

ENVIRONMENTAL HEALTH, MHS

MHS in Environmental Health

The Master of Health Science (<https://publichealth.jhu.edu/academics/mhs-in-environmental-health/>) provides a firm academic foundation in the field of environmental health.

The program primarily targets individuals holding a bachelor's degree who see a place for environmental health in their future academic or career goals. In addition to coursework, MHS students prepare an essay addressing an environmental health problem and make a formal presentation on the topic to an audience of faculty and students.

Some graduates pursue doctoral degrees in public health, medicine, and law, while others head to governmental agencies, NGOs, and the private sector. The program may also accommodate the educational needs of those already working in these sectors who want to develop a stronger knowledge base in environmental health.

In addition to required courses, the MHS program offers electives in the following areas:

- Food Systems, Water, and Environmental Sustainability
- Health Security
- Pre-medicine
- Population Environmental Health
- Toxicology for Human Risk Assessment

Bachelor's/Master of Health Science

The Bachelor's/Master of Health Science (<https://publichealth.jhu.edu/academics/bachelors-mhs-dept-of-environmental-health-and-engineering/>) is designed exclusively for undergraduate students currently enrolled at John Hopkins University (JHU).

JHU undergraduate students have the unique opportunity to seek early admission to the Master of Health Science (MHS) degree. The combined Bachelor's/Master of Health Science program prepares students for careers in the private sector, government, and non-profit organizations. Many graduates go on to pursue doctoral degrees in medicine or public health. Up to one-half of the public health credits earned inter-divisionally toward their bachelor's may also apply toward their MHS degree. Students in this program will receive co-advising from both schools to optimize their academic experience.

Program Requirements

MHS students formally meet as a group four times during the academic year. These meetings aim to build community, provide professional development, and share information about administrative, course, or other programmatic issues. Attendance is mandatory for MHS students, as is attendance at the EHE Grand Rounds seminars scheduled on the second Friday of each month, and at the master's presentations in May. This attendance, along with monthly check-ins with advisers, and meeting deadlines for the essay, forms the basis of the grade for special studies courses PH.181.845 MHS Special Studies & Research and PH.181.850 MHS Essay. Students who do not successfully complete the requirements for the special studies courses face dismissal from the program.

Coursework

Students consult the course list and obtain formal approval from their faculty adviser prior to registration. Required core courses include environmental health, toxicology, epidemiology, risk sciences, and statistics. Electives allow students to select courses according to their interests and career goals.

Generally, full-time students register for at least 16 credits per term in order to reach the 64-credit requirement for the degree. Students should discuss with their adviser the options which meet the biostatistics and epidemiology course requirements. In order to substitute a recommended course with something not listed, approval must be granted by the program director. Students may also consider earning certificates (<http://www.jhsph.edu/academics/certificate-programs/>) in addition to the MHS.

Course location and modality is found on the BSPH website (<https://publichealth.jhu.edu/courses/>).

Required Courses

Code	Title	Credits
PH.550.860	Academic & Research Ethics at JHSPH	0
PH.180.609	Principles of Environmental Health	4
PH.180.610	Applied Environmental Health Practice	4
PH.187.610	Public Health Toxicology	4
PH.317.600	Introduction to the Risk Sciences and Public Policy	4
PH.552.601	Foundational Principles of Public Health	0.5
PH.552.603	The Role of Qualitative Methods and Science in Describing and Assessing a Population's Health	0.5
PH.181.845	MHS Special Studies & Research	varies
PH.181.850	MHS Essay	1
<i>Biostatistics</i>		<i>varies</i>
<i>Epidemiology</i>		<i>varies</i>
<i>Electives</i>		

Electives

Code	Title	Credits
PH.180.611	The Global Environment, Climate Change, and Public Health	4
PH.180.634	Public Health Emergencies: Risk Communication and Decision Science	3
PH.188.680	Fundamentals of Occupational Health	3
PH.188.694	Health of Vulnerable Worker Populations	3
PH.317.610	Risk Policy, Management and Communication	3
PH.180.620	Introduction to Food Systems and Public Health	4
PH.180.621	Protecting the Environment and Safeguarding Worker Health: A Problem-Based Approach	3
PH.120.601	Biochemistry II: Major Metabolic Pathways	5
PH.180.647	The Health Effects of Indoor and Outdoor Air Pollution	3
PH.180.644	Food System Resilience	2
PH.187.632	Molecular Toxicology	4
PH.188.688	Global Sustainability & Health Seminar	1
PH.183.631	Fundamentals of Human Physiology	4
PH.187.640	Toxicology 21: Scientific Foundations	1
PH.180.602	Environment and Health in Low and Middle income Countries	2
PH.182.623	Occupational Health Management	3

PH.180.623	Infectious Disease Threats to Global Health Security	3	PH.552.626	Systems Thinking: Concepts and Methods	0.5
PH.180.624	Biotechnology and Health Security	3	PH.120.610	Biochemistry I: Protein Structure and Enzyme Catalysis	3
PH.182.640	Food- and Water- Borne Diseases	3	PH.120.624	Cancer Biology	3
PH.180.655	Baltimore Food Systems: A Case Study of Urban Food Environments	4	PH.120.625	Introduction to Cancer Biology	3
PH.180.625	Community-Driven Epidemiology and Environmental Justice	3	PH.180.626	Environmental Justice and Public Health Practice	3
PH.180.651	Energy, Environment, and Public Health	2	PH.180.635	Seafood and Public Health: Global Trade, Nutrition and the Environment	3
PH.182.626	Water and Sanitation in Low-Income Communities	2	PH.188.686	Clinical Environmental and Occupational Toxicology	3
PH.180.640	Molecular Epidemiology and Biomarkers in Public Health	4	PH.188.682	A Built Environment for A Healthy and Sustainable Future	3
PH.182.637	Noise and Other Physical Agents in the Environment	4	PH.180.607	Climate Change and Public Health	3
PH.317.605	Methods in Quantitative Risk Assessment	4	PH.180.627	Lessons Learned in 1918 Pandemic Flu	1
PH.182.613	Exposure Assessment Techniques for Health Risk Management	3	PH.187.633	Introduction to Environmental Genomics and Epigenomics	3
PH.183.638	Mechanisms of Cardiopulmonary Control	2			
PH.340.607	Introduction to Cardiovascular Disease Epidemiology	4			
PH.340.701	Epidemiologic Applications of Gis	2			
PH.187.645	Toxicology 21: Scientific Applications	3			
EN.575.711	Climate Change and Global Environmental Sustainability	3			
PH.317.610	Risk Policy, Management and Communication	3			
PH.180.606	Case Studies in Food Production and Public Health	4			
PH.180.653	Climate Change: Avoiding Conflict and Improving Public Health	3			
PH.188.682	A Built Environment for A Healthy and Sustainable Future	3			
PH.180.628	Introduction To Environmental and Occupational Health Law	4			
PH.182.638	Environmental and Health Concerns in Water Use and Reuse	4			
PH.187.625	Animals in Research: Law, Policy, and Humane Sciences	3			
PH.180.627	Lessons Learned in 1918 Pandemic Flu	1			
PH.180.630	Chemical and Biological Weapons Threats: Science, Public Health, Policy	3			
PH.180.633	The Sociocultural Dimensions of Disasters	3			
PH.180.636	Human Rights and Health Seminar	3			
PH.185.600	One Health Tools to Promote and Evaluate Healthy and Sustainable Communities	3			
PH.180.670	Introduction to Public Health Emergency Preparedness	3			
PH.317.615	Topics in Risk Assessment	2			
PH.120.604	Introduction to Molecular Biology	3			
PH.180.632	Introduction to Molecular Toxicology	3			
PH.187.661	Environmental Health in Neurological and Mental Disorders	3			
PH.187.650	Alternative Methods in Animal Testing	3			
PH.187.655	Evidence-Based Toxicology	3			
PH.183.642	The Cardiopulmonary System Under Stress	2			
PH.340.651	Emerging Infections	2			
PH.340.680	Environmental and Occupational Epidemiology	4			

Essay and Presentation

MHS students must write an essay and present a summary of it during a formal symposium. The essay serves as an integrating experience for students, representing a substantive application of analytic and technical skills learned during the degree program. The content addresses a current environmental health problem pertinent to the educational goals of the student and is approved by the adviser. The essay is not a research paper or thesis but rather an informative and in-depth literature review that includes potential solutions to the problem. Ideally, students will work with community-based organizations, governmental agencies, or researchers on a real-world issue. A more detailed guidance document for the essay will be shared with students during their second term, and they can find the most recent essay guidance and policy in the handbook.

The student will meet with the adviser throughout the essay-writing process in order to ensure fulfillment of essay requirements, as well as assure that the essay is properly prepared for presentation and final approval. The essay must be reviewed and approved by the adviser and one other faculty member or expert chosen by the student and approved by the adviser.

All students completing the MHS are required to make at least one presentation of their essay to an audience of faculty and students of the Department.

MHS Policies

For complete policies and procedures, please view our current handbook (<https://publichealth.jhu.edu/departments/environmental-health-and-engineering/programs/graduate-programs/graduate-student-resources/>).

Advisers

All master's students will be assigned an adviser who serves as the primary contact for the Department, assists the student with course selection each term, approves their essay or thesis, and helps interpret Departmental and School policies. The student is free to change advisers, but this change must be approved by the program director and sent to the academic coordinator via email.

Assessment of Progress

Students must meet minimum academic standards to remain in the master's program. Each term the student should review grades from the previous term with their adviser. Specific goals will be determined

following this review. A student who is experiencing academic difficulty will be notified in writing if they are expected to achieve a specific GPA during the upcoming term. Failure to meet any of the following criteria is grounds for dismissal from the program.

Cumulative GPA

The School requires master's students to maintain a minimum 2.75 cumulative grade point average. Students with a GPA falling below 2.75 will be placed on academic warning and will have one term of registration in which to raise their GPA above the threshold for their degree. The academic coordinator will notify students placed on academic warning and their performance will be reviewed by the Educational Programs Committee (EPC).

All recommendations about academic standing will be then presented to the Department's Executive Committee for final disposition. Students not meeting the minimum GPA after one term may be granted additional term(s) on academic warning if academic progress has been shown in the cumulative GPA; that approval beyond one term must be reported to the School's Committee on Academic Standards. Students on academic warning must meet with their academic adviser and program director (or academic coordinator) each term to review their academic plan and receive approval for their course schedule prior to registering for courses. Students with a cumulative GPA below the minimum may not register for more than 18 credits per term. Any repeated courses count towards this 18-credit limit.

Grades in Core Courses

Students must earn a minimum grade on a set of required program-specific core courses: "Pass" for courses offered only on a pass/fail basis and a "C" or higher for master's students for courses offered for letter grading. A student who earns a grade below that threshold in a course that meets a core requirement must, at the next opportunity, make a second attempt to complete the core course by repeating the same course or by completing another course that has been approved by the program director. A grade below the threshold on the second attempt may be grounds for dismissal and must be reported to the School's Committee on Academic Standards.

Department Retreat

Each January, the EHE faculty and students attend a retreat on research currently being conducted in the department. The retreat ends with a keynote talk from an investigator outside of EHE. The retreat provides master's students the chance to learn more about research being conducted in the department. Attending the retreat, including talks and poster sessions, is expected for ScM students and optional for MHS students.

Bachelor's/MHS Credit Transfer

Bachelor's/MHS students who take BSPH courses as an undergraduate may transfer up to one-half, but no more than 16 BSPH credits to the MHS program. Online courses do not count towards this requirement. Students must earn a grade of B or higher in courses transferred to fulfill a program requirement; grades of C may only be transferred toward elective credits.

MHS to ScM Transfer Process

Students who are interested in transferring to the ScM program may begin the process to do so at the start of term 2. Identification of an appropriate and willing faculty research mentor (<https://ehe.jhu.edu/graduate/masters-programs/master-of-science-in-environmental-health/program-faculty-research-advisers.html>) serves as an essential step in

the process, which should be initiated as early as possible, preferably while an applicant to the MHS program.

By the middle of term 2, MHS students submit an ScM transfer request form. The form includes a brief explanation of how the ScM research opportunity fits with the student's educational and research goals. The proposed research faculty needs to provide a letter of willingness to assume the role and responsibilities of ScM thesis adviser (this person may or may not be the current MHS adviser). Students must demonstrate excellent academic success at the graduate level in the first two terms of the year (minimum GPA of 3.0).

A sub-group of the ScM research faculty (program director and 2-3 others) will review the request to confirm that the requirements have been met, and based on that input, the program director will approve or disapprove of the request for degree transfer. The Office of Records and Registration will be notified of the degree transfer, effective term 3.

According to the requirements of the Council on Education for Public Health (CEPH), all BSPH degree students must be grounded in foundational public health knowledge. Please view the list of specific CEPH requirements by degree type (<https://e-catalogue.jhu.edu/public-health/ceph-requirements/>).

Graduates have competence in the following:

1. Examine the nature and interactions of the key disciplines that form the foundation of environmental health and their ethical application to environmental health issues.
2. Illustrate how environmental health fits within the larger context of public health problems, interventions and practice.
3. Explain and apply the tools and problem-solving approaches used to identify and solve environmental problems related to toxicant exposures.
4. Interpret and critically evaluate the environmental health literature relevant to research on toxicologic mechanisms of adverse human health effects.
5. Effectively communicate the nature and significance of environmental health problems, as well as their solutions, to expert and lay audiences.
6. Design and conduct ethical studies to gain knowledge of the adverse human health effects of environmental agents and conditions.
7. Effectively present research results in a formal oral presentation and in a written format appropriate for publication in a scientific journal.