spring, Summer	
PUBH 6022*	Essentials of Public Health Leadership & Practice 2: Managing Organizations and Influencing Systems in Public Health*	1	Fall, Spring, Summer	
PUBH 6023	Interprofessional Education Experience	0	Fall, Spring, Summer	
PUBH 6137	EOH Culminating Experience Part 1	1	Fall	
PUBH 6138	EOH Culminating Experience Part 2	1	Spring	
Total	Core Credits	19		

Required Program-Specific Courses 18 Credits

Required Program Specific Course	Credits	Semester Offered	Grade	
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	Risk Management and Communication	3	Spring	
PUBH 6126	Assessment and Control of Environmental Hazards	3	Fall	
PUBH 6131	Quantitative Methods in Environmental and Occupational Health	3	Spring	

EHS&P Program-Specific Electives Take minimum 4 credits from this list

PUBH 6127	Germs: 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 of Climate Change and Health	3	Online Spring I, Summer	
PUBH 6135	Researching Climate Change and Health	3	Online Fall, Spring II	
PUBH 6140	Global Climate Change & Air Pollution	2	Summer	
PUBH 6199	ANY TOPICS course in EOH	varies	Varies	

General PUBH Graduate Electives

PUBH 6xxx	Take PUBH Graduate courses. If credits from Program-Specific Electives exceed 4 credits, the additional credits will count toward the General Electives.	4 credits	Fall, Spring, Summer	
Total		45		

* Note: In PUBH 6021 and PUBH 6022, the Applied Practice Experience (Practicum) will be introduced and guidelines and tools for fulfilling this requirement will be provided. Upon completion of the 120-hour required practicum, students will receive credit for PUBH 6022.

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 five years.
5. **Practicum Requirement.** Students are required to fulfill all requirements of the Applied Practice Experience (Practicum) to receive credit for PUBH 6022.
6. **Interprofessional Education Experience (IPE).** Students are required to enroll and participate in an authorized IPE activity (PUBH 6023).
7. **Transfer Credit Policy.** Up to 12 graduate credits that have not been applied to a previous degree may be transferred to the MPH upon approval. 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.
8. **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.
9. **Integrity Quiz & Plagiarism 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>
10. **Professional Enhancement requirement.** Students must participate in 8 hours per degree program of 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 registration, 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 6002, 6003, 6007, 6009, 6011, 6012, 6021, 6022, and 6023)
- Required Program-Specific Courses
- A total of 8 Electives, requiring 4 EOH selective credits and 4 from any SPH graduate credits
- Required Culminating Experience

As an accredited School of Public Health, students in all GWSPH MPH programs are required to fulfill both an interprofessional team experience and an applied practice experience, included in the core. GWSPH has incorporated these requirements into the curriculum as follows:

Interprofessional Education (IPE) Experience (PUBH 6023):

- Following (or simultaneous to) enrollment in PUBH 6021 *Essentials in Public Health Practice & Leadership 1: Leading Self and Teams* (1-credit), students will be required to select an IPE experience from a host of options provided throughout your enrollment as an MPH student to participate in a one-time, case-based or activity-based learning experience. The IPE experience is a way to experience working with people from other professions/programs outside of public health. Students will have many opportunities to register for this zero-credit (no fee) IPE ‘class’ and will receive credit upon successful completion.

Applied Practice Experience (Practicum) (PUBH 6022):

- The applied practice experience allows each student to individually demonstrate attainment of public health competencies. Information about the Practicum will be introduced in PUBH 6021 so students may begin planning for their practice experience. As a part of the content of PUBH 6022 *Essentials in Public Health Practice & Leadership 2: Managing Organizations & Influencing Systems* (1-credit), detailed information and an introduction to the necessary tools will be provided. Students are required to fulfill all requirements of the 120 hour Practicum experience to receive credit for this PUBH 6022.

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), with the exception of the Culminating Experience courses (PUBH 6137 and 6138).
- For Environmental Health Science and Policy MPH students who are full-time, it is important to take PUBH 6002 *Biostatistical Applications for Public Health*, 6003 *Principles and Practice of Epidemiology*, 6011 *Environmental & Biological Fundamentals of Public Health*, and 6021 *Essentials of Public Health Practice & Leadership 1: Leading Self and Teams in Public Health* in the first semester.

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 subsequent years, but should consult with your academic advisor.

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 (19 credits), program specific courses (18 credits), and electives, 4 credits of which are EOH selective credits and the remainder are general elective credits (8 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 (subject to change)
Fall 1 st year 12 credits	3	PUBH 6002	Biostatistical Applications for PH	Mon 3:10 – 6:00 pm or Wed 6:10 – 9:00 pm
	3	PUBH 6003	Principles and Practice of Epidemiology	Tues 6:10 – 9:00 pm or Wed 3:10 – 6:00 pm
	2	PUBH 6007	Social & Behavioral Approaches to PH	Mon 6:10 – 8:00 pm
	3	PUBH 6011	Environmental & Biological Fundamentals of PH	Tues 3:10 – 6:00 pm
	1	PUBH 6021	Essentials of PH Leadership & Practice 1: Leading Self & Teams in PH	Thurs 6:10 – 7:00 pm
Spring 1 st year 11 credits	2	PUBH 6012	Fundamentals of Health Policy	TBD
	1	PUBH 6022*	Essentials of PH Leadership & Practice 2: Managing Organizations & Influencing Systems in PH	TBD
	3	PUBH 6123	Toxicology: Applications for Public Health Policy	Mon 3:10 – 6:00 pm
	3	PUBH 6131	Quantitative Methods in Environmental and Occupational Health	Thurs 3:10 – 6:00 pm, Lab Thurs 6:30 – 8:00 pm
	2	Electives	Electives	
Summer 1 st year 4 credits	2	PUBH 6009	Fundamentals of Program Evaluation	TBD
	2	Electives	Electives	
Fall 2 nd year 9 credits	3	PUBH 6121	Environmental & Occupational Epidemiology	Wed 5:10 – 8:00 pm
	3	PUBH 6126	Assessment and Control of Environmental Hazards	Mon 5:10 – 8:00 pm
	1	PUBH 6137	EOH Culminating Experience Course Part 1	Wed 3:10 - 5:00 pm
	2	Electives	Electives	
Spring 2 nd year 9 Credits	3	PUBH 6122	Policies, Politics and Programs	Thurs 6:10 – 9:00 pm
	3	PUBH 6124	Risk Management and Communication	Wed 5:10 – 8:00 pm
	1	PUBH 6138	EOH Culminating Experience Part 2	Wed 3:10 - 5:00 pm
	2	Electives	Electives	
TOTAL	45			

*PUBH 6022 prepares students to conduct their interprofessional education experience - PUBH 6023 Interprofessional Education Experience (0) – which can be registered for anytime following completion of work in PUBH 6022. Typically, students complete the 120 hours of the practicum during the summer months. A total of 8 credits of electives are required, preferably during last three semesters. Minimum 4 credits from EOH Program-Specific Electives. The remaining elective credits (up to 4 credits) come from any SPH Graduate-level courses. Options for the EOH Program-Specific Electives include:

PUBH 6127 Applied Environmental Health Microbiology 2 Spring, Tues 4:10 – 6:00 pm

PUBH 6128 Global Environmental and Occupational Health 2 Online Spring I and 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 Spring I and Summer

PUBH 6135 Researching Climate Change and Public Health 3 Online Fall and Spring II

PUBH 6140 Global Climate Change & Air Pollution 2 Summer Thursday 3:45 - 6:00 pm

PUBH 6199 TOPICS: EOH Data & Modelling 2 Fall Wed 6:10 – 8:00 pm

PUBH 6199 TOPICS: Microbiomes & Microbial Ecology in Public Health 2 Fall Tuesday 4:10 - 6:00 pm

PUBH 6199 TOPICS: Veterans Deployment and Environmental Issues 1 Summer

PUBH 6199 Any 6199 TOPICS course

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

Semester	Cr	Course #	Course Name	Time (subject to change)
Fall 1 st year 7 credits	3	PUBH 6003	Principles and Practice of Epidemiology	Tues 6:10 – 9:00 pm or Wed 3:10 – 6:00 pm
	3	PUBH 6011	Environmental & Biological Fundamentals of PH	Tues 3:10-6:00 pm
	1	PUBH 6021	Essentials of PH Practice & Leadership 1: Leading Self & Teams in PH	Thurs 6:10-7:00 pm
Spring 1 st year 5 credits	3	PUBH 6002	Biostatistical Applications for Public Health	TBD
	2	PUBH 6007	Social & Behavioral Approaches to Public Health	TBD
Summer 1 st year 3 credits	2	PUBH 6012	Fundamentals of Health Policy	TBD
	1	PUBH 6022*	Essentials of Public Health Leadership & Practice 2: Managing Organizations & Influencing Systems in PH	TBD
Fall 2 nd year 7 credits	3	PUBH 6126	Assessment and Control of Environmental Hazards	Mon 5:10 – 8:00 pm
	2	PUBH 6009	Fundamentals of Program Evaluation	TBD
	2	Electives	Electives	
Spring 2 nd year 8 Credits	3	PUBH 6123	Toxicology: Applications for Public Health Policy	Mon 3:10 – 6:00 pm
	3	PUBH 6131	Quantitative Methods in Environmental and Occupational Health	Thurs 3:10 – 6:00 pm, Lab Thurs 6:30-8:30pm
	2	Electives	Electives	
Summer 2nd year 2 Credits	2	Electives	Electives	
Fall 3 rd Year 6 Credits	3	PUBH 6121	Environmental & Occupational Epidemiology	Wed 5:10 – 8:00 pm
	1	PUBH 6137	EOH Culminating Experience Course Part 1	Wed 3:10 – 5:00 pm
	2	Electives	Electives	
Spring 3 rd Year 7 Credits	3	PUBH 6122	Policies, Politics and Programs	Thurs 6:10 – 9:00 pm
	3	PUBH 6124	Risk Management and Communication	Wed 5:10 – 8:00 pm
	1	PUBH 6138	EOH Culminating Experience Course Part 2	Wed 3:10 – 5:00 pm

Total 45

*PUBH 6022 prepares students to conduct their interprofessional education experience - PUBH 6023 Interprofessional Education Experience (0) – which can be registered for anytime following completion of work in PUBH 6022. Typically, students complete the 120 hours of the practicum during the summer months. A total of 8 credits of electives are required, preferably during last three semesters. Minimum 4 credits from EOH Program-Specific Electives. The remaining elective credits (up to 4 credits) come from any SPH Graduate-level courses. Options for the EOH Program-Specific Electives include:

PUBH 6127 Applied Environmental Health Microbiology 2 Spring, Tues 4:10 – 6:00 pm

PUBH 6128 Global Environmental and Occupational Health 2 Online Spring I and 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 Spring I and Summer

PUBH 6135 Researching Climate Change and Public Health 3 Online Fall and Spring II

PUBH 6140 Global Climate Change & Air Pollution 2 Summer Thursday 3:45 - 6:00 pm

PUBH 6199 TOPICS: EOH Data & Modelling 2 Fall Wed 6:10 – 8:00 pm

PUBH 6199 TOPICS: Microbiomes & Microbial Ecology in Public Health 2 Fall Tuesday 4:10 - 6:00 pm

PUBH 6199 TOPICS: Veterans Deployment and Environmental Issues 1 Summer

PUBH 6199 Any 6199 TOPICS course