ENVIRONMENTAL AND OCCUPATIONAL HEALTH — M.P.H.

Program director
Robin Smith

The M.P.H. degree curriculum in environmental and occupational health is designed for individuals with professional practitioner career objectives in the area of environmental and occupational health. It helps prepare them to meet the growing employment market for environmental health specialists, industrial hygienists, geographic information system specialists, and other professionals that examine human-environment interactions. Students who complete this curriculum will acquire the professional and scientific skills to perform as environmental quality control professionals in local, state, or federal government health departments/agencies; and in private business/industry. The program has been approved by the State of California Environmental Health Specialist Registration Committee (http://www.cdph.ca.gov/cedtcc/occupations/Pages/REHS.aspx), 1616 Capitol Avenue, Building 174—2nd floor, Sacramento, CA 95899. Satisfactory completion of this curriculum meets, in part, the eligibility requirements to sit for the registered environmental health specialist (REHS) examination administered by the California Department of Public Health. Satisfactory performance on the examination qualifies individuals for practice as registered environmental health specialists in California and, by reciprocity, in the forty-nine remaining states. Admission into the M.P.H degree curriculum is considered for individuals with a solid science background.

Learner outcomes
Upon completion of the degree, the graduate should be able to:

- Analyze sources, pathways, and routes of exposure to environmental and occupational contaminants and determine populations with high risk; and outline mitigation strategies.
- Assess and evaluate environmental and occupational hazards pertaining to air, water, food, and soil in communities both locally and globally; and design innovative techniques and devices to improve standard of living and quality of life.
- Apply risk assessment and risk management concepts to develop effective guidelines and policies to mitigate and manage environmental and occupational hazards and to improve human health outcomes.

Educational effectiveness indicators
Program learner outcomes as evidenced by:

- Signature assignments linked to course and noncourse requirements
- Field practicum report
- Culminating experience (http://llucatalog.llu.edu/public-health/masters-degrees/#mphtext)

Prerequisites
In addition to the entrance requirements for all M.P.H. degrees (http://llucatalog.llu.edu/public-health/masters-degrees/#admissionstext), applicants to the M.P.H. degree program in environmental and occupational health must have:

- Biological science with laboratory (one year)
- General chemistry with laboratory (one year)
- General physics with laboratory (one year)
- Calculus or college algebra (one course)
- Organic chemistry with laboratory (minimum of two-quarter sequence)

Corequisite
- General microbiology with laboratory (one course), taken during the first two quarters of the program

Program requirements

Public health core

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<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tbody>
<tr>
<td>PCOR 501</td>
<td>Public Health for Community Resilience</td>
<td>5</td>
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<tr>
<td>PCOR 502</td>
<td>Public Health for a Healthy Lifestyle</td>
<td>5</td>
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<tr>
<td>PCOR 503</td>
<td>Public Health and Health Systems</td>
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Major

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<tr>
<th>Course</th>
<th>Title</th>
<th>Units</th>
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<tr>
<td>ENVH 515</td>
<td>Food Quality Assurance</td>
<td>3</td>
</tr>
<tr>
<td>ENVH 567</td>
<td>Hazardous Materials and Solid-waste Management</td>
<td>3</td>
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<tr>
<td>ENVH 586</td>
<td>Environmental Health Administration</td>
<td>3</td>
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<tr>
<td>ENVH 587</td>
<td>Environmental Sampling and Analysis</td>
<td>3</td>
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<tr>
<td>ENVH 588</td>
<td>Principles of Industrial Hygiene</td>
<td>3</td>
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<tr>
<td>ENVH 589</td>
<td>Environmental Toxicology</td>
<td>3</td>
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<tr>
<td>ENVH 590</td>
<td>Environmental Risk Assessment</td>
<td>3</td>
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<tr>
<td>ENVH 605</td>
<td>Seminar in Environmental and Occupational Health</td>
<td>1</td>
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<tr>
<td>ENVH 656</td>
<td>Outdoor Air Quality and Human Health</td>
<td>3</td>
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<td>ENVH 575</td>
<td>Indoor Air Quality</td>
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Religion

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<tr>
<th>Course</th>
<th>Title</th>
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<tr>
<td>RELE 534</td>
<td>Ethical Issues in Public Health</td>
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Cognates/Electives

1 Choose from defined cognates (http://llucatalog.llu.edu/public-health/#programstext) or select from electives, in consultation with advisor.

Field experience

Practicum units are in addition to the minimum didactic units required for the degree

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<tr>
<th>Course</th>
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<th>Units</th>
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<tbody>
<tr>
<td>PHCJ 798D</td>
<td>Public Health Practicum (Minimum of 8 units/400 hours)</td>
<td>56</td>
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Culminating Experience

In addition to standard culminating experience requirements (http://llucatalog.llu.edu/public-health/masters-degrees/#mphtext), all environmental and occupational health students must satisfactorily complete a comprehensive examination prior to graduation. The examination will allow students to demonstrate their ability to integrate and apply skills and knowledge expected of master’s-level environmental health practitioners.
Normal time to complete the program
1.5 years (9 academic quarters) based on full-time enrollment; part time permitted

Courses

ENVH 414. Introduction to Environmental Health. 3 Units.
Introduces an overview of the major areas of environmental health, such as ecology, environmental law, and population concerns; environmental diseases and toxins; food, water, and air quality; radiation; noise; and solid and hazardous waste.

ENVH 468. Water Quality Assurance. 3 Units.
Principles and processes involved in providing safe and adequate water supplies. Water-source development, quantity and quality assurance, source and system design, and inspection parameters. Protection of water sources from contamination; and the abatement of, and correction techniques applied to, degraded water quality. Potable water supplies, fresh and saline bodies of water, and municipal liquid-waste disposal. Prerequisite: Program prerequisite courses; or written consent of program advisor.

ENVH 509. Principles of Environmental Health. 3 Units.
Rural and urban environmental factors that affect human-health status, enjoyment of the quality of life, and human survival. Focuses within a framework of air, water, food quality, residential environments, industrial sites, recreational patterns, and environmental risk avoidance. Stresses prevention of disease and promotion of healthful environments. Not applicable toward a major in environmental health.

ENVH 515. Food Quality Assurance. 3 Units.
Principles and techniques of quality assurance for food preparation and prevention of food-borne diseases. Sanitary and safe preparation, storage, transportation, and handling of foodstuffs and products—both commercially and residentially. Criteria and practical methodology of inspection and surveillance techniques, facilities design, and plan checking. Food degradation, contamination, additives, and toxicants. Performance criteria for food handlers, with application to environmental techniques in education, enforcement, and consultation. Field trips. Prerequisite: Program prerequisite courses or written consent of program advisor.

ENVH 525. Special Topics in Environmental and Occupational Health. 1-4 Units.
Lecture and discussion on a current topic in environmental and occupational health. May be repeated for a maximum of 4 units applicable to degree program.

ENVH 558. Global Environmental Health. 2 Units.
Global implications of human impact on terrestrial, atmospheric, and marine environments. Considers dilution and dispersion of pollutants, climatic changes, endangered species, desertification, deforestation, vehicle emissions, free-trade agreements, renewable resources, and export of hazardous industry to developing nations. Impact of political, economic, and cultural factors on present and future mitigation strategies.

ENVH 566. Outdoor Air Quality and Human Health. 3 Units.
Sources and characteristics of air pollutants and their effects on humans and human environment. Methods used in sampling of pollutants, controls, and abatement of air-quality standards violations. Prerequisite: Program prerequisite courses; or written consent of program advisor.

ENVH 567. Hazardous Materials and Solid-waste Management. 3 Units.
Production, collection, transportation, treatment, recycling, and disposal of solid wastes and hazardous materials. Toxic effects and hazard-producing characteristics of these materials; and the process of disposal-site design, siting, and operation. Prerequisite: Program prerequisite courses; or written consent of program advisor.

ENVH 568. Water Quality Assurance. 3 Units.
Principles and processes involved in providing safe and adequate water supplies. Water-source development, quantity and quality assurance, source and system design, and inspection parameters. Protection of water sources from contamination; and the abatement of, and correction techniques applied to, degraded water quality. Potable water supplies, fresh and saline bodies of water, and municipal liquid-waste disposal. Prerequisite: Program prerequisite courses; or written consent of program advisor.

ENVH 569. Environmental Sampling and Analysis. 4 Units.
Practical laboratory experience that serves as an introduction to techniques used in measurement and evaluation of environmental health problems. Techniques pertinent to air, water, and food sanitation. Occupational stressors and radiological health. Prerequisite: Program prerequisite courses; or written consent of program advisor.

ENVH 575. Indoor Air Quality. 3 Units.
Social and technical factors associated with nonindustrial, indoor air-quality issues. Ventilation, source assessment, complaint investigations, control measures, sanitation, building design, enforcement criteria, and case studies. Prerequisite: Microbiology or consent of instructor.

ENVH 581. Principles of Industrial Hygiene. 3 Units.
Introductory course in industrial hygiene. Industrial/occupational health, hygiene and safety, philosophy, legislation, and regulation. Prerequisite: Program prerequisite courses; or written consent of program advisor.

ENVH 586. Environmental Health Administration. 3 Units.
Introduces the administration and management of organizations involved in environmental health within the context of the health-care system. Provides an overview of regulatory and policy issues, applicable statutes, and emerging management systems.

ENVH 587. Environmental Toxicology. 3 Units.
Principles and mechanisms of toxicology as applied to environmentally encountered toxic agents. Toxicants of current public health importance and their pathologic effect on representative tissues and organs. Dose-response relationships; hazard and risk assessment; and determination of toxicity of environmental carcinogens, teratogens, mutagens, pesticides, metals, plastics, and organic solvents. Prerequisite: Program prerequisite courses; or written consent of program advisor.

ENVH 589. Environmental Risk Assessment. 3 Units.
Principles and methods of risk assessment associated with human exposure to toxic chemicals and other environmental hazards. Quantitative risk-assessment methodologies and approaches. Ecological risk assessment; risk management issues involved in taking appropriate public health action; risk communication, acceptability, and perception; and informational resources.

ENVH 605. Seminar in Environmental and Occupational Health. 1 Unit.
Areas of current interest. May be repeated for additional credit.

ENVH 694. Research. 1-14 Units.
Independent research on problems currently receiving study in the department. Research program arranged with faculty member(s) involved. Minimum of thirty hours required for each unit of credit. Limited to qualified master's degree students. Prerequisite: Consent of instructor responsible for supervision and of program advisor.
ENH 696. Directed Study/Special Project. 1-4 Units.
Individual arrangements for advanced students to study under the
guidance of a program faculty member. May include readings, literature
reviews, or other special projects. Minimum of thirty hours required for
each unit of credit. A maximum of 4 units applicable to any master’s
degree program. Prerequisite: Consent of instructor responsible for
supervision and of program advisor.