

Required Coursework

	Credits
DEOHS Common Core	
BIOST 511 (<i>Medical Biometry I</i> , Autumn)	4
BIOST 512 (<i>Medical Biometry II</i> , Winter)	4
EPI 511 (<i>Introduction to Epidemiology</i> , Autumn)	4
HSERV 579 (<i>Structural Racism and Public Health</i> , Autumn/Winter/Spring)	1
ENV H 501 (<i>Foundations of Environmental & Occupational Health</i> , Autumn)	4
ENV H 502 (<i>Assessing & Managing Risks from Human Exposure to Env. Contaminants</i> , Winter)	4
ENV H 503 (<i>Adverse Health Effects of Environmental and Occupational Toxicants</i> , Autumn)	4
ENV H 504 (<i>Advanced Environmental Health Sciences Research Methods</i> , Spring)	4
ENV H 580 (<i>Environmental and Occupational Health Sciences Seminar</i> , Autumn/Winter/Spring)	5 x 1 = 5 ¹
ENV H 595 (<i>Research Rotation</i> , All Quarters)	(2 or 3) x 3 = 6 or 9 ²
Area of Emphasis: Environmental Toxicology	
ENV H 515 (<i>Organ System Toxicology</i> , Winter)	3
ENV H 516 (<i>Toxic Agents: Effects and Mechanisms</i> , Spring)	3
ENV H 577 (<i>Risk Assessment for Environmental Health</i> , Autumn)	4
ENV H 591 (<i>Current Topics in Toxicology</i> , Winter)	2
ENV H 593 (<i>Current Topics in Risk Assessment</i> , Autumn/Spring)	2
Choose two from the following: ENV H 531 (<i>Neurotoxicology</i> , Winter in even years, 3 cr.) ENV H 532 (<i>Reproductive and Developmental Toxicology</i> , Winter in odd years, 3 cr.) ENV H 533 (<i>Molecular Toxicology</i> , Quarter TBD, 3 cr.) ENV H 567 (<i>Mechanisms of Carcinogenesis</i> , Quarter TBD, 2 cr.)	5 (min.)
Elective Courses ³	≥ 3
Culminating Experience (Thesis)	
ENV H 583 (<i>Thesis Proposal Preparation</i> , Spring)	1
ENV H 800 (<i>Doctoral Dissertation</i> , All Quarters)	27
Total Minimum Credits	90

- Five quarters of ENV H 580 are required for a total of 5 credits.
- Students who enter the program with a previous master's degree are required to do two rotations of 3 credits each for a total of 6 credits. Students who enter the program without a master's degree are required to do three rotations of 3 credits each for a total of 9 credits. See [the Research Rotations page on Portal](#) for more information.
- Student works with their faculty adviser to identify additional courses to reach or exceed the total minimum credit requirement. Elective courses can be ENV H courses or courses from other prefixes (e.g., EPI, BIOST, GH, etc.).

Additional Requirements

- Students in this degree program are required to complete a dissertation.

PhD-EHS, Area of Emphasis: Environmental Toxicology (*Effective Autumn 2022*)

Sample Schedule

The schedule below includes *non-elective courses only*. Students work with their faculty adviser to identify additional courses to reach or exceed the total minimum credit requirement. Elective courses can be ENV H courses or courses from other prefixes (e.g., EPI, BIOST, GH, etc.).

FIRST YEAR		
Autumn Quarter		
BIOST 511	Medical Biometry I	4 cr.
EPI 511	Introduction to Epidemiology	4 cr.
ENV H 501	Foundations of Environmental & Occupational Health	4 cr.
ENV H 503	Adverse Health Effects of Environmental and Occupational Toxicants	4 cr.
Non-Coursework Milestones: Work with Dissertation Adviser to identify research rotations, plan dissertation project, and prepare for the Qualifying Exam		
Winter Quarter		
BIOST 512	Medical Biometry II	4 cr.
ENV H 502	Assessing & Managing Risks from Human Exposure to Env. Contaminants	4 cr.
ENV H 515	Organ System Toxicology	3 cr.
ENV H 580	Environmental and Occupational Health Seminar	1 cr.
ENV H 595	Research Rotation (see footnote #2 under "Required Coursework" above) *	3 cr.
ENV H 591	Current Topics in Toxicology	2 cr.
Non-Coursework Milestones: Work with Dissertation Adviser to identify research rotations, plan dissertation project, and prepare for the Qualifying Exam		
Spring Quarter		
HSERV 579	Structural Racism and Public Health	1 cr.
ENV H 504	Advanced Environmental Health Sciences Research Methods	4 cr.
ENV H 516	Toxic Agents: Effects and Mechanisms	3 cr.
ENV H 580	Environmental and Occupational Health Seminar	1 cr.
ENV H 583	Thesis Proposal Preparation	1 cr.
ENV H 593	Current Topics in Risk Assessment	2 cr.
ENV H 595	Research Rotation (see footnote #2 under "Required Coursework" above) *	3 cr.
ENV H 800	Doctoral Dissertation	Var.
Non-Coursework Milestones: Work with Dissertation Adviser to plan dissertation project, and prepare for the PhD Qualifying Exam		
Summer Quarter		
Non-Coursework Milestones: Complete the PhD Qualifying Exam		
SECOND YEAR		
Autumn Quarter		
ENV H 577	Risk Assessment for Environmental Health	4 cr.
ENV H 580	Environmental and Occupational Health Seminar	1 cr.
	Additional course from pick list (see table below)	Var.
ENV H 800	Doctoral Dissertation	Var.
Non-Coursework Milestones: Continue work on dissertation research project / form Doctoral Supervisory Committee by the end of spring quarter of year two		

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Winter Quarter

ENV H 580	Environmental and Occupational Health Seminar	1 cr.
	Additional course from pick list (see table below)	Var.
ENV H 800	Doctoral Dissertation	Var.
Non-Coursework Milestones: Continue work on dissertation research project / form Doctoral Supervisory Committee by the end of spring quarter of year two		

Spring Quarter

ENV H 580	Environmental and Occupational Health Seminar	1 cr.
ENV H 800	Doctoral Dissertation	Var.
Non-Coursework Milestones: Continue work on dissertation research project / form Doctoral Supervisory Committee by the end of spring quarter of year two		

THIRD YEAR

Non-Coursework Milestones: Continue work on dissertation research project / Take General Exam

FOURTH YEAR

Non-Coursework Milestones: Continue work on dissertation research project

FIFTH YEAR **

Non-Coursework Milestones: Continue work on dissertation research project / Complete and defend dissertation in the Final Exam

* PhD students entering the program without a previous master's degree complete three research rotations instead of two during their first year of study. See [the Research Rotations page on Portal](#) for more information.

** Five years is the average time to degree, but the university allows up to ten years to complete a PhD.

Degree Competencies

Upon completion of this degree program, you will be able to:

School of Public Health -- All MS Students

- Explain public health history, philosophy and values
- Identify the core functions of public health and the 10 Essential Services
- Explain the role of quantitative and qualitative methods and sciences in describing and assessing a population's health
- List major causes and trends of morbidity and mortality in the US or other community relevant to the school or program
- Discuss the science of primary, secondary and tertiary prevention in population health, including health promotion, screening, etc.
- Explain the critical importance of evidence in advancing public health knowledge
- Explain effects of environmental factors on a population's health
- Explain biological and genetic factors that affect a population's health
- Explain behavioral and psychological factors that affect a population's health
- Explain the social, political and economic determinants of health and how they contribute to population health and health inequities
- Explain how globalization affects global burdens of disease
- Explain an ecological perspective on the connections among human health, animal health, and ecosystem health (e.g., One Health)
- Recognize the means by which social inequities and racism, generated by power and privilege, undermine health

DEOHS -- PhD in Environmental Health Sciences

- Conceive, develop, conduct, and document original research that advances knowledge in the field of environmental health sciences
- Design experiments utilizing the principles and practical aspects of good experimental design to ensure rigor, statistical power, robustness, and reproducibility, and control for bias
- Conduct human and animal research and communicate the results of that research according to the most current ethical and regulatory guidelines
- Manage, analyze, visualize, and share environmental and occupational health data utilizing best practices and appropriate tools
- Collect, analyze, and validate different types of data (survey, direct exposure, biomarker, surveillance, etc.) from environmental health studies using appropriate practices and methodologies
- Translate environmental health research into practice and implement evidence-based interventions

DEOHS – Area of Emphasis: Environmental Toxicology

- Define the major classes of toxicants present in the environment and the workplace and describe their sources, pathways, and routes of exposure
- Describe and analyze how toxicants interact with biological systems and the mechanisms by which they elicit adverse effects in humans and other organisms
- Explain the core principles of research ethics and apply these principles to specific research projects
- Conceive, develop and conduct original research that advances knowledge in the field of environmental toxicology

PhD-EHS, Area of Emphasis: Environmental Toxicology (*Effective Autumn 2022*)

- Apply advanced knowledge and methodologies from supporting disciplines (e.g., molecular biology, biochemistry, physiology, pathology) to original research in environmental toxicology
- Demonstrate the ability to effectively communicate original research findings both orally (e.g., at a scientific conference) and through preparation of an original manuscript suitable for publication in a peer reviewed journal in the field of environmental toxicology