

Competencies

PhD and ScD – Environmental Health Engineering Department of Environmental Health Sciences

Evaluation Opportunities

1. Achieve broad competence and practical knowledge, skills, and abilities in environmental health engineering, and function as a fully competent independent investigator

Specific Competencies	Learning Opportunities	Course Work/Exam	Written Comps	Dept Preliminary Orals	School Preliminary Orals	Thesis	Final Defense	Public Thesis Presentation	Non-Thesis Research	Annual Advisor Review	Research Committee Review	Divisional Seminar and Journal Club
Understand and employ principles and methods in chemistry, biology, physics; application of biomarkers; and mathematical modeling to assess exposure through all potential routes, especially focusing on air and water	140.621-3	Statistical Methods in Public Health I-III	X	X	X	X	X		X	X	X	X
	180.640	Molecular Epidemiology and Biomarkers in Public Health			X	X						
	182.616	Advanced Topics in Airborne Particles										
	182.617	Introduction to the Chemistry of Ambient Air Pollutants										
	182.638	Fundamentals of Water Quality Engineering for Public Health										
	187.610	Principles of Toxicology										
	187.634	Molecular Dosimetry and Biomarkers										
	317.605	Methods in Quantitative Risk Assessment										
	550.865	Public Health Perspectives on Research										
		Divisional Seminar and Journal Club Participation and Presentation Thesis										
Display practical knowledge and skills in water and sanitation engineering	180.611	The Global Environment and Public Health	X	X	X	X	X	X	X	X	X	X
	182.638	Fundamentals of Water Quality Engineering for Public Health										
	182.640	Food- and Water-Borne Diseases										
	221.629	Water and Sanitation Needs in Complex Humanitarian Emergencies										
		Divisional Seminar and Journal Club Participation and Presentation										

Competencies

PhD and ScD – Environmental Health Engineering Department of Environmental Health Sciences

Evaluation Opportunities

1. Achieve broad competence and practical knowledge, skills, and abilities in environmental health engineering, and function as a fully competent independent investigator, continued

Specific Competencies	Learning Opportunities	Course Work/Exam	Written Comps	Dept Preliminary Orals	School Preliminary Orals	Thesis	Final Defense	Public Thesis Presentation	Non-Thesis Research	Annual Advisor Review	Research Committee Review	Divisional Seminar and Journal Club
Display practical knowledge and skills in occupational and environmental hygiene engineering	180.611	The Global Environment and Public Health	X	X	X	X	X	X	X	X	X	X
	180.640	Molecular Epidemiology and Biomarkers in Public Health										
	182.614	Industrial Hygiene Laboratory										
	182.615	Airborne Particles										
	182.616	Advanced Topics in Airborne Particles										
	182.617	Introduction to the Chemistry of Ambient Air Pollutants										
	182.625 183.641	Principles of Industrial Hygiene The Health Effects of Indoor and Outdoor Air Pollution										
Critically read, discuss, and evaluate the complex body of scientific knowledge, especially through the scientific literature	187.634	Molecular Dosimetry and Biomarkers										
	550.865	Divisional Seminar and Journal Club Participation and Presentation Thesis	X	X	X	X	X	X	X	X	X	X
Conduct research in a safe and ethical manner with an understanding of appropriate human and animal subject protections	306.665	Research Ethics and Integrity	X				X	X	X		X	
	550.860	Research Ethics Laboratory Experience Thesis										

Competencies

PhD and ScD – Environmental Health Engineering Department of Environmental Health Sciences

Evaluation Opportunities

1. Achieve broad competence and practical knowledge, skills, and abilities in environmental health engineering, and function as a fully competent independent investigator, continued

Specific Competencies	Learning Opportunities	Course Work/Exam	Written Comps	Dept Preliminary Orals	School Preliminary Orals	Thesis	Final Defense	Public Thesis Presentation	Non-Thesis Research	Annual Advisor Review	Research Committee Review	Divisional Seminar and Journal Club
Express research ideas clearly in writing and verbal presentations	550.865 Public Health Perspectives on Research Divisional Seminar and Journal Club Participation and Presentation Thesis					X	X	X	X		X	X
Demonstrate mastery of translating concepts into action, such as risk assessment and communication, and environmental public policy	182.625 Principles of Industrial Hygiene 180.629 Environmental and Occupational Health Law and Policy 317.600 Introduction to the Risk Sciences and Public Policy 317.605 Methods in Quantitative Risk Assessment 317.612 Quantitative Methods and Case Studies in Risk: Exposure Assessment 317.615 Topics in Risk Assessment Divisional Seminar and Journal Club Participation and Presentation	X				X		X	X			X

Competencies

PhD and ScD – Environmental Health Engineering Department of Environmental Health Sciences

Evaluation Opportunities

2. Expand knowledge base on assessment and prevention or minimization of the adverse effects of physical, chemical and biological agents

Specific Competencies	Learning Opportunities	Course Work/Exam	Written Comps	Dept Preliminary Orals	School Preliminary Orals	Thesis	Final Defense	Public Thesis Presentation	Non-Thesis Research	Annual Advisor Review	Research Committee Review	Divisional Seminar and Journal Club
Study the sources, fate, transport and exposures to agents in both the occupational and non-occupational environments	180.609-10 Principles of Environmental Health I-II 182.625 Principles of Industrial Hygiene 187.610 Principles of Toxicology Laboratory Experience Divisional Seminar and Journal Club Participation and Presentation Thesis	X	X	X	X	X			X	X		X
Evaluate exposure-disease relationships	180.609-10 Principles of Environmental Health I-II 317.605 Methods in Quantitative Risk Assessment 340.601 Principles of Epidemiology Divisional Seminar and Journal Club: Participation and Presentation	X	X	X	X	X				X		X
Develop risk management strategies that effectively protect human health	180.629 Environmental and Occupational Health Law and Policy 182.622 Ventilation Controls 182.625 Principles of Industrial Hygiene 182.637 Noise and Other Physical Agents in the Environment 317.600 Introduction to the Risk Sciences and Public Policy 317.605 Methods in Quantitative Risk Assessment 340.601 Principles of Epidemiology Divisional Seminar and Journal Club Participation and Presentation Thesis	X	X	X	X	X	X	X			X	X

Competencies

PhD and ScD – Environmental Health Engineering Department of Environmental Health Sciences

Evaluation Opportunities

2. Expand knowledge base on assessment and prevention or minimization of the adverse effects of physical, chemical and biological agents, continued

Specific Competencies	Learning Opportunities	Course Work/Exam	Written Comps	Dept Preliminary Orals	School Preliminary Orals	Thesis	Final Defense	Public Thesis Presentation	Non-Thesis Research	Annual Advisor Review	Research Committee Review	Divisional Seminar and Journal Club
Prepare an original and defensible research proposal that will lead to the creation of new knowledge	Thesis					X					X	
Conduct and defend an independent research project that results in the generation of new knowledge	Thesis Final Defense					X	X	X			X	