Environmental and Occupational Health Sciences (EOHS)

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. Ethics and Justice in Environmental and Occupational Health. 2 hours.
Introduction to ethical principles relevant to environmental and occupational health and application of these principles to analyze and interpret environmental and occupational health problems and advocate for social and environmental justice.

EOHS 402. Systems Approach in Environmental and Occupational Health. 4 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. Environmental Calculations. 2 hours.
Problem solving techniques as applied to environmental and occupational health: dimensional analysis, mass and energy balances, trial and error solutions, numerical and graphical techniques. Course Information: Recommended background: Mathematics through calculus, college physics and chemistry.

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 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 471. 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 472. 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 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. Basic Environmental Health and Safety. 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. 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 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 542. Prerequisite(s): EOHS 440 or CME 411.

EOHS 543. Environmental Organic Chemistry. 4 hours.

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, cluster analysis, 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 557. Environmental Epidemiology. 3 hours.
Examines the major current issues in occupational and environmental epidemiology. Includes didactic lectures and case studies. Course Information: Same as EPID 557. Extensive computer use required. Prerequisite(s): Grade of B or better in EOHS 400.

EOHS 558. 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 559. 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 565. Datamining Applications in Public Health. 3 hours.
Prepares students to apply datamining techniques to public health big data. Course Information: Same as HPA 565. Extensive computer use required. Prerequisite(s): BSTT 401 and BSTT 402 and IPHS 401; or concurrent registration in IPHS 401 and IPHS 404 and IPHS 405.

EOHS 566. Geographic Information System Application in Public Health. 3 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 CME 526. Prerequisite(s): EOHS 431 or CME 411.

EOHS 567. Environmental Risk Assessment and Management. 4 hours.
Risk assessment for public health, quantitative and environmental risk management perspective.

EOHS 568. Geographic Information System Application in Public Health. 3 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 CME 526. Prerequisite(s): EOHS 431 or CME 411.

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.