

**Degree Requirements and Competencies for the MS in Environmental Health Sciences
Area of Emphasis: Environmental Toxicology (effective summer 2022)**

Required Coursework

	Credits
DEOHS Common Core	
BIOST 511 (<i>Medical Biometry I</i> , Autumn)	4
EPI 511 (<i>Introduction to Epidemiology</i> , Autumn)	4
ENV H 501 (<i>Foundations of Environmental & Occupational Health</i> , Autumn)	4
ENV H 502 (<i>Assessing & Managing Risks from Human Exposure to Environmental Contaminants</i> , Winter)	4
ENV H 503 (<i>Adverse Health Effects of Environmental and Occupational Toxicants</i> , Autumn)	4
ENV H 580 (<i>Environmental and Occupational Health Sciences Seminar</i> , Autumn/Winter/Spring)	3 x 1 = 3 ¹
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)	3
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 one 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 even 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.)	2 (min.)
Elective Courses ²	Varies
Culminating Experience (Thesis)	
ENV H 583 (<i>Thesis Proposal Preparation</i> , Spring)	1
ENV H 700 (<i>Master's Thesis</i> , All Quarters)	9
Total Minimum Credits	62

- Three quarters of ENV H 580 are required for a total of 3 credits.
- 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 research thesis.

Degree Requirements and Competencies for the MS in Environmental Health Sciences

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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 -- MS in Environmental Health Sciences

- Apply the major components of the environmental and occupational health framework (problem formulation, hazard identification, dose-response assessment, exposure assessment, risk characterization, risk communication, risk management, evaluation, stakeholder engagement, and research) in order to address environmental public health problems experienced in the community or work environment
- Use epidemiological and statistical techniques to describe and analyze environmental and occupational health data
- Formulate hypotheses and design experiments to test such hypotheses aimed at advancing knowledge in environment and health sciences

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

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- Discuss regulatory authorities responsible for assessing toxic hazards
- Describe relevant toxicology-related health and safety regulations