

ENVIRONMENTAL, AGRICULTURAL & OCCUPATIONAL HEALTH (ENV)

ENV 800 ELEMENTS OF INDUSTRIAL SAFETY FOR HEALTH SCIENCES 3 Credit Hours

An introduction to safety in the general work environment with emphasis on selected OSHA safety regulations, human costs of injuries, safety programs and management, field trip work observations, risk assessment, hazard/risk communications. No previous experience or coursework in safety is required.

Prerequisite: ENV 892 or equivalent introductory environmental health sciences course, permission of instructor.

Cross List: CPH 590.

Typically Offered: SPRING

ENV 801 INTRODUCTION TO GIS IN PUBLIC HEALTH 3 Credit Hours

This course is designed to examine human-environment interactions and the influence of these interactions on public health in today's data-driven health care systems. Spatial data and information from spatiotemporal data can be a vital asset in answering the where, when, and why questions related to various health outcomes. This course will utilize a Geographical Information System (GIS) to visualize, analyze, manage, and present data. By implementing GIS tools and methods, healthcare providers, public health practitioners, and government agencies can gain a detailed perspective on large-scale and trending health issues such as the COVID-19 pandemic. Topics will be taught in the context of public health, with lectures and examples focused on public health (e.g. determinants of health, health care access, infectious disease epidemiology, environmental exposures, etc.) and supplemented with public health related journal articles to integrate the topics discussed with real world applications.

Prerequisite: None. This course requires no prior knowledge of ArcGIS. A basic understanding of public health, epidemiology, and biostatistics is preferred.

Cross List: CPH 601

Typically Offered: FALL

ENV 804 HUMAN FACTORS AND ERGONOMICS FOR WORK ENVIRONMENTS 3 Credit Hours

An introduction to fundamental concepts of physical work, human abilities and capabilities (ergonomics) including psychological and cognitive aspects of human work performance (human factors) for the reduction of occupational injuries and illnesses, reduced costs, productivity improvement, worker well-being and longevity, quality of work life, and job satisfaction.

Prerequisite: Graduate student status in health sciences or related discipline and permission of instructor.

Cross List: CPH 592.

Typically Offered: FALL

ENV 811 AGRICULTURAL HEALTH AND SAFETY 3 Credit Hours

Agricultural Health and Safety

Cross List: CPH 511.

Typically Offered: SUMMER

ENV 812 PRINCIPLES OF FOOD SAFETY 3 Credit Hours

This course is intended for graduate students and health professionals who have an interest in understanding the complexities of preventing foodborne illness. There are no pre-requisites for this course, however the participants should be comfortable discussing themes that include basic scientific concepts, including chemistry and microbiology. This course is designed to ground the graduate student, professional student, or fellow in an understanding of the multifaceted responsibilities and science behind protecting the public's health through food safety. Major topics to be covered include sources, prevention, detection, management, and regulation of foodborne illness.

Cross List: CPH 600.

Typically Offered: SUMMER

ENV 813 PRINCIPLES OF BIOSAFETY 3 Credit Hours

This course is designed for graduate students and health professionals to explore biosafety principles and practices with the purpose of developing a Biorisk Management approach to biosafety. This will enable participants to "effectively identify, monitor and control the laboratory biosafety and biosecurity aspects of activities. This integrated education will allow the student to recognize risky activities from unintentional and intentional incidents involving biological materials and develop mitigation strategies to reduce exposures to these materials. The student will participate in hands on training using engineering controls as well as administrative controls. Competencies in donning and doffing personal protective equipment and use of a biosafety cabinet will be discussed and assessed. Participants will also learn how to develop a risk mitigation plan following the identification of hazards and risk assessment. The targeted audience include doctoral students interested in occupational health, researchers, professional students, and the biosafety profession.

Cross List: CPH 599

Typically Offered: FALL

ENV 814 FUNDAMENTALS OF INDUSTRIAL HYGIENE 3 Credit Hours

This course provides fundamental knowledge to the graduate student, or fellow who may be interested in pursuing a career in occupational health and safety. The course is also designed for safety, health, environmental and management personnel who have industrial hygiene effort; anticipation, recognition, evaluation and control. Topics include chemical, physical, and biological hazards in the workplace.

Cross List: CPH 598

Typically Offered: FALL

ENV 816 ENVIRONMENTAL EXPOSURE ASSESSMENT 3 Credit Hours

The course will allow students to develop their understanding and knowledge of exposure assessment methods and the application of these methods to substantive issues in occupational and environmental health. The course emphasizes methodological principles and good practice, and highlights the many similarities and some interesting differences between occupational and environmental health.

Prerequisite: ENV 892 or equivalent introductory environmental health sciences course, BIOS 806 or equivalent introductory biostatistics course, permission of instructor.

Cross List: CPH 594.

Typically Offered: FALL

ENV 888 PRINCIPLES OF TOXICOLOGY 3 Credit Hours

An introduction to the principles and methods that are used to determine whether an adverse effect is a result of exposure to a specific agent. A primary purpose of toxicology is to predict human toxicity and human health risk assessment relies heavily on toxicological data obtained from animal studies. This course covers basic mechanisms of toxicity as they pertain to whole organisms, organ systems, and specific toxic agents.

Cross List: CPH 597

Typically Offered: SPRING

ENV 892 PUBLIC HEALTH ENVIRONMENT & SOCIETY 3 Credit Hours

An introduction to environmental factors (including biological, physical and chemical factors) that affect the health of a community. The main focus will be the effects of exposures that have been associated with human health and environmental problems in the Midwest, specifically water and air pollutants related to animal feeding operations, arsenic in ground water, pesticides, herbicides, lead and radiation. The effects of global warming, ergonomic problems in the meat packing industry and occupational and environmental problems in health care will also be discussed.

Cross List: CPH 503.

Typically Offered: FALL

ENV 896 RESEARCH OTHER THAN THESIS ENVIRONMENTAL, AGRICULTURAL AND OCCUPATIONAL HEALTH 1-4 Credit Hours

This course is for more advanced students who wish to pursue their research interests in selected areas of Environmental, Agricultural Occupational Health

Cross List: CPH 617.

Typically Offered: FALL/SP/SU

ENV 898 SPECIAL TOPICS IN ENVIRONMENTAL, AGRICULTURAL AND OCCUPATIONAL HEALTH 1-4 Credit Hours

A course designed for Masters students that focuses on selected topics or problems in Environmental, Agricultural, and Occupational Health.

Cross List: CPH 619

Typically Offered: FALL/SP/SU

ENV 902 DOCTORAL SPECIAL TOPICS 1-4 Credit Hours

A course designed for PhD students in Environmental, Agricultural, and Occupational Health and other graduate students that focuses on selected topics or problems in Environmental, Agricultural, and Occupational Health. z

Prerequisite: Permission of instructor.

Typically Offered: FALL/SP/SU

ENV 903 INJURY EPIDEMIOLOGY 3 Credit Hours

In this course, students will learn about the incidence, characteristics, risk factors, populations at risk, control measures, and research methods related to injuries. The course includes lectures and presentations by faculty and students. Students will apply this knowledge throughout the course by completing assignments, analyzing data, and preparing a manuscript for publication in a peer-reviewed journal. The primary target audience for this course is doctoral students interested in injury and illness epidemiology. Pre-req: ENV 892, EPI 845, BIOS 810

Instructor: Risto Rautiainen , PhD Lorena Baccaglini, PhD, DDS, MS, NE-CPHT

Typically Offered: FALL

ENV 904 ENVIRONMENTAL POLICY 3 Credit Hours

Environmental policy is made and carried out by a diverse set of individuals, groups, and interests. Policy formation and implementation becomes a process of bargaining and negotiation. controlled partly by the character of the participants and partly by the nature of the arenas in which action takes place. In this course graduate students with an interest in environmental health and policy will apply several conceptual frameworks through case studies of federal, state and local action to environmental health Issues such as air pollution, wildlife, toxic substances. and provide an important view of the historical development of key environmental policies, including the Clean Water Act and the Clean Air Act. Pre-reqs: ENV 892

Typically Offered: SPRING

ENV 905 CLIMATE CHANGE AND HUMAN HEALTH 3 Credit Hours

This course is designed for doctoral students in environmental health who have an interest in climate change. Any graduate student with an interest in climate change may take this course. This course explores the science of climate change. Students will learn how the climate system works, the use of models, observations and theory to make predictions about future climate, and the connection between human activity and the current warming trend. The course also explores strategies to communicate the science of climate change to diverse stakeholders.

Prerequisite: ENV 892, EPI 845, BIOS 808

Typically Offered: FALL

ENV 908 THERMAL STRESS IN THE WORK ENVIRONMENT 3 Credit Hours

In this course, students will learn about the health effects, measurement, and control of health and cold stress in the work environment, and emerging technology related to smart clothes and wearable technology. Students will also learn how to develop a thermal stress program. The targeted audience will include doctoral students interested in occupational health, and professional students.

Prerequisite: ENV 892; ENV 816

Typically Offered: SUMMER

ENV 909 OCCUPATIONAL NOISE EXPOSURE AND HEARING LOSS 3 Credit Hours

In this course, students will learn about the health effects, measurement, and control of occupational noise exposure, and emerging technology related to smart phones and wearable technology. Students will also learn how to provide hearing tests, read audiograms, and perform fit testing of ear plugs. The targeted audience include doctoral students interested in occupational health, profession students, and nursing students. Upon completion of this course, students may take an external examination administered by the Council for the Accreditation of Occupational Hearing Conversationists (CAOHC) to earn the credential of "Certified Occupational Hearing Conservationist (COHC.)"

Prerequisite: ENV 892; BIOS 806

Typically Offered: SPRING

ENV 912 RISK ASSESSMENT AND TOXICOLOGY 3 Credit Hours

Human health risk assessment is the process of analyzing information to determine whether an environmental hazard might cause harm to exposed persons. This course is designed for doctoral students interested in the environment and toxicology. It is opened to any graduate or professional student Major topics to be covered include the EPA risk assessment model, and risk assessment of air, water, and food pollutants. Pre-reqs: ENV 892, ENV 888

Typically Offered: FALL

ENV 913 ENVIRONMENTAL PATHOLOGY 3 Credit Hours

This course will enable students to understand the impact of environmental exposures on the organ and tissue injury responsible for human disease. The environmental exposures covered in the course will consist of the subject areas of air pollution, pneumoconiosis, chemical and drug exposures, and physical agents. The course will cover all aspects of environmentally-induced disease symptom manifestation, corresponding pathology and histology characterizing injury and repair, and the molecular, biochemical, and cellular mechanisms responsible for environmental exposure-mediated injury. This course will accent, but not overlap, the mechanisms of toxicology learned in other courses by expanding the student's knowledge of how these exposures injure the body leading to disease. The course is designed for doctoral students in Environmental and Occupational Health and Toxicology. This course may also be of interest to doctoral students in Pathology. Pre-req: ENV 892, ENV 888

Typically Offered: SPRING

ENV 914 CHEMICAL CARCINOGENESIS 3 Credit Hours

This course is designed to prepare the graduate student, professional student, or fellow to evaluate the effects of chemical carcinogens, and conduct cancer-related research. Major topics to be covered include chemical carcinogens, multistep carcinogenesis, biomonitoring of human exposure, and chemoprevention of cancer. In this course students will learn about the characteristics of chemical carcinogens, how they cause cancer, the role of oxidative stress and other biological factors in carcinogenesis, various model systems for investigating carcinogens. Strategies to prevent cancer by chemoprevention will also be discussed. This course will provide students with tools to evaluate environmental carcinogens, conduct research to understand their action and/or explore chemoprevention of various types of cancer.

Prerequisite: ENV 888 or equivalent.

Typically Offered: SPRING

ENV 950 ADVANCED TOXICOLOGY 3 Credit Hours

This course deals with the adverse effects of chemicals on biological systems. Physiological and biochemical mechanisms of toxicity at the cellular and subcellular levels will be emphasized.

Prerequisite: Permission of instructor and ENV 888 or equivalent.

Cross List: PHSC 950

Typically Offered: FALL

ENV 970 SEMINAR 1 Credit Hour

Attendance at weekly seminars offered by the department/program, or other activities specific to the degree program (contact the program director for more information).

Typically Offered: FALL/SPR

ENV 996 DIRECTED READINGS AND RESEARCH 1-9 Credit Hours

This course is specific to doctoral level work in the College of Public Health. Content of this independent study may include research other than dissertation, directed readings, and other study of a doctoral level all under the supervision of a graduate faculty member.

Prerequisite: Doctoral student status and program permission.

Typically Offered: FALL/SP/SU

ENV 999 DOCTORAL DISSERTATION 1-6 Credit Hours

Independent student research related to the PhD dissertation. This course may be utilized before or after successful completion of the comprehensive exam.

Prerequisite: must be ENV graduate student

Typically Offered: FALL/SP/SU