

Occupational and Environmental Health, MS

An MS in occupational and environmental health (OEH) is offered with optional subprograms in agricultural safety and health and industrial hygiene.

Learning Outcomes

General Outcomes

Students will be able to:

- describe major environmental hazards that adversely affect human health;
- demonstrate the use of regulatory guidelines that seek to control occupational health and injury issues;
- apply epidemiological principles used to assess associations between exposure to occupational health and injury hazards on health outcomes;
- use computer software and statistical methods to test a hypothesis; and
- use intervention and evaluation theory to prevent occupational health and injury hazards.

Agricultural Safety and Health Subprogram Outcomes

Students will be able to:

- describe the basic concepts of agricultural safety and health;
- summarize epidemiological principles that can be used to determine health outcomes associated with exposure to occupational hazards;
- explain appropriate research design and methodology related to the field of agricultural safety and health;
- communicate agricultural safety and health concepts both orally and in writing;
- interpret the significance of occupationally derived data relative to an exposure or health outcome;
- analyze agricultural safety and health intervention programs; and
- design and implement a research project relative to peer-reviewed literature in agricultural safety and health.

Industrial Hygiene Subprogram Outcomes

Students will be able to:

- anticipate and recognize occupational and environmental hazards (i.e., physical, chemical, and biological agents, factors, and stressors) generated by or associated with defined sources, unit operations, and/or processes;
- describe qualitative and quantitative aspects of the generation of hazards;
- apply scientific principles, instrumentation, and methods to adequately assess exposures to hazards;
- organize and interpret exposure data using qualitative and quantitative methods in the context of physiological, epidemiological, and toxicological knowledge of the response of the human body to hazards;

- recommend and evaluate controls to reduce or eliminate hazards with regard to traditional hierarchy considerations;
- understand applicable business, managerial, and leadership practices with an emphasis on program and project management;
- communicate effectively and appropriately to advocate for continuous improvement in worker health and safety to pertinent audiences, including the workforce, management, the public, and professional peers;
- interpret and apply applicable and emerging regulations, consensus standards, and best practices affecting occupational and environmental health;
- demonstrate an understanding of the professional code of ethics; and
- understand the value of and path to attain professional certification in industrial hygiene and allied fields.

Requirements

The Master of Science in occupational and environmental health requires 38-43 s.h. of graduate credit. The degree program is offered with three options—the MS in occupational and environmental health (38 s.h.) without a subprogram, the MS with an agricultural safety and health subprogram (42 s.h.), or the MS with an industrial hygiene subprogram (43 s.h.).

MS Without Subprogram

The Master of Science with a major in occupational and environmental health without a subprogram requires a minimum of 38 s.h. and includes the following coursework.

Core Courses

Course #	Title	Hours
All of these (16 s.h.):		
OEH:4240	Global Environmental Health	3
OEH:5010	Occupational and Environmental Health Seminar	1
OEH:5620	Occupational Health	3
BIOS:4120	Introduction to Biostatistics	3
CPH:6100	Essentials of Public Health	2
CPH:7270	Principles of Scholarly Integrity: Public Health	1
EPID:4400	Epidemiology I: Principles	3
At least 6 s.h. from these:		
OEH:4260	Global Water and Health	3
OEH:4310	Occupational Ergonomics: Principles	3
OEH:4510	Injury and Violence Prevention	3
OEH:5410	Occupational Safety	3
OEH:6110	Rural Health and Agricultural Medicine	3
OEH:6710	Human Toxicology and Risk Assessment	3

Electives

Credit earned in elective coursework and the thesis completes the 38 s.h. required for the degree. Students work with their

advisor to select courses appropriate for their professional goals.

Thesis

A thesis is required. Students may earn a maximum of 6 s.h. for the thesis.

Course #	Title	Hours
OEH:7000	Thesis/Dissertation	arr.

MS With Agricultural Safety and Health Subprogram

The program prepares students for careers in education, health care, insurance, and agribusiness as specialists in agricultural safety and health.

The Master of Science with a major in occupational and environmental health with an agricultural safety and health subprogram requires a minimum of 42 s.h. and includes the following coursework.

Core Courses, Agricultural Safety and Health Subprogram

Course #	Title	Hours
All of these (29 s.h.):		
OEH:4240	Global Environmental Health	3
OEH:5010	Occupational and Environmental Health Seminar	1
OEH:5410	Occupational Safety	3
OEH:5620	Occupational Health	3
OEH:6110	Rural Health and Agricultural Medicine	3
OEH:6120	Current Topics in Agriculture and Rural Health (taken three times for 1 s.h. each)	3
OEH:6710	Human Toxicology and Risk Assessment	3
OEH:7040	Preceptorship in Occupational and Environmental Health	1
BIOS:4120	Introduction to Biostatistics	3
CPH:6100	Essentials of Public Health	2
CPH:7270	Principles of Scholarly Integrity: Public Health	1
EPID:4400	Epidemiology I: Principles	3

Electives, Agricultural Safety and Health Subprogram

Credit earned in elective coursework and the thesis completes the 42 s.h. required for the degree. Students work with their advisor to select courses appropriate for their professional goals.

Recommended Elective Courses

This is a recommended list of elective coursework; however, any occupational and environmental health course (prefix OEH) may be taken as an elective.

Course #	Title	Hours
OEH:4260	Global Water and Health	3
OEH:4310	Occupational Ergonomics: Principles	3

OEH:4510	Injury and Violence Prevention	3
OEH:6420	Methods in Exposure Science	3
OEH:6431	Assessing Noise Hazards	1
OEH:6432	Assessing Nonionizing Radiation Hazards	1
OEH:6433	Assessing Ionizing Radiation Hazards	1
OEH:6440	Control of Occupational Hazards	3
OEH:6520	Injury Epidemiology	3
OEH:6720	Advanced Toxicology	4
CPH:4200	Agriculture, Food Systems, and Sustainability	3

Approved Elective Courses From Other Departments

Courses not on this list may be used as elective credit with advisor approval.

Course #	Title	Hours
CBH:4105	Introduction to Health Promotion and Disease Prevention	3
CBH:5235	Community-Based Participatory Research	3
CBH:5305	Evaluation: Approaches and Applications	3
CBH:6220	Health Communication Campaigns	3
EPID:5600	Introduction to Epidemiology Data Management and Analysis	3
EPID:6400	Epidemiology II: Advanced Methods	4
ISE:3400	Human Factors	3

Thesis, Agricultural Safety and Health Subprogram

A thesis is required. Students may earn a maximum of 4 s.h. for the thesis.

Course #	Title	Hours
OEH:7000	Thesis/Dissertation	arr.

MS With Industrial Hygiene Subprogram

The program prepares students for careers in industrial hygiene as well as the broad field of occupational and environmental health. Career opportunities are available in health and safety departments of industries; in consulting firms; in academic institutions; and in local, state, and federal public health agencies.

Students choose either the thesis (research option) or nonthesis (internship option). Those who select the thesis option conduct a research project and write a thesis. Those who select the nonthesis option complete an internship.

The Master of Science with a major in occupational and environmental health with an industrial hygiene subprogram requires a minimum of 43 s.h. and includes the following coursework.

Required Courses, Industrial Hygiene Subprogram

Course #	Title	Hours
All of these (22 s.h.):		
OEH:5010	Occupational and Environmental Health Seminar	1
OEH:5620	Occupational Health	3
OEH:6420	Methods in Exposure Science	3
OEH:6440	Control of Occupational Hazards	3
OEH:6710	Human Toxicology and Risk Assessment	3
BIOS:4120	Introduction to Biostatistics	3
CPH:6100	Essentials of Public Health	2
CPH:7270	Principles of Scholarly Integrity: Public Health	1
EPID:4400	Epidemiology I: Principles	3
At least 12 s.h. from these:		
OEH:4240	Global Environmental Health	3
OEH:4310	Occupational Ergonomics: Principles	3
OEH:4510	Injury and Violence Prevention	3
OEH:5410	Occupational Safety	3
OEH:6431	Assessing Noise Hazards	1
OEH:6432	Assessing Nonionizing Radiation Hazards	1
OEH:6433	Assessing Ionizing Radiation Hazards	1
OEH:6450	Aerosol Technology	3
OEH:6520	Injury Epidemiology	3

Thesis or Nonthesis Option, Industrial Hygiene Subprogram

Thesis (Research Option)

Research Project and Thesis

Completion of a research project and thesis is required. A maximum of 6 s.h. is allowed for thesis credit in OEH:7000.

Course #	Title	Hours
OEH:7000	Thesis/Dissertation	arr.

Electives, Thesis

Thesis option students complete additional elective coursework to earn at least 43 s.h. required for the major. Students work with their advisor to select courses most appropriate for their professional goals.

Nonthesis (Internship Option)

Internship and Internship Report

Completion of an internship and an internship report is required. A maximum of 3 s.h. is allowed for internship credit in OEH:7050. Students are required to complete a minimum 150-hour internship.

Course #	Title	Hours
OEH:7050	Occupational and Environmental Health Internship	0,3

Electives, Nonthesis

Nonthesis option students complete additional elective coursework to earn at least 43 s.h. required for the major. Students work with their advisor to select courses most appropriate for their professional goals.

Admission

Applicants must apply through the Schools of Public Health Application Service (SOPHAS); they also must apply for admission to the Graduate College through the University of Iowa Office of Admissions. For detailed application information and admission requirements, visit How to Apply to Occupational and Environmental Health on the department's website.

The occupational and environmental health faculty takes several factors into consideration when evaluating applications for admission, including grade-point averages, letters of recommendation, intent and motivation for graduate study, and research interests. Students with deficiencies in one area may be admitted if all other components of their application are very strong.

MS applicants must hold a bachelor's degree and have a cumulative grade-point average of at least 3.00. Undergraduate preparation for applicants should include coursework in mathematics, biology, chemistry, and either physical sciences or engineering, depending on the applicant's chosen specialty area.

Students may enter in the fall. May 1 is the final application deadline.

Financial Support

Most students receive financial support through traineeships, graduate research assistantships, and teaching assistantships.

Students accepted to programs with a focus on occupational health and safety, including agricultural safety and health, ergonomics, industrial hygiene, and occupational injury prevention, may receive traineeships and financial support in the form of fully paid tuition and a monthly stipend. These traineeships are offered through the Heartland Center for Occupational Health and Safety, and are only available for U.S. citizens and U.S. permanent residents.

Students with a focus on environmental health, global health, or environmental toxicology are generally funded by graduate research assistantships or teaching assistantships.

Career Advancement

The program prepares students for professional and academic careers in environmental and occupational health. Graduates will be qualified for a career in a range of private, public, and academic positions; consulting firms; state and federal occupational and environmental agencies; chemical and consumer products areas; pharmaceutical industries; and universities.

Academic Plans

Sample Plans of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

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Agricultural Safety and Health Subprogram

Course	Title	Hours
Academic Career		
Any Semester		
42 s.h. of graduate level coursework must be completed; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. ^a		
Maintain at least a 2.75 cumulative GPA.		
Hours		0

First Year		
Fall		
OEH:5010	Occupational and Environmental Health Seminar ^b	0
OEH:4240	Global Environmental Health	3
OEH:5620	Occupational Health	3
OEH:6120	Current Topics in Agriculture and Rural Health ^c	1
EPID:4400	Epidemiology I: Principles	3
CPH:6100	Essentials of Public Health ^d	2
CPH:7270	Principles of Scholarly Integrity: Public Health ^e	0
Hours		12

Spring		
OEH:5010	Occupational and Environmental Health Seminar ^b	0
OEH:6110	Rural Health and Agricultural Medicine	3
OEH:6120	Current Topics in Agriculture and Rural Health ^c	1
OEH:6710	Human Toxicology and Risk Assessment	3
OEH:7010	Problems in Occupational and Environmental Health	0
CPH:7270	Principles of Scholarly Integrity: Public Health ^e	1
Elective course ^f		3
Hours		11

Second Year		
Fall		
OEH:7040	Preceptorship in Occupational and Environmental Health	1
BIOS:4120	Introduction to Biostatistics	3
Elective course ^f		3

Elective course ^f		3
Hours		10
Spring		
OEH:5010	Occupational and Environmental Health Seminar ^b	1
OEH:5410	Occupational Safety ^g	3
OEH:6120	Current Topics in Agriculture and Rural Health ^c	1
OEH:7000	Thesis/Dissertation ^h	4
Exam: Thesis Oral Defense		
Hours		9
Total Hours		42

- a Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.
- b Complete OEH:5010 three times, twice for 0 s.h. and then once for 1 s.h.
- c Complete OEH:6120 three times, each for 1 s.h.
- d Course must be completed in the first semester of the program.
- e Complete CPH:7270 twice, first for 0 s.h. and then for 1 s.h.
- f Credit earned in elective coursework and the thesis completes the 42 s.h. required for the degree. Students work with their advisor to select courses appropriate for their professional goals.
- g Typically this course is offered in spring semesters of even years only. Check MyUI for course availability since offerings are subject to change.
- h Maximum of 4 s.h. allowed.

Industrial Hygiene Subprogram

Course	Title	Hours
Academic Career		
Any Semester		
43 s.h. of graduate level coursework must be completed; graduate transfer credits allowed upon approval. More information is included in the General Catalog and on department website. ^a		
Maintain at least a 2.75 cumulative GPA.		
Students pursuing the nonthesis option are required to complete a minimum 150-hour internship.		
Hours		0

First Year		
Fall		
OEH:5010	Occupational and Environmental Health Seminar ^b	0
OEH:5620	Occupational Health	3
OEH:6420	Methods in Exposure Science	3
BIOS:4120	Introduction to Biostatistics	3
or EPID:4400	or Epidemiology I: Principles	
CPH:7270	Principles of Scholarly Integrity: Public Health ^c	0
CPH:6100	Essentials of Public Health ^d	2
Hours		11

Spring		
OEH:5010	Occupational and Environmental Health Seminar ^b	0
OEH:6710	Human Toxicology and Risk Assessment	3

OEH:7050	Occupational and Environmental Health Internship ^e	0
OEH:7010	Problems in Occupational and Environmental Health	0
CPH:7270	Principles of Scholarly Integrity: Public Health ^c	1
Elective course ^f		3
Elective course ^f		3
Hours		10
Second Year		
Fall		
EPID:4400 or BIOS:4120	Epidemiology I: Principles or Introduction to Biostatistics	3
Elective course ^f		3
Elective course ^f		3
Elective course ^f		3
Hours		12
Spring		
OEH:5010	Occupational and Environmental Health Seminar ^b	1
OEH:6440	Control of Occupational Hazards ^g	3
OEH:7050	Occupational and Environmental Health Internship ^e	3
Elective course ^f		3
Final Exam		
Hours		10
Total Hours		43

- a Students must complete specific requirements in the University of Iowa Graduate College after program admission. Refer to the Graduate College website and the Manual of Rules and Regulations for more information.
- b Complete OEH:5010 three times, twice for 0 s.h. and once for 1 s.h.
- c Complete CPH:7270 twice, first for 0 s.h. and then for 1 s.h.
- d Course must be completed in the first semester of the program.
- e Complete OEH:7050 twice, first for 0 s.h. and then for 3 s.h.
- f Complete at least 12 s.h. of electives from the list of approved courses in the General Catalog, and then complete additional elective coursework to earn at least 43 s.h. required for the major. Students work with their advisor to select courses most appropriate for their professional goals.
- g Typically this course is offered in spring semesters of even years only. Check MyUI for course availability since offerings are subject to change.