PHEO - PUBLIC HLTH ENVIRO

PHEO 600 Principles of Environmental and Occupational Health

Credits 3. 3 Lecture Hours. Overview of nature and magnitude of environmental and occupational disease; sources of exposure, methods of monitoring and modeling exposure; review of target organs and potential effects of specific chemicals; discussion of workplace hazards and monitoring programs.

PHEO 605 Chemical Hazard Exposure

Credits 3. 3 Lecture Hours. Methods for sampling hazardous chemicals in various environmental media; planning the sample collection; analytical process to ensure that data quality is sufficient to meet project objectives; Data Quality Objectives; development of a QAPP and QA/QC protocols including data validation. May be taken two times for credit. **Prerequisite:** Graduate classification.

PHEO 610 Toxicology in Public Health

Credits 3. 3 Lecture Hours. Concepts of toxicology in public health; emphasis on environmental and occupation exposures; distribution, absorption, metabolism and elimination of toxicants; mechanisms of injury at the cellular, organ and systemic level following exposure to toxic chemicals; exposure assessment/risk assessment for non-toxicologists and the use of toxicology in decision-making. May be taken two times for credit. **Prerequisite:** PHEO 630.

PHEO 612 Global Environmental Health

Credits 3. 3 Lecture Hours. Review of the globalization and transformation of local problems into international issues; environmental problems that developing and underdeveloped countries face due to overpopulation, lack of natural resources and lack of proper ways or technologies to dispose of hazardous wastes. **Prerequisite:** Graduate classification.

PHEO 613 Introduction to Environmental Health Disparities

Credits 3. 3 Lecture Hours. Disproportionate burdens of environmental contamination, whether urban or rural, and the environmental health inequalities affecting communities of color; history and politics of environmental justice movements in the U.S., and other parts of the world with a focus on the methods and materials used in the study of environmental racism, environmental risk, and sustainable development; empirical evidence on distributions of environmental quality and health, enforcement of regulations, access to resources to respond to urban, rural, and industrial problems, and the broader political economy of decision-making around environmental and health issues.

PHEO 615 Environmental Measurement

Credits 3. 3 Lecture Hours. Theory and practice of analytical methods used in the study of environmental sciences; data quality of objectives, instrumental and wet chemical techniques used in measurement of environmental quality parameters and contaminants. **Prerequisite:** College-level chemistry or approval of instructor.

PHEO 618 Occupational Safety

Credits 3. 3 Lecture Hours. This course is designed to provide students with an understanding of occupational safety and health topics they will encounter as safety professionals. Students will gain experience and knowledge in the areas of construction safety, fall protection systems, aerial lift safety, emergency response communication, hazard identification, accident investigation techniques, OSHA regulations, their role as a safety professional during an OSHA inspection, workers compensation, safety in rural and developing areas and ethics in safety.

PHEO 621 Transport and Persistence of Contaminants in the Environment

Credits 3. 3 Lecture Hours. Fundamental concepts for understanding fate, transport and persistence of contaminants in the environment; models used to estimate environmental concentrations of chemicals of human health concern; contaminant concentration and duration that affect human exposure and ecosystem health; short and long term impact of accidents of environmental and public health concern. **Prerequisite:** Graduate classification.

PHEO 625 Environmental and Occupational Health Survey Methods

Credits 3. 3 Lecture Hours. Examination of discipline specific concepts, principles and methodologies that govern environmental and occupational survey methodology. **Prerequisite:** PHEO 600.

PHEO 630 Environmental/Occupational Diseases

Credits 3. 3 Lecture Hours. Identification, evaluation and quantification of risk factors for environmental and occupational diseases, using classic and current examples of exposures involving chemical, physical and biologic agents; selection of appropriate design and groups; exposure assessment, including biomarkers and molecular dosimetry; genetics, gender, age, socioeconomic and other factors affecting susceptibility. May be taken two times for credit. **Prerequisite:** College-level mathematics.

PHEO 639 Hazardous Materials Management and Compliance

Credits 3. 3 Lecture Hours. Types of hazardous materials; system of environmental laws governing management of hazardous materials as well as contaminants in air, water and solid waste; appropriate management and regulatory compliance; hazardous materials spills and response; hazard communication and right-to-know regulations; hazard communication benchmarking and performance criteria. **Prerequisites:** Graduate classification.

PHEO 640 Industrial Hygiene

Credits 3. 3 Lecture Hours. Considers methods to measure and reduce workplace hazards; evaluation of engineering controls and personal protective equipment; includes potential chemical, physical, ergonomic and biological exposures. Review of major legislation affecting workplace environment. **Prerequisites:** Graduate classification.

PHEO 645 Health and Safety at Hazardous Waste Sites

Credits 3. 3 Lecture Hours. Course covers OSHA compliance issues related to the protection of personnel engaged in on-site remediation activities. Students who satisfactorily complete the course meet the requirements for initial training under 20 CFR 1910.120 (HAZWOPER) and receive a certificate. Hands-on activities/workshops in the areas of personal protective equipment selection and use, sources of chemical information, decontamination procedures, air monitoring equipment, materials handling, and health and safety planning. Lab fee required.

PHEO 650 Risk Assessment I

Credits 3. 3 Lecture Hours. Introduction to the general methodology of Quantitative Risk Assessment; introduction to methods of modeling exposure and selection of toxicity values, as well as risk characterization; utilization of case studies to learn the general methods of risk assessment; reviews the importance of and methods for risk communication and management. May be taken two times for credit. **Prerequisite:** Graduate classification.

PHEO 655 Human Factors

Credits 3. 3 Lecture Hours. Basic understanding of the theory and practice of human factors as well as application of these to an industry project; topics presented within the framework of humans being part of a functioning systems.

PHEO 674 Environmental and Occupational Health Research Methods

Credits 3. 3 Lecture Hours. Topics in occupational and environmental health research methods including research design, sampling, data collection, exposure assessment and measurement. **Prerequisites:** Graduate classification.

PHEO 675 Water and Environmental Public Health

Credits 0 to 3. 0 to 3 Lecture Hours. Broad understanding of the elements of water and environmental public health and how these major environmental issues affect our society; examination of water-related health issues, scientific understanding and causes and associations, and possible future approaches to understanding the major environmental health problems in developed and developing countries.

PHEO 676 Environmental Sustainability and Public Health

Credits 3. 3 Lecture Hours. Fundamental understanding of the relationship between environmental sustainability and population. Examples include: nexus between water, energy, and food nexus influence on environmental sustainability and subsequently effect on public health. **Prerequisite:** Graduate classification.

PHEO 678 Occupational Biomechanics

Credits 3. 3 Lecture Hours. This course will focus on research methods in occupational biomechanics to understand and identify/analyze underlying risks associated with the development of work-related musculoskeletal disorders. Topics will include assessing injury risk, balance and posture control, human motion analysis, muscle activity, fatigue, and ergonomics for special populations such as the aging and obese. Students will become familiar with the use of laboratory experimental methods and existing field-friendly ergonomic evaluation techniques.

PHEO 679 Ergonomics of the Upper Extremities

Credits 3. 3 Lecture Hours. Fundamental topics upon which models for the prevention and control of distal upper extremity disorders are constructed. Focus is on topics including human anatomy, neurophysiology, electrophysiology and worker capacity evaluation.

PHEO 681 Seminar in Environmental and Occupational Health

Credit 1. 1 Lecture Hour. This course reviews the foundational literature on environmental and occupational health (EOH). The course will begin with an introductory look at the literature from broad topics followed by specific reviews of current departmental research topics and those found in industry. The course will also examine the application of EOH in public health research and its application to public health practice and commercialization of ideas for supporting efforts to improve environmental and occupational health.

PHEO 682 Industrial and System Safety

Credits 3. 3 Lecture Hours. Course covers general concepts and techniques of safety upon which more detailed and advanced applications may be based. In addition, concepts will include current system safety analysis techniques, failure mode and effect and fault tree analysis, as well as economic analysis for presentation of alternative solutions for problem solving. **Prerequisite:** Approval of instructor.

PHEO 683 Advanced Research Methods in Environmental and Occupational Health

Credits 3. 3 Lecture Hours. Advanced topics in occupational and environmental health research methods including community randomized trials, intervention development, environmental audit tools and systematic observations. **Prerequisite:** PHEO 674 or equivalent.

PHE0 684 Practicum

Credits 1 to 15. 1 to 15 Other Hours. Field placement experience in which students work closely with a departmental faculty member and appropriate field professional(s), applying skills and techniques acquired through course work. May be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Approval of academic advisor.

PHEO 685 Directed Studies

Credits 1 to 12. 0 Lecture Hours. 1 to 12 Other Hours. Investigation of a topic not covered by other formal courses; conducted under the direction of a graduate faculty member. May be repeated for credit. **Prerequisite:** Graduate classification; School of Public Health major.

PHEO 686 Directed Research

Credits 1 to 3. 0 Lecture Hours. 1 to 3 Other Hours. Student research initiative not within the scope of a thesis or dissertation. May be repeated for credit. **Prerequisite:** Approval of student's academic advisor.

PHEO 689 Special Topics In Environmental And Occupational Health

Credits 1 to 4. 1 to 4 Other Hours. Revolving topics seminar in an area of specialization within the department. May be repeated for credit.

PHE0 691 Research

Credits 1 to 23. 0 Lecture Hours. 1 to 23 Other Hours. Research for thesis or project. May be repeated for credit. Must be taken on a satisfactory/ unsatisfactory basis. **Prerequisite:** Graduate classification; School of Public Health major.

PHEO 791 Doctoral Capstone

Credits 1 to 23. 0 Lecture Hours. 1 to 23 Other Hours. Research for doctoral dissertation. May be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. **Prerequisite:** Graduate classification; School of Public Health major.