

NH 405 Eating Disorders (2)

Introduction to eating disorders, correlated issues, and treatment. Anorexia nervosa, bulimia nervosa and binge eating disorder to be examined. Topics include development risk factors, health consequences, prevention and intervention strategies.

Prerequisite: NH 301, NH 330, NH 331.

NH 446 Food Toxicology (3)

Introduction to the basic principles of Food and Nutritional Toxicology. Overview of concepts of the dose –response relationships, absorption, metabolism, and elimination of toxicants. Chemicals in foods such as hormones, pollutants, pesticides, food additives, bacterial and fungal toxins will be discussed. USDA Food laws and regulations analyzed.

Prerequisite: NH 301, NH 330, NH 331.

Occupational Safety and Health

Director: *Charles W. McGlothlin, Jr.*

Associate professor: *Richard J. Rożek*

Assistant professor: *Aaron Bird*

Special Instructor: *Charles W. McGlothlin, Jr.*

Adjunct associate professor: *John M. Hoffmann*

Adjunct assistant professor: *Thomas W. Schenk*

Adjunct instructors: *Michael Everett, Patrick R. Frazee, Darryl C. Hill, Laurie A. Rudolph, Scott Tolmie*

Occupational safety and health is a specified branch of the health professions focusing on the workplace environment and on the behavior of workers. Protecting America's workers and the general public from injury and illness in today's age of technological advancement has become one of the most challenging and rewarding professions available. Occupational safety and health professionals strive to identify, evaluate and eliminate or control hazards which expose people, property or the environment to danger or harm. This professional is concerned with prevention of injuries or occupational diseases that may occur with the interaction between the worker and the chemical, physical, biological, ergonomic, mechanical, electrical and other forces in the work environment. In addition, the safety professional is involved in the prevention of accidents that could cause property or environmental damage.

The Occupational Safety and Health (OSH) program is multi-disciplinary in nature, providing students with relevant exposure to basic sciences and behavioral science subjects as well as a thorough introduction to occupational safety and industrial hygiene concepts. A one-semester internship in the senior year of the program provides students with first-hand field experience in the practice of occupational safety and health. Internship placements are coordinated by the program director and include, manufacturing, insurance, construction, service, consulting, labor and government organizations.

Graduates of the program will find employment opportunities within a wide variety of occupations to include: health care facilities; industrial firms; construction companies; insurance companies; professional associations; local, state, and federal government; and labor organizations. Oakland's proximity to many of the national's leading industrial companies provides a wealth of experiential learning opportunities throughout the OSH curriculum, particularly for the internship placements. These world class companies also offer employment opportunities to the OSH graduate.

Program educational objectives

The Occupational Safety and Health program contributes to the institution's mission by offering a high quality baccalaureate degree that meets and exceeds the educational outcomes-based criteria

established by the American Society of Safety Engineers for a B.S. degree in a safety-related career field. **This degree program is accredited by the Applied Science Accreditation Commission of ABET.** The educational objectives of the Occupational Safety and Health program are designed to prepare students to:

1. enter the industrial health and safety profession as a generalist with the skills necessary for success;
2. use the techniques, skills, and modern scientific and technical tools necessary for professional practice;
3. become proficient in written composition and oral communications;
4. apply knowledge of mathematics and science to analyze and interpret data necessary to resolve safety and health related issues;
5. anticipate, identify, and evaluate workplace hazardous conditions and practices;
6. formulate hazard control designs, methods, procedures, and programs;
7. function effectively on multi-disciplinary teams.
8. recognize the impact of solutions within a global and societal context.
9. understand ethical and professional responsibility;
10. successfully pursue graduate study in safety and health; and
11. appreciate the need to continue professional development through graduate study, professional certification, and to become life-long learners.

Requirements for the B.S. degree with a major in Occupational Safety and Health

Students seeking the Bachelor of Science degree with a major in Occupational Safety and Health must complete a minimum of 125 credits, including the following requirements:

1. Meet the university general education requirements (see Undergraduate degree requirements). Note that several courses under #3 below satisfy general education requirements and Occupational Safety and Health degree requirements. See courses marked with “*”.
2. Complete the university U.S. diversity requirement. For Occupational Safety and Health majors, this requirement is satisfied by completing HS 302.
3. Complete the occupational safety and health required courses: BIO 104, CHM 104, CHM 201, OSH 141, STA 225*, PHY 120*, HS 201*, 302; PSY 100*; ENV 354*, MGT 110*, HRD 320, HRD 322, PHL 103*, and WRT 382.
4. Complete the major courses: OSH 100, 225, 235, 331, 332, 333, 334, 335, 336, 441, 442, 443, 444, 445, 446 and 499. (OSH 499 may only be taken with permission of the OSH program director).
5. Complete all math and science prerequisite courses within the Occupational Safety and Health curriculum and all Occupational Safety and Health required OSH courses with grades of 2.0 or higher.

Minor in occupational safety and health

A minor in Occupational Safety and Health is available to complement other majors in the School of Health Sciences and in other programs, such as environmental health, human resource development, engineering, biology or chemistry. A minimum of 26 credit hours is required for a minor in Occupational Safety and Health. Courses required for the minor include: OSH 100, 225, 235, 331, 332, 334, 335, 336, 441 and 442. In addition, an internship is recommended to enhance job placement.

Grade point policy

Occupational Safety and Health majors must achieve minimum course grades of 2.0 in science core prerequisite courses and in required OSH courses. A final course grade below 2.0 places a student on probation, which requires a meeting with the program director or a designated representative to discuss a method of remediation. In most cases, the method of remediation involves repeating the course in which the unsatisfactory grade was earned. See *Repeating courses* for additional information.

Course Offerings

The program offers selected courses from this catalog as warranted by student needs and availability of faculty. Specific offerings for each term may be found in the *Schedule of Classes*.

OSH 100 Introduction to Occupational Safety and Health (1)

Introduces students to various occupational environments through site visits and/or guest speakers and provides first hand experience of how health and safety professional function in the workplace.

Prerequisite: none.

OSH 115 Safety and Health at Work (2)

A general introduction to safety and health on the job including injury and illness prevention, emergency response, accident investigation, relevant legislation, and current topics. It is recommended for business, engineering, prelaw, health professions or general studies students. Due to its condensed nature, it may not be used to meet OSH major requirements.

Prerequisite: None.

OSH 141 Quantitative Methods for Occupational Safety and Health (4)

Application of frequently applied equations, statistical procedures, and analytical tools used for occupational safety and health assessments.

Prerequisite: none.

OSH 225 Occupational Safety and Health Training Methods (3)

Provides in-depth study of training methods required to conceptualize, prepare, deliver and evaluate training directed at the adult learner. Course includes hands-on experiences in conducting a training needs assessment, establishing learning objectives, developing curricula, pertinent to needs of participants using different types of media and developing training evaluation tools.

Prerequisite: none.

OSH 235 Occupational Safety and Health Standards (3)

Current regulations and standards promulgated by the Occupational Safety and Health Administration of the U.S. Department of Labor, with specific emphasis on Michigan safety and health standards.

Prerequisite: none.

OSH 245 Work Processes and Practices (3)

In depth study of practices and processes used in workplaces. Course is split between in-class sessions and on-site visits to workplaces.

Prerequisite: none.

OSH 331 Safety and Health Engineering and Technology (3)

Safety principles and practices in the industrial environment. Engineering and technical information are discussed.

Prerequisite: none.

OSH 332 Safety and Health Administration and Programs (3)

Management aspects of the industrial environment. Administration techniques, governmental regulations, and programs for health and safety management are discussed.

Prerequisite: none.

OSH 333 Fire Prevention and Protection (3)

Fundamentals of flame generation and propagation, fire behavior in open and confined spaces, theory of fire fighting methods, fire detection and suppression, property loss control and life safety.

Prerequisite: OSH 331 or OSH 332 or instructor permission.

OSH 334 Industrial Environment I: Evaluations (3)

Basic concepts in the recognition, measurement and evaluation of chemical, physical (noise, radiation, extreme thermal conditions, etc.) and biological (blood borne pathogens, allergens, etc.) hazards in the industrial environment.

Prerequisite: CHM 201, PHY 120.

Corequisite: OSH 336.

OSH 335 Industrial Environment II: Controls (3)

Principles and practices on the control aspects (engineering, administrative, and personal protection) of chemical, physical and biological hazards in the industrial environment.

Prerequisite: OSH 334.

OSH 336 Industrial Environment Lab (1)

Quantitative monitoring techniques for measuring and evaluating environmental stress in the Industrial workplace.

Corequisite: OSH 334.

OSH 342 Advanced Quantitative Methods for Occupational Safety and Health (4)

Provides in-depth application of equations, statistical procedures, and analytical tools for occupational safety and health assessments. Includes discussion of tools for occupational safety and health assessments. Includes discussion of appropriate methods for analyzing deterministic and probabilistic data sets generated from studies in epidemiology, exposure assessment, vapor and particulate transport, and sound-level measurements.

Prerequisite: OSH 141 with a minimum gpa of 2.0 or higher.

OSH 351 Noise Control and Measurement (2)

Study of the impact of noise on the human body and techniques for measuring noise levels. Design of noise controls. Includes discussion of pertinent federal and state regulations concerning noise exposures in workplaces.

OSH 423 Radiation Safety (3)

Safety aspects of occupational hazards associated with the use of ionizing radiation in industry. Methods for the identification, evaluation and control of potential worker overexposure conditions will be reviewed. Biological effects of acute and chronic worker exposure will also be reviewed.

Prerequisite: OSH 335, PHY 120, or instructor permission.

OSH 434 Occupational Ventilation (4)

Provides in-depth study and practice of the design and evaluation of ventilation systems used in manufacturing, laboratories, and service/processing environments for removal of harmful airborne vapors and particulate matter.

OSH 435 Radiation Exposure Control (2)

Overview of ionizing and non-ionizing radiation sources, their potential health effects, and their control. Course will also include discussion of electromagnetic fields and radio frequencies in regards to effects on human health.

OSH 441 Accident/Incident Investigation and Analysis (3)

A review of methodologies for accident and incident investigation and analysis. Topics include data collection, investigative methodologies, interviewing techniques, techniques of data analysis, reporting formats, systems safety, and developing recommendations to prevent recurrence.

Prerequisite: OSH 332 or instructor permission.

OSH 442 Construction Safety (3)

Construction safety practices and principles with an overview of program development, legislative issues and special concerns of the construction industry with respect to worker safety.

OSH 443 Robotic and Automation System Safety Analysis (3)

Information and issues related to worker safety in industrial environments where robots are used. The state-of-the-art of advanced automation will be surveyed, with emphasis on system safety and injury prevention features required to assure an adequate worker/robot interface.

Prerequisite: OSH 331 or instructor permission.

OSH 444 Environmental Standards (3)

Examines air, water, hazardous waste, pesticide and chemical regulatory standards. Topics will be analyzed in terms of standard development, enforcement at state and federal levels, and the validity of the standard's ability to protect health and the environment.

OSH 445 Introduction to Ergonomics (3)

Ergonomics and related change management concepts; anthropometry, biomechanics, metabolic energy expenditure, capabilities and limitations of workers; design and analysis of the workplace, hand tools, controls and products; application of the NIOSH lifting guidelines and other standards.

Prerequisite: BIO 104 or WHP 300 and WHP 305. Crosslisted with WHP 420.

OSH 446 Industrial and Environmental Toxicology (3)

Introduction to the basic concepts and techniques of toxicology, with special attention given to the industrial environment. Evaluation of the toxic effects of substances and toxic responses to various substances. Principles of toxicology applied to biological systems: exposure, biotransformations, mechanisms of toxicity, dose-response relationships and factors influencing toxicity. Identical with ENV 446. *Satisfies the university general education requirement for a writing intensive course in the major.*

Prerequisite for writing intensive: completion of the university writing foundation requirement.
Prerequisite: an organic chemistry course.

OSH 480 Special Topics in Occupational Safety and Health (2, 3, or 4)

Instructor initiated research and investigation into current topics of special interest in the career field of occupational safety and health.

Prerequisite: program director permission.

OSH 490 Directed Study and Research in Occupational Safety and Health (1, 2, 3 or 4)

Student initiated and problem-oriented independent research and study focusing on occupational safety and health issues. May be repeated for additional credit. Graded S/U.

Prerequisite: program director permission.

OSH 499 Occupational Safety and Health Internship (4)

An experiential learning capstone in Occupational Safety and Health in close collaboration with professional health and safety practitioners to expose the intern to health and safety problem identification, evaluation, and control and to health and safety program planning and evaluation. May only be taken by students with major standing and minimum 2.0 GPA in all OSH courses. Graded S/U.

Prerequisite: program director permission.

Physical Therapy

(See requirements for the B.S. in Health Sciences with a pre-physical therapy concentration)

Director: Kristine A. Thompson