PhD-EHS, Area of Emphasis: One Health (*Effective Autumn 2022*)

Required Coursework

	Credits
DEOHS Common Core	
BIOST 511 (*Medical Biometry I*, Autumn)	4
BIOST 512 (*Medical Biometry II*, Winter)	4
EPI 511 (*Introduction to Epidemiology*, Autumn)	4
HSERV 579 (*Structural Racism and Public Health*, Autumn/Winter/Spring)	1
ENV H 501 (*Foundations of Environmental & Occupational Health*, Autumn)	4
ENV H 502 (*Assessing & Managing Risks from Human Exposure to Env. Contaminants*, Winter)	4
ENV H 503 (*Adverse Health Effects of Environmental and Occupational Toxicants*, Autumn)	4
ENV H 504 (*Advanced Environmental Health Sciences Research Methods*, Spring)	4
ENV H 580 (*Environmental and Occupational Health Sciences Seminar,* Autumn/Winter/Spring)	5 x 1 = 5[1]
ENV H 595 (*Research Rotation,* All Quarters)	(2 or 3) x 3 = 6 or 9[2]
Area of Emphasis: One Health	
ENV H 539 (*One Health: Human and Animal Health in a Changing Environment*, Winter)	3
ENV H 586 (*Current Issues in Occupational Health at the Human and Animal Interface*, Spring)	2
Choose a minimum of 6 credits from the following: **ENV H 509** (*Microbiome and Environmental Health*, Spring, 3 cr.) **ENV H 541** (*Ecology of Environmentally Transmitted Microbial Hazards*, Autumn, 3 cr.) **ENV H 542** (*Detection/Control of Env. Transmitted Microbial Hazards*, Winter/odd years, 3 cr.) **ENV H 543** (*Quantitative Microbial Risk Assessment*, Spring, 3 cr.) **ENV H 544** (*Antibiotic Resistant Bacteria/Genes Impact on the Env. and PH,* Autumn, 4 cr.) **ENV H 547** (*Environmental Change and Infectious Disease*, Spring, 3 cr.) **ENV H 564** (*Recognition of Health and Safety Problems in Industry*, Autumn, 2 cr.) **ENV H 565** (*Geographic Information Systems (GIS) in Public Health*, Autumn, 3 cr.)	6
Elective Courses[3]	≥ 11
Culminating Experience (Thesis)	
ENV H 583 (*Thesis Proposal Preparation*, Spring)	1
ENV H 800 (*Doctoral Dissertation,* All Quarters)	27
Total Minimum Credits	**90**

1. Five quarters of ENV H 580 are required for a total of 5 credits.
2. 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.*
3. 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.

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 539	One Health: Human and Animal Health in a Changing Environment	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.
	Additional course from pick list (see table below)	Var.
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 580	Environmental and Occupational Health Seminar	1 cr.
ENV H 583	Thesis Proposal Preparation	1 cr.
ENV H 586	Current Issues in Occupational Health at the Human and Animal Interface	2 cr.
ENV H 595	Research Rotation (see footnote #2 under "Required Coursework" above) *	3 cr.
ENV H 800	Doctoral Dissertation	Var.
	Additional course from pick list (see table below)	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 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		
Winter 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		

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

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** 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: One Health

- Demonstrate capacity to function in interdisciplinary teams to investigate health concerns at the human-animal-ecosystem interface
- Analyze complex datasets for health problems at the human animal ecosystem interface using advanced techniques such as genomics or spatial epidemiology
- Use the COHERE guidelines to prepare a One Health scientific manuscript
- Design protocols for human subjects research and animal care and use research for linked human-animal studies
- Define the linkages between an animal sentinel health event and human health