

# 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 enacted 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 statistical methods and related software to test a hypothesis; and
- apply interventions 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 and toxicological 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 research data relative to an exposure or health outcome;
- apply best practice safety guidance to develop products and interventions to prevent injuries related to agricultural hazards; and
- develop skills to design and evaluate 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 in occupational and environmental health without a subprogram requires a minimum of 38 s.h. and includes the following coursework. Completion of a thesis is required.

### Core Courses

All core courses except OEH:5010, CPH:6100, and CPH:7270 must be taken on an A-F graded basis.

Course #	Title	Hours
All of these (16 s.h.):		
OEH:4240	Global Environmental Health	3
OEH:5010	Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	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 (taken twice, once for 0 s.h. and once for 1 s.h.)	1
EPID:4400	Epidemiology I: Principles	3
6 s.h. from these:		
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:6230	Applied Environmental Health	3
OEH:6710	Human Toxicology and Risk Assessment	3

## Electives

Students complete 16 s.h. in elective coursework. This may include any occupational and environmental health (prefix OEH), biostatistics (prefix BIOS), community and behavioral health (prefix CBH), epidemiology (prefix EPID), health management and policy (prefix HMP), or college of public health (CPH) course numbered 4000 or above. Students work with an advisor to select courses appropriate for their professional goals, which may include coursework outside the College of Public Health.

## Thesis

Completion and acceptance of a master's thesis is required. Students are permitted, but not required, to enroll in OEH:7000 Thesis/Dissertation for a maximum of 6 s.h. and apply it toward the elective requirement.

## MS With Agricultural Safety and Health Subprogram

The Master of Science in occupational and environmental health with an agricultural safety and health subprogram requires a minimum of 42 s.h. and includes the following coursework. Completion of a thesis is required. The program prepares students for careers in education, health care, insurance, and agribusiness as specialists in agricultural safety and health.

### Core Courses, Agricultural Safety and Health Subprogram

All core courses except OEH:5010, OEH:7040, CPH:6100, and CPH:7270 must be taken on an A-F graded basis.

Course #	Title	Hours
All of these (29 s.h.):		
BIOS:4120	Introduction to Biostatistics	3
CPH:6100	Essentials of Public Health	2
CPH:7270	Principles of Scholarly Integrity: Public Health (taken twice, once for 0 s.h. and once for 1 s.h.)	1
EPID:4400	Epidemiology I: Principles	3
OEH:4240	Global Environmental Health	3
OEH:5010	Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	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
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## Electives, Agricultural Safety and Health Subprogram

Students complete 13 s.h. in elective coursework. This may include any occupational and environmental health (prefix OEH), biostatistics (prefix BIOS), community and behavioral health (prefix CBH), epidemiology (prefix EPID), health management and policy (prefix HMP), or college of public health (CPH) course numbered 4000 or above. Students work with an advisor to select courses appropriate for their professional goals, which may include coursework outside the College of Public Health.

## Thesis, Agricultural Safety and Health Subprogram

Completion and acceptance of a master's thesis is required. Students are permitted, but not required, to enroll in OEH:7000 Thesis/Dissertation for a maximum of 4 s.h. and apply it toward the elective requirement.

## MS With Industrial Hygiene Subprogram

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

Students choose either the thesis or nonthesis 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 program prepares students for careers in industrial hygiene as well as the broad field of occupational safety and 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.

### Core Courses, Industrial Hygiene Subprogram

All core courses except OEH:5010, CPH:6100, and CPH:7270 must be taken on an A-F graded basis.

Course #	Title	Hours
All of these (22 s.h.):		
BIOS:4120	Introduction to Biostatistics	3
CPH:6100	Essentials of Public Health	2
CPH:7270	Principles of Scholarly Integrity: Public Health (taken twice, once for 0 s.h. and once for 1 s.h.)	1
EPID:4400	Epidemiology I: Principles	3
OEH:5010	Occupational and Environmental Health Seminar (taken three times, twice for 0 s.h. and once for 1 s.h.)	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
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

## Electives, Industrial Hygiene Subprogram

### Thesis (Research Option)

Students completing a thesis are required to complete 9 s.h. in elective coursework; they are permitted, but not required, to enroll in OEH:7000 Thesis/Dissertation for a maximum of 6 s.h. This may include any occupational and environmental health (prefix OEH), biostatistics (prefix BIOS), community and behavioral health (prefix CBH), epidemiology (prefix EPID), health management and policy (prefix HMP), or college of public health (CPH) course numbered 4000 or above. Students work with their advisor to select courses appropriate for their professional goals, which may include coursework outside the College of Public Health.

### Nonthesis (Internship Option)

Students not completing a thesis are required to complete an internship and an internship report. Students enroll in OEH:7050 Occupational and Environmental Health Internship for 3 s.h. Students are required to complete a minimum 150-hour internship.

Students complete an additional 6 s.h. in elective coursework. This may include any occupational and environmental health (prefix OEH), biostatistics (prefix BIOS), community and behavioral health (prefix CBH), epidemiology (prefix EPID), health management and policy (prefix HMP), or college of public health (CPH) course numbered 4000 or above. Students work with an advisor to select courses appropriate for their professional goals, which may include coursework outside the College of Public Health.

## Admission

Applicants must apply through the Schools of Public Health Application Service (SOPHAS); they also must apply for admission to the Graduate College through University of Iowa 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 considers several factors 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.

## 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
<b>Academic Career</b>		
<b>Any Semester</b>		
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. <sup>a</sup>		
All core courses except OEH:5010 OEH Seminar, OEH:7040 Preceptorship in OEH, CPH:6100 Essentials of Public Health, and CPH:7270 Principles of Scholarly Integrity: Public Health must be taken on an A-F graded basis.		
Maintain at least a 2.75 cumulative GPA.		
<b>Hours</b>		<b>0</b>
<b>First Year</b>		
<b>Fall</b>		
CPH:6100	Essentials of Public Health <sup>b</sup>	2
CPH:7270	Principles of Scholarly Integrity: Public Health <sup>c</sup>	0
EPID:4400	Epidemiology I: Principles	3
OEH:4240	Global Environmental Health	3
OEH:5010	Occupational and Environmental Health Seminar <sup>d</sup>	0
OEH:5620	Occupational Health	3
OEH:6120	Current Topics in Agriculture and Rural Health <sup>e</sup>	1
<b>Hours</b>		<b>12</b>

**Spring**

CPH:7270	Principles of Scholarly Integrity: Public Health <sup>c</sup>	1
OEH:5010	Occupational and Environmental Health Seminar <sup>d</sup>	0
OEH:6110	Rural Health and Agricultural Medicine	3
OEH:6120	Current Topics in Agriculture and Rural Health <sup>e</sup>	1
OEH:6710	Human Toxicology and Risk Assessment	3
OEH:7010	Problems in Occupational and Environmental Health	0
Elective course <sup>f</sup>		3

**Hours** **11**

**Second Year****Fall**

BIOS:4120	Introduction to Biostatistics	3
OEH:7040	Preceptorship in Occupational and Environmental Health	1
Elective course <sup>f</sup>		3
Elective course <sup>f</sup>		3

**Hours** **10**

**Spring**

OEH:5010	Occupational and Environmental Health Seminar <sup>d</sup>	1
OEH:5410	Occupational Safety <sup>g</sup>	3
OEH:6120	Current Topics in Agriculture and Rural Health <sup>e</sup>	1
OEH:7000	Thesis/Dissertation <sup>h</sup>	4
Exam: Master's Final Exam <sup>i</sup>		

**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 Course must be completed in the first semester of the program.

c Complete CPH:7270 twice, first for 0 s.h. and then for 1 s.h.

d Complete OEH:5010 three times, twice for 0 s.h. and then once for 1 s.h.

e Complete OEH:6120 three times, each for 1 s.h.

f Students complete 13 s.h. in elective coursework and should work with an advisor to select courses appropriate for their professional goals, which may include coursework outside the College of Public Health.

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 Completion and acceptance of a master's thesis is required. Students are permitted, but not required, to enroll in OEH:7000 for a maximum of 4 s.h. and apply it toward the elective requirement.

i Consists of an oral defense of the thesis.

**Industrial Hygiene Subprogram**

Course	Title	Hours
<b>Academic Career</b>		
<b>Any Semester</b>		

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.<sup>a</sup>

All core courses except OEH:5010 OEH Seminar, CPH:6100 Essentials of Public Health, and CPH:7270 Princ Scholarly Integrity: Public Health must be taken on an A-F graded basis.

Maintain at least a 2.75 cumulative GPA.

Students pursuing the nonthesis option are required to complete a minimum 150-hour internship and submit an internship report.

**Hours** **0**

**First Year****Fall**

CPH:6100	Essentials of Public Health <sup>b</sup>	2
CPH:7270	Principles of Scholarly Integrity: Public Health <sup>c</sup>	0
EPID:4400 or BIOS:4120	Epidemiology I: Principles or Introduction to Biostatistics	3
OEH:5010	Occupational and Environmental Health Seminar <sup>d</sup>	0
OEH:5620	Occupational Health	3
OEH:6420	Methods in Exposure Science	3

**Hours** **11**

**Spring**

CPH:7270	Principles of Scholarly Integrity: Public Health <sup>c</sup>	1
OEH:5010	Occupational and Environmental Health Seminar <sup>d</sup>	0
OEH:6710	Human Toxicology and Risk Assessment	3
OEH:7050	Occupational and Environmental Health Internship <sup>e</sup>	0
Core elective course <sup>f</sup>		3
Core elective course <sup>f</sup>		3

**Hours** **10**

**Second Year****Fall**

EPID:4400 or BIOS:4120	Epidemiology I: Principles or Introduction to Biostatistics	3
Core elective course <sup>f</sup>		3
Core elective course <sup>f</sup>		3
Elective course <sup>g</sup>		3

**Hours** **12**

**Spring**

OEH:5010	Occupational and Environmental Health Seminar <sup>d</sup>	1
OEH:6440	Control of Occupational Hazards <sup>h</sup>	3
OEH:7050	Occupational and Environmental Health Internship <sup>e</sup>	3
Elective course <sup>g</sup>		3

**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 Course must be completed in the first semester of the program.
- c Complete CPH:7270 twice, first for 0 s.h. and then for 1 s.h.
- d Complete OEH:5010 three times, twice for 0 s.h. and once for 1 s.h.
- e Complete OEH:7050 twice, first for 0 s.h. and then for 3 s.h.
- f Complete at least 12 s.h. in core electives; see the General Catalog for list of approved courses. Work with faculty advisor to determine appropriate graduate coursework and sequence.
- g Students complete 6 s.h. in elective coursework and should work with an advisor to select courses appropriate for their professional goals, which may include coursework outside the College of Public Health.
- h Typically this course is offered in spring semesters of even years only. Check MyUI for course availability since offerings are subject to change.