

Environmental and Occupational Health Sciences (EOHS)

Courses

EOHS 400. Principles of Environmental Health Sciences. 3 hours.

Environmental influences on health: population, food, energy; community hygiene and injury control; solid/hazardous wastes, air and water pollution, radiation; industrial hygiene and occupational health. Course Information: Prerequisite(s): Enrollment restricted to public health students; other graduate, professional and advanced undergraduate students admitted by consent as space permits. To obtain consent, see the SPH registrar.

EOHS 401. Foundations of Environmental and Occupational Health. 2 hours.

Introduction to the field, as well as how chemicals and the environments in which we live, work, and play influence our health more broadly. Scientific approaches used to support identification, analysis and addressing health challenges are presented.

EOHS 402. Systems Approach in Environmental and Occupational Health. 3 hours.

Introduces and applies systems approaches to anticipate, assess and solve environmental and occupational health problems. Course Information: Recommended background: EOHS 401 and IPHS 401.

EOHS 405. EOHS Calculations. 1 hour.

Equips students with the quantitative calculation concepts related to environmental and occupational health sciences and with methods for solving various problems. Course Information: Recommended background: Algebra, and Calculus are not necessary, but very helpful, if students have not had these courses, then engaging with pre-matriculation materials and SPH success will be required prior to taking the course.

EOHS 406. Public Health Emergency Preparedness and Response. 3 hours.

Provides an overview of and introduction to public health emergency preparedness concepts and practice. Course Information: Same as EOHS 406. Prerequisite(s): Graduate or professional standing.

EOHS 408. Biological, Chemical, Explosives, and Nuclear Weapons as Public Health Threats. 3 hours.

Preparation, understanding of threats, and rescue & response issues pertaining to potential terrorist incidents from a public health perspective. Course Information: Same as EPID 408. Prerequisite(s): Graduate or professional standing; or consent of the instructor. Recommended background: EOHS 400 and EPID 410.

EOHS 411. Water Quality Management. 4 hours.

Water pollution; historical and current developments in problems and solutions: characterization of pollutants, regulatory framework, risk assessment, standards, modeling, water purification, public health concerns. Course Information: Prerequisite(s): Taught online. Consent of the instructor.

EOHS 418. Water Quality Analysis in Public Health. 2 hours.

Basic instrumentation and procedures related to measurement and surveillance of health-related water quality parameters and associated regulations. Course Information: Prerequisite(s): Credit or concurrent registration in EOHS 401 and credit or concurrent registration in EOHS 402; or consent of the instructor. Class Schedule Information: To be properly registered, students must enroll in one Laboratory and one Lecture.

EOHS 421. Occupational Health and Safety Practice. 2 hours.

An overview of the historical background, basic principles, practical tools and strategies for recognizing, evaluating and controlling chemical, biological and physical agents in the workplace. Course Information: Prerequisite(s): EOHS 400 or consent of the instructor.

EOHS 424. Evaluation and Control of Radiation Exposures. 1 hour.

Introduces students to the principles of radiation, exposure and health outcomes, and appropriate control strategies. Course Information: Recommended background: EOHS 401 and EOHS 402 and EOHS 421 and EOHS 425.

EOHS 425. Evaluation and Control of Physical Agents. 2 hours.

Theory and methodology in assessing and controlling exposure to physical agents (noise, thermal hazards, barometric hazards and vibration) in the occupational environment. Course Information: Recommended background: Credit or concurrent registration in EOHS 401 and EOHS 402.

EOHS 426. Evaluation and Control of Airborne Contaminants. 4 hours.

Measurement and modeling methods are used to characterize exposures to airborne contaminants and control strategies. Class Information: To be properly registered, students must enroll in one Lecture-Discussion and one Laboratory.

EOHS 427. Evaluation and Control of the Psychosocial Work Environment. 2 hours.

Theory and methodology in assessing and controlling psychosocial stressors in the occupational environment.

EOHS 428. Industrial Hygiene Laboratory I. 2 hours.

Detailed methods and experiments for measuring chemical, biological, and physical agents; and methods for evaluating the effectiveness of control measures. Course Information: Prerequisite(s): EOHS 400 and EOHS 405 and EOHS 421, or consent of the instructor. Class Schedule Information: To be properly registered, students must enroll in one Laboratory-Discussion and one Lecture.

EOHS 432. Air Quality Assessment and Management. 4 hours.

Scientific theory and methods to measure and model air quality for the purpose of managing the protection of the environment and the health of the public. Course Information: Credit is not given for EOHS 432 if the student has credit in EOHS 431 or EOHS 438. Prerequisite(s): EOHS 405; or consent of the instructor. Class Schedule Information: To be properly registered, students must enroll in one Lecture-Discussion and one Laboratory.

EOHS 440. Chemistry for Environmental Professionals. 3 hours.

Introductory atmospheric chemistry, aspects of air pollution, chemistry related to natural water and water treatment; priority organic pollutants and heavy metals. Course Information: Same as CME 411. Prerequisite(s): One year of college chemistry.

EOHS 441. Ergonomics and Human Factors. 3 or 4 hours.

The study of principles and techniques associated with ergonomic problems. Topics include human information input and processing, human output and control, and ergonomic considerations in safety. Course Information: Same as IE 441. 3 undergraduate hours; 4 graduate hours. Prerequisite(s): Credit or concurrent registration in IE 342 or consent of the instructor.

EOHS 455. Environmental and Occupational Toxicology. 3 hours.

General and applied toxicology as it relates to environmental and occupational exposures to hazardous agents. Emphasis on basic principles, specific types of toxicity, and major classes of toxic agents. Course Information: Prerequisite(s): CHEM 232 and CHEM 234 and BIOS 100 or the equivalent courses and senior standing or above or consent of the instructor.

EOHS 460. Safety Engineering. 3 or 4 hours.

Human protection systems; accident and emergency handling; manufacturing and service hazard systems. Course Information: Same as IE 461. 3 undergraduate hours. 4 graduate hours. Prerequisite(s): IE 342 and IE 365; or consent of the instructor.

EOHS 461. Environmental Public Health Practice. 3 hours.

Taught primarily from a field perspective. Despite student's background and career pursuit, the knowledge acquired from this course will provide some value to student's career and personal life. Course Information: Prerequisite(s): Completion of the MPH Integrated Core or consent of the instructor.

EOHS 463. Safety Management Systems. 2 hours.

Introduction to practical aspects of initiating a safety program in a moderately sized production plant. Course Information: Prerequisite(s): Consent of the instructor.

EOHS 472. Management of Solid and Hazardous Wastes. 3 hours.

Management of solid and hazardous waste, including radioactive waste: landfills, incineration, recycling, composting, source reduction, groundwater and air pollution impacts, control, regulations, siting, health impacts. Course Information: Same as CME 423, and GEOG 444.

EOHS 475. Health Related Database Design and Analysis. 4 hours.

Introduces students to the design and analysis of health related relational and spatial databases. Course Information: Same as HPA 480. Extensive computer use required. Taught online only. Prerequisite(s): Consent of the instructor. Recommended Background: Strong quantitative background recommended.

EOHS 480. Environmental and Occupational Health Policy. 3 hours.

Introduction to the framework for policymaking in the realm of occupational and environmental health. Focus is on the role of economics, legal/regulatory processes, and ethical issues. Cross-cultural and international differences will be explored. Course Information: Prerequisite(s): Graduate or professional standing; or consent of the instructor.

EOHS 494. Special Topics in Environmental Health. 1-4 hours.

Environmental/occupational topics of current importance to public health: pollution, industrial hygiene, and related topics. Variable course contents arranged to supplement the existing curriculum. Course Information: May be repeated. Students may register in more than one section per term. Undergraduate students with advanced standing may register with consent of the instructor. Undergraduate students with advanced standing may register with consent of the instructor. Prerequisite(s): Consent of the instructor.

EOHS 495. Environmental/Occupational Health Seminar. 1 hour.

Discussions of current environmental health and occupational health topics, with presentations by students, faculty members and visiting scientists.

EOHS 501. Exposure Assessment Strategies. 3 hours.

Statistical, mathematical and conceptual methods for the assessment of individual and population exposures to occupational and environmental stressors. Course Information: Extensive computer use required. Prerequisite(s): IPHS 402 or BSTT 400 or IPHS 404; and IPHS 405.

EOHS 502. Environment, Toxicology, and Disease. 4 hours.

Covers the mechanisms and pathways by which hazards in the workplace and ambient environment cause illness and injury. Fundamentals of: a) toxicology and pathophysiology; b) detection; c) prevention; and d) current research will be the focus. Course Information: Recommended background: EOHS 401 and EOHS 402.

EOHS 503. Occupational Safety. 2 hours.

Introduces students to occupational safety risks and control strategies for eliminating or managing these risks. Course Information: Prerequisite(s): EOHS 401 and EOHS 402 and EOHS 421. Recommended Background: EOHS 425 and EOHS 504.

EOHS 504. Occupational Ergonomics and Biomechanics. 1 hour.

Problem-based study of the principles of occupational ergonomics, exposure and health outcomes, and appropriate control strategies. Course Information: Recommended Background: EOHS 401 and EOHS 402 and EOHS 421 and EOHS 425.

EOHS 505. Occupational Safety and Industrial Health Consulting. 4 hours.

Advance and apply hazard assessment and control through projects to address the variety of public health research methods employed in the context of a population health framework to foster discovery and/or translation of public health knowledge. Course Information: Extensive computer use required. Prerequisite(s): EOHS 421 and EOHS 425 and EOHS 427 and EOHS 501; or consent of the instructor.

EOHS 506. Public Health and Healthcare Emergency Response and Management Operations. 4 hours.

Focuses on response and management skills for public health and healthcare emergency operations with a focus on the assessment tools, concepts, strategies and methodologies used emergency preparedness and response activities. Prerequisite(s): EOHS 406.

EOHS 511. Current Challenges in Water and Health. 2 hours.

Focuses on emerging and re-emerging waterborne threats to public health locally and globally, and new approaches to addressing these threats. Course Information: Prerequisite(s): EOHS 401 and EOHS 402 and EOHS 411; or EOHS 418 or EOHS 553.

EOHS 512. Advanced Water Quality Management Topics. 4 hours.

Water quality management course examining drinking water quality and contaminant discharge topics. Risk assessment methodologies are applied for deriving optimal decisions. Course Information: Extensive computer use required. Prerequisite(s): EOHS 411 or consent of the instructor.

EOHS 521. Aerosol Science and Technology. 3 hours.

Advanced technical skills and theory of aerosol physics required for characterizing aerosol behavior, fate and transport, and measurement considerations in occupational/environmental settings. Course Information: Prerequisite(s): EOHS 421 and EOHS 428; or consent of the instructor. Recommended background: Two semesters of college-level physics.

EOHS 529. Applied Industrial Hygiene and Safety. 2 hours.

Application of methods and best practices in assessing and controlling health and safety hazards in the occupational environment. Course Information: 2 hours. Prerequisite(s): EOHS 405 and EOHS 421 and EOHS 428; and consent of the instructor. Class Schedule Information: To be properly registered, students must enroll in one Discussion and one Practice.

EOHS 530. Current Topics in Occupational and Environmental Epidemiology. 2 hours.

Reviews the literature on health effects of environmental and occupational exposures and integrates our current knowledge with relevant policy issues. Course Information: Same as EPID 530. Meets eight weeks of the semester. Prerequisite(s): EPID 403; or consent of the instructor.

EOHS 532. Air Quality Management II. 2 hours.

Air quality management: Integration of diverse aspects. Data interpretation; standards setting; policy implementation; equipment design; hazardous spill modeling; indoor air pollution; case studies. Course Information: Same as CME 526. Prerequisite(s): EOHS 431 or CME 419.

EOHS 535. Applied Methods in Occupational Epidemiology. 2 hours.

Provides students with knowledge of the study designs, measures, and experience in applying statistical methods commonly used in occupational epidemiology. Includes didactic lectures and case studies. Course Information: Same as EPID 535. Extensive computer use required. Prerequisite(s): Credit or concurrent registration in EPID 404 and EPID 406 and BSTT 401; and graduate or professional standing; or consent of the instructor. Recommended background: EOHS 400.

EOHS 536. Applied Methods in Environmental Epidemiology. 2 hours.

Provides students with experience in environmental epidemiology methodology through review of literature; discussion of study design and analysis; and analysis of existing data from the National Health and Nutrition Examination Survey. Course Information: Same as EPID 536. Extensive computer use required. Prerequisite(s): Credit or concurrent registration in EPID 404 and EPID 406 and Credit or concurrent registration in BSTT 401; and graduate or professional standing; or consent of the instructor. Recommended background: Credit or concurrent registration in EOHS 400.

EOHS 542. Water Chemistry. 4 hours.

Chemical equilibria and kinetic principles as applied to processes occurring in natural and engineered water systems. Course Information: Same as CME 524. Prerequisite(s): EOHS 440 or CME 411.

EOHS 543. Environmental Organic Chemistry. 4 hours.

Properties and behavior of environmental organic pollutants. Theory and estimation techniques. Concepts of environmental fate assessment. Applications of fate models. Course Information: Same as CME 523. Prerequisite(s): EOHS 440 or CME 411.

EOHS 551. Occupational and Environmental Disease. 3 hours.

In this course students will learn about diseases that arise due in part to physical, chemical, and biological hazards in the workplace and the general environment. Course Information: Prerequisite(s): EOHS 400; and EPID 403; or consent of the instructor.

EOHS 553. Global Environmental Health. 2 hours.

Examines the major current issues in occupational and environmental health and their policy solutions. Course Information: Prerequisite(s): IPHS 401 and IPHS 402 and IPHS 403; or IPHS 401 and IPHS 403 and IPHS 404 and IPHS 405; or consent of the instructor. Recommended background: EOHS 411 and EOHS 418.

EOHS 554. Occupational and Environmental Epidemiology. 2 hours.

Methods and issues of environmental epidemiology: outbreak, clusteranalysis, cross-sectional, case-control, cohort, ecological, and time series designs; contemporary issues: cancer and reproductive hazards. Course Information: Same as EPID 554. Prerequisite(s): EPID 401 and BSTT 401 and EOHS 400; or consent of the instructor.

EOHS 555. Advanced Topics in Toxicology. 3 hours.

An in-depth consideration of biotransformation, toxicokinetic modeling, biomarkers, and chemical carcinogenesis. The course is based on articles from the primary literature. Molecular through physiological level effects are considered. Course Information: Prerequisite(s): Grade of B or better in EOHS 455; or consent of the instructor.

EOHS 556. Risk Assessment in Environmental and Occupational Health. 3 hours.

Advanced skills associated with performing environmental and occupational health risk assessments. Covers the four steps of risk assessment in detail. Course Information: Prerequisite(s): EOHS 405; and BSTT 401; and EPID 400 or EPID 403; or consent of the instructor. Class Schedule Information: To be properly registered, students must enroll in one Lecture and one Discussion.

EOHS 563. Occupational Safety and Health Management Systems. 3 hours.

Advanced theory and best practices in the design, implementation, administration, and evaluation of occupational safety and health management systems. Course Information: Prerequisite(s): EOHS 421; or consent of the instructor.

EOHS 564. Geographic Information System Application in Public Health. 3 hours.

Advanced level GIS course to promote critical understanding of the major practices associated with GIS in the many applications areas found in public health. Course Information: Same as HPA 564. Extensive computer use required. This is an on-line course. Prerequisite(s): HPA 465 or HPA 436 or EOHS 436; and consent of the instructor.

EOHS 565. Datamining Applications in Public Health. 3 hours.

Presents the key public health information system sources, describes the process of datamining and introduces the student to a sample of datamining techniques. Course Information: Same as HPA 565. Extensive computer use required. Prerequisite(s): BSTT 400.

EOHS 571. Injury Epidemiology and Prevention. 3 hours.

Covers general principles of injury epidemiology and intervention research and will engage students in development and application of preventive activities in workplaces and in the community. Course Information: Same as EPID 571. Prerequisite(s): Grade of B or better in EPID 400 or Grade of B or better in EPID 403; and graduate or professional standing; or consent of the instructor. Recommended background: Grade of B or better in EOHS 400.

EOHS 572. Environmental Risk Assessment and Management. 4 hours.

Risk assessment from a public health, quantitative and environmental risk management perspective.

EOHS 580. Seminar in Environmental and Occupational Health Policy. 2 hours.

Current topics in environmental and occupational health policy. Course Information: Prerequisite(s): EOHS 480; and graduate or professional standing; or consent of the instructor. Recommended background: Prior policy course.

EOHS 594. Advanced Special Topics in Environmental Health. 1-4 hours.

Environmental/occupational topics of current importance to public health: pollution, industrial hygiene, and related topics. Variable course contents arranged to supplement the existing curriculum. Course Information: Prerequisite(s): Consent of the instructor.

EOHS 595. PhD Seminar in EOHS. 1 or 2 hour.

Students will develop advanced professional and research skills to enable their transition to independent research scientists. Course Information: May be repeated.

EOHS 597. Advanced Laboratory Projects in Environmental Health. 1-4 hours.

Application and integration of sampling and measurement techniques for characterization of inside and ambient environments. Individuals or groups supervised by EOHS faculty members. Course Information: Prerequisite(s): Consent of the instructor.