Environmental and Occupational Health Sciences Curriculum

Environmental and Occupational Health Sciences is the field of study that deals with the anticipation, identification and characterization of potentially harmful physical, chemical, and biological agents in community and workplace environments. The Division of Epidemiology, Human Genetics, and Environmental Sciences offers rigorous training in the research methods and practice of environmental and occupational health.

General Information

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Overview:

The curricula of these degree programs are based on instruction of environmental and occupational health principles and methods with an emphasis on the application of this knowledge. Students are encouraged to include interdisciplinary coursework, independent research, and practical public health experiences within their academic plan.
This brochure describes the three environmental and occupational health degree programs currently offered by the Division of Epidemiology, Human Genetics, and Environmental Sciences. Additionally, it provides information about general minors in Environmental and Occupational Health that are offered to MS and PhD students of other SPH divisions.

Degree Programs:
The Division of Epidemiology, Human Genetics, and Environmental Sciences offers the following degree programs in Environmental and Occupational Health Sciences.

Master of Public Health (MPH) in Environmental and Occupational Health Sciences
Requirements:
- Minimum of 45 credit hours
- Practicum
- Culminating experience
- Approximately 2 years of full-time study

Doctor of Public Health (DrPH) in Environmental and Occupational Health
Requirements:
- Minimum of 48 credit hours
- Breadth across disciplines
- Practicum
- Preliminary examination
- Dissertation
- Approximately 6 semesters of full-time study to attain candidacy

Doctor of Philosophy (PhD) in Environmental Health Sciences
Requirements:
- Minimum of 48 credit hours (with prior master’s degree),
- One disciplinary minor area of study and one defined breadth area of study
- Preliminary examination
- Dissertation
- Approximately 6 semesters of full-time study (with prior master’s degree) to attain candidacy
Master of Public Health (MPH) in Occupational and Environmental Health Sciences

Degree Overview:
This degree is designed to provide a breadth of achievement in the five core disciplines of public health, as well as additional knowledge and skills in environmental and occupational health sciences. The goal of this program is to prepare students to put environmental and occupational health concepts and methods into public health practice; to conduct research studies in public health; and to interpret scientific evidence relevant to public health.

To obtain a basic understanding of environmental and occupational health sciences principles and practice in the broader context of public health, full-time students will ordinarily complete the course sequence in two years. A **minimum of 45 credit hours** is required. It is strongly recommended that students use the framework found on pages 7-8 of this brochure to structure the foundation of their academic plan. However, a student may request a course waiver through the division; comparability in the learned or experienced competencies should be documented and added to the student record.

Additionally, the MPH degree requires the completion of a formal practicum involving the application of public health science and theory and the completion of a culminating experience. The practicum consists of an organized internship at an agency or organization that is engaged in work related to public health (normally outside the SPH). The student is expected to spend a minimum of 12 hours per week (approximately 180-200 hours total) at the practicum site.

The culminating experience may take several forms including a thesis or capstone course which meets criteria set forth by the SPH. All MPH students must present their culminating experience in a public form at the SPH prior to graduation.
Students must complete the MPH program requirements within five years.

**Admission Requirements:**

- A baccalaureate or professional degree in the biomedical or social sciences from a regionally accredited university or school.
- Submission of application and all supporting documents by the application deadline.
- Previous public health experience or evidence of the potential to contribute significantly to public health programs and services, particularly to underserved and vulnerable populations. The applicant may submit copies of reports, articles, recommendations, a career goal statement, or other written material believed to reflect such potential.
- Graduate Record Exam (GRE) scores. Applicants holding previous doctoral level degrees from accredited U.S. or Canadian universities may request an exemption from the GRE requirement.
- Applicants who are nationals of countries where English is not the primary language are required to submit scores from the Test of English as a Foreign Language (TOEFL).
Advisory Committee:
The SPH assigns an advisor to each MPH student during the first semester in which they are enrolled. With approval from the Office of Student Affairs, a student may change advisors. The student may choose to appoint an additional committee member(s) to represent an area of particular academic/ research interest after discussing this option with their primary advisor.

Competencies for EOHS Majors:
The Association of Schools of Public Health (ASPH) defines the MPH core competencies as a unique set of applied knowledge, skills, and other attributes, grounded in theory and evidence, for the broad practice of public health. Mastery of these competencies should prepare students to successfully complete the credentialing examination. The following competencies are specific to the discipline of environmental and occupational health.

Upon graduation, a student with an MPH in Environmental and Occupational Health should be able to:
1. Describe environmental health hazards and identify public health problems caused by these hazards.
2. Explain how gaps in knowledge and the multiplicity of factors affect approaches to solving environmental health problems.
3. Assess the available methods for environmental characterization and exposure assessment and propose mitigation strategies for the prevention and/or control of environmental problems.
4. Locate, organize, and synthesize information in the peer-reviewed literature and from other sources related to environmental health sciences.
5. Participate in research OR evaluate the quality and suitability of data from an existing environmental health study and draw conclusions from the results.
6. Describe regulatory programs and legislative authorities that deal with environmental health issues at the local, state, federal, and international levels.

7. Assess the effectiveness of regulatory programs and policies.

8. Describe the function, structure and financing of environmental programs.

9. Develop and defend a program budget.

10. Prepare reports and make oral presentations.

11. Explain approaches to risk management and risk communication.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hrs</th>
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</thead>
<tbody>
<tr>
<td>PH 1690</td>
<td>Foundations of Biostatistics</td>
<td>4</td>
</tr>
<tr>
<td>PH 1700</td>
<td>Intermediate Biostatistics</td>
<td>4</td>
</tr>
<tr>
<td>PHM 2610</td>
<td>Introduction to Epidemiology</td>
<td>3</td>
</tr>
<tr>
<td>PHM 1110</td>
<td>Social and Behavioral Aspects of Community Health</td>
<td>3</td>
</tr>
<tr>
<td>PHM 3715</td>
<td>Introduction to Management and Policy Sciences</td>
<td>3</td>
</tr>
</tbody>
</table>

Note: PH 1690 and PH 1700 must be taken in sequence; PH 1690 satisfies the core requirement; however, PH 1700 is strongly recommended and required in some tracks.
### EOHS Courses for Majors

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>PH 2100</td>
<td>Foundations of EOHS</td>
<td>4</td>
</tr>
<tr>
<td>PH 2101</td>
<td>Contemporary Issues in EOHS</td>
<td>2</td>
</tr>
<tr>
<td>PH 2130</td>
<td>Recognition of Environmental and Occupational Hazards (^1)</td>
<td>2</td>
</tr>
<tr>
<td>PH 2175</td>
<td>Toxicology I: Principles of Toxicology</td>
<td>3</td>
</tr>
<tr>
<td>PH 2205</td>
<td>Health and Safety Program Management</td>
<td>3</td>
</tr>
<tr>
<td>PHM 5010</td>
<td>Ethics in Public Health</td>
<td>1</td>
</tr>
<tr>
<td>PH 9997</td>
<td>Practicum</td>
<td>1-9</td>
</tr>
<tr>
<td>PH 9996</td>
<td>Capstone Course or</td>
<td>3</td>
</tr>
<tr>
<td>PH 9998</td>
<td>Culminating Experience</td>
<td>1-9</td>
</tr>
</tbody>
</table>

Select at Least Three Electives in Environmental and Occupational Health Sciences \(^2\)

\(^1\) PH2110, PH 2120 or PH2245 may substitute for PH 2130

\(^2\) Some courses have prerequisites

### Electives in Environmental and Occupational Health Sciences

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hrs</th>
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</thead>
<tbody>
<tr>
<td>PHM 2135</td>
<td>Risk Analysis—Principles and Practices</td>
<td>3</td>
</tr>
<tr>
<td>PH 2150</td>
<td>Air Environment</td>
<td>3</td>
</tr>
<tr>
<td>PH 2155</td>
<td>Environmental Sampling and Analysis</td>
<td>4</td>
</tr>
<tr>
<td>PH 2175</td>
<td>Toxicology II: Toxic Agents and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>PH 2190</td>
<td>Environmental and Occupational Health Policy</td>
<td>3</td>
</tr>
<tr>
<td>PH 2230</td>
<td>Water Environment</td>
<td>3</td>
</tr>
<tr>
<td>PHM 2245</td>
<td>Fundamentals of Industrial Hygiene</td>
<td>4</td>
</tr>
<tr>
<td>PH 2250</td>
<td>Occupational Health Controls</td>
<td>4</td>
</tr>
<tr>
<td>PH 2255</td>
<td>Clinical Occupational Medicine</td>
<td>3</td>
</tr>
<tr>
<td>PH 2260</td>
<td>Occupational Health Field Trips</td>
<td>3</td>
</tr>
<tr>
<td>PH 2265</td>
<td>Occupational Medicine Practice</td>
<td>3</td>
</tr>
<tr>
<td>PH 2280</td>
<td>Environmental Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>PH 2280</td>
<td>Topics in Infectious Disease</td>
<td>3</td>
</tr>
<tr>
<td>PH 2290</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>PHWM 2835</td>
<td>Special Topics in Environmental and Occupational Health (^1)</td>
<td>1-4</td>
</tr>
</tbody>
</table>

\(^1\) A variety of these courses are offered each semester. For examples of courses that have been offered in previous semesters, visit the Division website.
MPH Biosafety Curriculum

Program Overview:
The field of biological safety ("biosafety") focuses on the anticipation, recognition, evaluation, and control of potentially infectious agents in the workplace. Growth within the profession has been significant, driven by a variety of factors including: the need to manage emerging and re-emerging infectious diseases and the threat of pandemics; growth in research and development work with recombinant DNA; increased generation and use of genetically modified organisms; and a proliferation of biosafety-related regulations and guidelines, among others.

This academic curriculum is designed to educate students at the masters level to address the current and growing need for qualified biosafety personnel. Biosafety-specific courses, practicum and re-search to address competencies established for the board certification in biosafety, known as the Certified Biological Safety Professional (or CBSP), jointly administered by ABSA and the American Society of Microbiology.

EOHS majors specializing in biosafety would complete the following:
- MPH core curriculum (see p. 7),
- EOHS discipline’s required courses (see p. 8),
- Biosafety-related courses consisting of twelve credit hours,
- Semester-long practicum with an established biosafety program, and a
- Biosafety-related research project.

Students enrolled in the biosafety curriculum are advised and taught by faculty trained and/or certified in biosafety.
### MPH Curriculum in Biosafety

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs</th>
</tr>
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<tbody>
<tr>
<td><strong>Required:</strong></td>
<td></td>
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<tr>
<td>PHM XXXX</td>
<td>3</td>
</tr>
<tr>
<td>PHM XXXX</td>
<td>1</td>
</tr>
</tbody>
</table>

| Electives: (minimum of 8 credit hours) |     |
| PH 2280 Environmental Microbiology    | 3   |
| PH 2285 Topics in Infectious Disease  | 3   |
| PH 2290 Immunology                    | 3   |
| PH 2805 Medical Microbiology          | 3   |
| PH 2807 Molecular Principals of Virology | 3 |
| PH 2730 Epidemiology and Control of Infectious Disease | 4 |
| PH 2731 Genetics and Infectious Diseases | 2 |
| PHM 2750 Disease: Natural History, Prevention and Control | 3 |
| PH 2800 Tropical Infectious Diseases  | 3   |
| PHM 2970 Foundation of Public Health Genetics | 2 |
MPH Curriculum in Industrial Hygiene

Program Overview:
Industrial hygiene is the science of anticipating, recognizing, evaluating, and controlling environmental factors posing risk from the workplace to workers and the community. The Industrial Hygiene (IH) curriculum offered through the UT School of Public Health offers the Master of Public Health (MPH), the Master of Science (MS), the Doctor of Philosophy (PhD), and the Doctor of Public Health (DrPH) degrees. Within the EOHS program, the MPH Industrial Hygiene Curriculum is accredited by the Applied Science Accreditation Commission of ABET.

A high level of faculty/student interaction is emphasized and students typically gain practical experience through summer internships. The locations of the Public Health Region VI – Arkansas, Louisiana, New Mexico, Oklahoma, and Texas – offer a wealth of opportunities for training in industrial settings, healthcare, petroleum and petrochemicals, agriculture, and public and private business and government sectors.

Industrial hygiene is a discipline within the broader field of occupational health and safety (OHS). Industrial hygiene is a professionally exciting and rewarding field of public health that includes all other aspects of public health such as epidemiology, health promotion, management, global health and wellness, and other disciplines. Being an OHS practitioner helps to save lives of working people and promotes a grounded quality of life for their families and communities.

Students enrolled in the industrial hygiene curriculum are advised and taught by faculty trained and/or certified in industrial hygiene or related disciplines.
EOHS majors specializing in industrial hygiene would complete the following:

- MPH core curriculum (see p. 7),
- EOHS discipline’s required courses (see p. 8),
- Industrial hygiene-related courses consisting of fifteen (15) credit hours,
- Semester-long practicum at an approved industrial site,
- Industrial hygiene-related research project.

The interdisciplinary curriculum prepares graduates to participate in a multi-disciplinary approach to planning, implementing, managing, and evaluating programs and services for worker health and safety. The curriculum includes industrial hygiene technical and public health cores, as well as electives offered within the UT School of Public Health. Contact Dr. Lawrence Whitehead for curriculum information.

<table>
<thead>
<tr>
<th>Course</th>
<th>Hrs</th>
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</thead>
<tbody>
<tr>
<td>PH 2245     Fundamentals of Industrial Hygiene</td>
<td>4</td>
</tr>
<tr>
<td>PH 2250     Occupational Health Controls</td>
<td>4</td>
</tr>
<tr>
<td>PH 2155     Environmental Sampling and Analysis</td>
<td>4</td>
</tr>
<tr>
<td>PH 2260     Occupational Health Field Trips</td>
<td>3</td>
</tr>
</tbody>
</table>
Residency Program in Occupational and Environmental Medicine

The primary goal of the Occupational & Environmental Medicine Residency program is to train practicing physicians to qualify for occupational and environmental positions in private practice, industry, government, the military or academia. This Program has been approved since 1977 by the Accreditation Council for Graduate Medical Education (ACGME) and offers occupational medicine residency training to qualified physicians in preparation for certification by the American Board of Preventive Medicine.

Applications to the OEM Residency program are accepted via the ERAS system only. This two-year program includes completion of the requirements for a Master of Public Health degree, and twelve months of full-time experiential rotations in various aspects of professional practice in the field. Students must possess the MD or D.O. degree, have completed a minimum of one year (PGY-1) of clinical training in an ACGME-accredited program, and be admitted to the School of Public Health MPH degree program.

EOHS majors specializing in occupational medicine would complete the following:

- MPH core curriculum (see p. 7) Note that residency students are exempt from the required course, PHM 5010 Ethics in Public Health.
- EOHS discipline’s required courses (see p. 8) The PHM 2245 Fundamentals of Industrial Hygiene course is a required substitution for PHM 2130 Recognition of Environmental and Occupational Hazards.
- Occupational medicine-related courses consisting of approximately nineteen (19) credit hours, including, occupational medicine practice each semester of enrollment (see p. 14)
- Capstone course or occupational medicine-related research project.
Students enrolled in the occupational medicine curriculum are advised and taught by physician faculty trained and certified in occupational and environmental medicine. Questions regarding the OEM residency program may be directed to the Program Director, Dr. Chip Carson, or the Associate Director, Dr. George Delclos.

| Occupational Medicine Curriculum |
|-------------------------------|---|
| Course                        | Hrs |
| **Required:**                 |    |
| PH 2245 Fundamentals of Industrial Hygiene* | 4 |
| PH2255 Clinical Occupational Medicine | 3 |
| PH 2260 Occupational Health Field Trips | 3 |
| PH 2265 Occupational Medicine Practice** | 4 |
| PH 9997M Practicum, Occupational Medicine Residency | 3 |

*The PHM 2245 Fundamentals of Industrial Hygiene course is a required substitution for PHM 2130 Recognition of Environmental and Occupational Hazards.

**Residents are required to take the Occupational Medicine Practice course every semester in which they are enrolled in the MPH program.
Doctoral Programs in Environmental and Occupational Health Sciences

Doctoral Degrees (DrPH and PhD) in Environmental and Occupational Health Sciences

Admission Requirements:

1. Prior MPH (for DrPH program) or MS (for PhD program) degree or equivalent from a regionally accredited university or college, or other accomplishments that indicate similar readiness for doctoral study in environmental and/or occupational health.

2. Outstanding promise for scholarly accomplishment and professional leadership in extending public health practice.

3. Submission of application and all supporting documents by the application deadline.

4. Graduate Record Exam (GRE). Applicants holding previous doctoral level degrees from accredited US or Canadian universities may request an exemption from the GRE requirement.

5. Applicants who are nationals of countries where English is not the primary language are required to submit scores from the Test of English as a Foreign language (TOEFL).

Applicants are expected to have successfully completed coursework in mathematics, chemistry, and biological sciences, and environmental health.

“Conditional Admission” to Doctoral Programs:

Applicants to the doctoral program are expected to hold a Master’s degree in the relevant discipline. Applicants with a prior Master’s but with deficits, (i.e., no MPH or lack of Master’s level discipline courses for a PhD) may be admitted with the conditions of completing required leveling courses. Once a student has completed the required leveling courses listed in the admissions letter, with a grade of at least a ‘B,’ the conditions will be removed from the student’s record. Conditions must be met prior to the Preliminary Examination. Students who fail to complete the conditions will be discontinued from the program. Courses will appear on the transcript, but not applied toward the doctoral degree plan.
Leveling courses do not count towards the degree program. Credit hours toward a degree program’s graduation requirements begin to accrue at the time of admission to and enrollment into the degree program. DrPH students must have previous evidence of, or UTSPH course credit hours must include, all five core MPH courses.

Specific prerequisites for admission or makeup requirements (all strongly preferred prior to admission) are courses essentially equivalent in scope and coverage to the following (credits for ‘M’ courses do not apply to the minimum of 48 credits required for the doctorate):

- PHM 2100 Foundations of EOHS
- PHM 2130 Recognition of EOHS Hazards
- PH 2175 Principles of Toxicology
- PH 1700 Intermediate Biostatistics
- PHM 2610 Fundamentals of Epidemiology

Advisory Committee:
Doctoral students are assigned an academic advisor who assists the student in preparing for the preliminary examination. Successful completion of the preliminary examination advances the doctoral student to a doctoral candidate.

Dissertation Committee:
Doctoral candidates constitute a dissertation committee composed of an advisor (may or may not be the academic advisor) and two other members representing the breadth and minor areas of interest. The dissertation committee helps develop a curriculum supporting the student’s research and career goals. This committee can be changed as research interests become more focused. The dissertation committee is responsible for evaluating the oral defense of the dissertation research proposal and the completed dissertation. The Committee membership must be approved by the Associate Dean for Academic Affairs.

Dissertation Research:
After successful completion of the preliminary exam, students
continue to take courses directed toward their research interest. The doctoral dissertation must constitute a substantial contribution to the body of knowledge in public health practice with special emphasis on the field of environmental and/or occupational health. All doctoral students must present their dissertation research in a public forum at the SPH prior to graduation.

Course of Study:
All students who pursue a DrPH or PhD in Environmental and Occupational Health Sciences must pass a preliminary examination for admission to doctoral candidacy. This examination is designed to test both the student’s depth of knowledge in the major area of study and to test the student’s ability to conceive and conduct independent epidemiologic research. The preliminary exam is given by the EOHS faculty two times per year. A faculty committee develops and administers the exam. The student must be enrolled during the semester the preliminary exam is taken.

To be eligible to take the preliminary examination in EOHS, students must take the required courses listed below, except in the case of a waiver (waiver process varies by program):

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hrs</th>
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</thead>
<tbody>
<tr>
<td>PHD 2105</td>
<td>EOHS Doctoral Seminar*</td>
<td>1</td>
</tr>
<tr>
<td>PHWD 2106</td>
<td>Introduction to Doctoral Research Methods in EOHS</td>
<td>2</td>
</tr>
<tr>
<td>PHD 2108</td>
<td>Applied Epidemiological Analysis in EOHS</td>
<td>3</td>
</tr>
<tr>
<td>PHD 2135</td>
<td>Risk Analysis—Principles and Practice**</td>
<td>3</td>
</tr>
<tr>
<td>PHD 2190</td>
<td>Environmental and Occupational Health Policy**</td>
<td>3</td>
</tr>
<tr>
<td>PHWD 2760</td>
<td>Occupational Epidemiology***</td>
<td>3</td>
</tr>
<tr>
<td>PHWD 2835</td>
<td>Injury Epidemiology***</td>
<td>3</td>
</tr>
</tbody>
</table>

*This course must be taken in two semesters.
**Students may select PHD 2135 or PH 2190
***Students may select PHWD 2760 or PHWD 2835
After the preliminary exam is successfully completed, students take other courses specific to the students’ educational goals, including courses in their declared minor and breadth areas.

The list of all EOHS ‘D’ courses in the current catalog shows those eligible for election. The faculty may approve other ‘D’ courses. One EOHS course which is neither designated ‘M’ nor ‘D’ may be substituted for a ‘D’ course in the above elective requirement. The faculty may approve other non-'M', non-'D' courses.

All DrPH and PhD students in EOHS are also required to take one Epidemiology course during the course of their doctoral studies.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Hrs</th>
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</thead>
<tbody>
<tr>
<td>PHD 2101</td>
<td>Contemporary Issues in EOHS</td>
<td>3</td>
</tr>
<tr>
<td>PH 2150</td>
<td>Air Environment</td>
<td>3</td>
</tr>
<tr>
<td>PH 2155</td>
<td>Environmental Sampling and Analysis</td>
<td>4</td>
</tr>
<tr>
<td>PH 2177</td>
<td>Toxicology II: Toxic Agents and the Environment</td>
<td>3</td>
</tr>
<tr>
<td>PH 2190</td>
<td>Environmental and Occupational Health Policy</td>
<td>3</td>
</tr>
<tr>
<td>PHD 2230</td>
<td>Water Environment</td>
<td>3</td>
</tr>
<tr>
<td>PH 2245</td>
<td>Fundamentals of Industrial Hygiene</td>
<td>4</td>
</tr>
<tr>
<td>PH 2250</td>
<td>Occupational Health Controls</td>
<td>4</td>
</tr>
<tr>
<td>PH 2255</td>
<td>Clinical Occupational Medicine</td>
<td>3</td>
</tr>
<tr>
<td>PH 2260</td>
<td>Occupational Health Field Trips</td>
<td>3</td>
</tr>
<tr>
<td>PH 2265</td>
<td>Occupational Medicine Practice</td>
<td>2</td>
</tr>
<tr>
<td>PH 2280</td>
<td>Environmental Microbiology</td>
<td>3</td>
</tr>
<tr>
<td>PH 2285</td>
<td>Topics in Infectious Disease</td>
<td>3</td>
</tr>
<tr>
<td>PH 2290</td>
<td>Immunology</td>
<td>3</td>
</tr>
<tr>
<td>PH 2498</td>
<td>Special Topics in Environmental and Occupational Health(^1)</td>
<td>1-4</td>
</tr>
</tbody>
</table>

\(^1\) A variety of these courses are offered each semester. For examples of courses that have been offered in previous semesters, visit the Division website.
Students will carry out original research leading to a dissertation with a special emphasis in Environmental and Occupational Health Sciences. Graduates of the program are prepared to carry out research activities in governmental or private organizations or to pursue academic careers.

The final degree requirement is the completion of an original research dissertation, agreed upon with the dissertation committee. This dissertation must be presented and defended in a public forum at the School.

The dissertation requirement will be fulfilled when the document and related forms have been approved and signed by all members of the dissertation committee and a copy has been filed in the Dean’s office.
DrPH in Environmental and Occupational Health

**Doctor of Public Health (DrPH) in Environmental and Occupational Health Sciences**

**Degree Overview:**
The Doctor of Public Health (DrPH) degree in Environmental and Occupational Health Sciences signifies distinguished scholarly and practical accomplishment in the field of Environmental and Occupational Health Sciences. It is primarily designed for those who plan careers involving professional practice. Those seeking a DrPH degree should anticipate a minimum three-year program of study (48 credit hours).

**Minor Areas of Study:**
Two disciplinary minors or a minor and a breadth area must be completed, following School of Public Health requirements. All DrPH students are expected to complete a minor in Management and Leadership. Courses for these may be completed after the Preliminary Examination, as may further elective courses in EOHS.

**Practicum:**
The DrPH practicum is required and should have an environmental or occupational health focus.

The DrPH practicum is designed to:
- Relate to the student’s academic goals and professional interests, and specific learning objectives.
- Provide opportunities for professional advancement of specific competencies that the student has not yet mastered in their coursework or prior professional experience.
- Facilitate the application of public health leadership principles to address a need identified by the host organization through service learning.
- Demonstrate the student’s application of public health concepts through observational and performance-based evaluation by the preceptor, faculty, and student.
- Provide experiences in developing advocacy and/or leadership skills through collaboration with senior public health practitioners.
The student is expected to spend a minimum of 180-200 hours total at the practicum site. Community preceptors, selected based on evidence of specific skills, provide extensive mentoring to students.

**Competencies:**

Upon graduation, a student with an DrPH in Environmental and Occupational Health should be able to:

1. *Identify and critically evaluate an environmental health problem, and develop and implement a research study using appropriate design and resources to produce new and significant knowledge in the professional practice of environmental health.*
   
   A. Recognize, define, and prioritize environmental health problems.
   
   B. Plan and implement a valid study.
   
   C. Derive valid conclusions and consider application of major findings.

2. *Evaluate current knowledge and key assumptions in environmental health sciences and other areas to advance the development of the field.*
   
   A. Assess key assumptions that underlie current understanding in the field of environmental health.
   
   B. Evaluate novel approaches for enhancing knowledge, skills and applications.

3. *Teach academic and professional audiences.*
   
   A. Teach content in broad overview courses in environmental health, as well as specialized courses in areas of expertise, in an academic institution; or teach continuing education and outreach classes in environmental health.
   
   B. Develop tools for evaluating teaching efficacy and student learning outcomes.
4. *Communicate effectively to peers, policy makers and the lay public.*
   A. Deliver presentations in classroom settings or at scientific meetings.
   B. Develop and demonstrate clear and effective writing skills for communication to a scientific audience
   C. Present oral and written material appropriate for policy makers or lay audiences.
   E. Develop strategies to monitor and evaluate policies for their effectiveness and quality.

5. *Gain skills needed to establish and manage an environmental health program.*
   A. Recognize organizational or programmatic needs and develop strategies and plans to meet these needs.
   B. Demonstrate leadership appropriate to an environmental health program.
   C. Develop control measures to assure quality and success of an environmental health program.

6. *Analyze, advocate, implement, and evaluate policy to reduce environmental health risks.*
   A. Define an environmental health problem and critically analyze relevant policies or approaches to address the problem.
   B. Develop and assess policy options.
   C. Evaluate the feasibility of implementing various policy options.
   D. Select an appropriate course of action and develop plans to implement policy.
   E. Develop strategies to monitor and evaluate policies for their effectiveness and quality.
Doctor of Philosophy (PhD) in Environmental and Occupational Health Sciences

Degree Overview:
This degree signifies outstanding scholarly achievement: a mastery of environmental science and occupational health concepts, theories, and methodology as well as a significant capacity for independent study. All graduates of the PhD in Environmental and Occupational Health Sciences degree program are expected to be independent investigators capable of developing epidemiological methods and applying them to problems of human health and disease. They are expected to be capable of following academic careers in teaching and research, or of occupying senior positions in governmental or private health research agencies.

Minor Areas of Study:
Students are required to take a minimum of nine credit hours each for the minor and the breadth areas of study. The courses constituting the minor are set by the Division in which the minor resides. Courses for the breadth area are guided by the student’s committee member representing the area.

Competencies:
Graduates must attain the following specific competencies:
1. Identify and critically evaluate an environmental health problem, and develop and implement a research study using appropriate design and resources to produce new and significant knowledge
   A. Recognize, define, and prioritize environmental health problems.
   B. Plan and implement a valid study.
   C. Derive valid conclusions and consider application of major findings.

2. Evaluate current knowledge and key assumptions in environmental health sciences and other areas to advance the development of the field.
   A. Assess key assumptions that underlie current understanding in the field of environmental health.
B. Evaluate novel approaches for enhancing knowledge, skills and applications.

3. Teach academic and professional audiences.
   A. Teach content in broad overview courses in environmental health or specialized content in areas of expertise in an academic institution; or teach continuing education and outreach classes in environmental health.
   B. Develop tools for evaluating teaching efficacy and student learning outcomes.

4. Communicate effectively to peers, policy makers and the lay public.
   A. Deliver presentations in classroom settings or at scientific meetings.
   B. Develop manuscript(s) suitable for publication in peer-reviewed journals.
   C. Present orally and in written form the key concepts underpinning an environmental health issue.

5. Gain skills needed to establish and manage an independent research program in environmental health sciences.
   A. Recognize research program needs and develop strategies and plans to meet these needs.
   B. Identify necessary expertise to meet research program goals.
   C. Demonstrate leadership appropriate to the research program.
   D. Assess the quality and success of the research program.
Minor in Environmental and Occupational Health:
MS Degree Programs
A minor in Environmental and Occupational Health Sciences (EOHS) may be attained by students pursuing a Master of Science (MS) degree from other degree programs in the SPH.

Competencies:
Upon graduation, an MS student with an EOHS minor should be able to:
1. Describe environmental health hazards and identify public health problems caused by these hazards.
2. Explain how gaps in knowledge and the multiplicity of factors affect approaches to solving environmental health problems.
3. Assess the available methods for environmental characterization and exposure assessment and propose mitigation strategies for the prevention and/or control of environmental problems.
4. Describe regulatory programs and legislative authorities that deal with environmental health issues at the local, state, federal, and international levels.
5. Explain approaches to risk management and risk communication.

Recommended Course Sequence:
The minimum knowledge/content needed to demonstrate mastery in EOHS as a minor field of study for MS students is contained in the following courses. However, equivalent courses may be acceptable, provided the student and the advisory committee can document learned or experienced competency.

Courses in Environmental and Occupational Health Sciences
- PHM 2100 - Foundations of EOHS (4 hrs)
- PHM 2130 - Recognition of Hazards in EOHS (2 hrs)
Two of the following courses:
- PH 2135 - Risk Analysis: Principles and Practices (3 hrs)
- PH 2150 - Air Environment (3 hrs)
- PH 2190 - EOH Policy (3 hrs)
Minor in Environmental and Occupational Health: PhD and DrPH Degree Program

A minor in Environmental and Occupational Health Sciences (EOHS) may be attained by students pursuing a Doctor of Philosophy (PhD) or a Doctor of Public Health (DrPH) degree from one of the other divisions of the SPH. Doctoral students in epidemiology may also minor in EOHS.

Competencies for a PhD minor in EOHS:
Upon graduation, a PhD student with an EOHS minor should be able to:
1. Recognize, define, and prioritize environmental health problems.
2. Assess key assumptions that underlie current understanding in the field of environmental health.
3. Assess the available methods for environmental characterization and exposure assessment.
4. Recommend mitigation strategies for the prevention and/or control of environmental problems.
5. Critically analyze relevant approaches and research methods to address an environmental health problem.

Competencies for a DrPH minor in EOHS:
Upon graduation, a DrPH student with an EOHS minor should be able to:
1. Recognize, define, and prioritize environmental health problems.
2. Assess key assumptions that underlie current understanding in the field of environmental health.
3. Assess the available methods for environmental characterization and exposure assessment.
4. Recommend mitigation strategies and policies for the prevention and/or control of environmental problems.
5. Evaluate environmental health policy and program options.
Recommended Course Sequence:
For all doctoral degrees, a minimum of nine credit hours is required for the disciplinary minor. With recommendations from each student’s advisory committee, the following course sequence is suggested in order for students to acquire the minimum knowledge/content needed to demonstrate mastery in environmental and occupational health sciences as a minor area of study. Equivalent courses may be acceptable, provided that the student and the advisory committee can document learned or experienced competency.

One of the EOHS MPH core courses (PH2110, PH2120, PH2100 or equivalent) is a prerequisite and does not contribute credit hours toward the doctoral minor. The courses below may be taken as the “M or D” section of the course at the discretion of the instructor.

Courses in Environmental and Occupational Health Sciences

- At least one: PH2135 or PH2190
- At least one: PH2106, PH2108, or PH2760
- Any other EOHS course (including a second course in the above list)
Minor and Breadth Opportunities for students within the Division of Epidemiology, Human Genetics, and Environmental Sciences

The Division of Epidemiology, Human Genetics, and Environmental Sciences offers a minor in biological sciences that could be used to meet minor or breadth requirements for all SPH Divisions. Under this minor students may focus on genetic epidemiology, infectious disease epidemiology. The specific course requirements for these areas of study may add extra credit hours above the basic degree requirements.

These areas of study are available for students in the all degree programs. MPH and DrPH students are encouraged to plan a practicum and culminating experience related to the study area they have chosen.

More information about the minor and breadth areas of study offered by the Division of Epidemiology, Human Genetics, and Environmental Sciences is available from the faculty contacts listed below.

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<th>Minor in Biological Sciences</th>
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<td><strong>Areas of Study</strong></td>
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The degree requirements outlined in this Handbook applied to students who first enrolled in the Fall of 2013 or Spring 2014 semesters, and are subject to change. Students must meet the degree requirements that are in effect at the time they are: (a) first enrolled; (b) readmitted after a lapse in enrollment of one year or more; (c) transferring into the Division.
Need More Information?

Contact the Office of Student Affairs:

Mailing Address
Office of Student Affairs
The University of Texas School of Public Health
P.O. Box 20186
Houston, Texas 77225

Phone Number
(713) 500-9032

Fax Number
(713) 500-9068

Visit the school’s website:
UT School of Public Health
www.sph.uth.tmc.edu

Division of Epidemiology, Human Genetics and Environmental Sciences
https://sph.uth.tmc.edu/divisions/epidemiology-human-genetics-environmental-sciences/

Brochure Content:
Environmental and Occupational Health Sciences Curriculum Committee
The Division of Epidemiology, Human Genetics and Environmental Sciences
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