

# Department of Environmental Health

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The Department of Environmental Health offers a graduate program leading to the MS degree in Environmental Sciences (Major: Environmental Health). For details regarding the MS degree, refer to the Master Degree Program in Environmental Sciences section of this catalogue.

In view of the increasing interest in development and its impact on the human environment, a variety of courses offered by this department are made available to students in other fields.

Graduates of the MSES-Environmental Health program may occupy senior or intermediate posts in the following:

- governmental agencies, such as the Ministry of Health, Ministry of the Environment, municipalities or health centers
- the private sector, which offers a variety of job opportunities in industry, research institutions, universities, schools and private businesses
- international agencies

## **ENHL 301 Environmental Health and Sustainable Development 1.0; 1 cr.**

The course introduces the field of environmental health and highlights its role in contributing to sustainable development. Students discuss the environmental system and the interactions of its physical, socio-economic and political components impacting human health and ecologic vitality. Emphasis is placed on assessing, preventing, and controlling environmental hazards that pose major risks to humans, animals and ecosystems.

## **ENHL 307 Food Safety and Health 3.0; 3 cr.**

The course focuses on the safety and management of processed food products. It addresses the advantages and limitations of food processing techniques and, in specific, the application of food additives. Areas covered relate mainly to food safety and quality control, health impacts, types and limitations of food processing methods, use of food additives, exposure estimation, toxicological implications, risks and benefits governing use and quality control measures and applications both at the national and international levels.

## **ENHL 308 Tutorial 1–3 cr.**

A tutorial on special environmental health projects of interest to students. Students are required to submit a written report.

**ENHL 310/ Toxicology and Environmental Health Hazards 3.0; 3 cr.**  
**ENSC 640**

The course presents toxicology in three sections. In the first section, the fundamental principles and essentials of toxicology are introduced, particularly dose-response, toxicokinetics, and cellular mechanisms of action. In the second section, the course discusses toxicity of main organ systems. Classic toxicants that adversely affect health, emerging hazardous human exposures, and special topics are discussed in the last section of the course. The course includes lecture style presentations, collective case-studies activities and student-led discussions. Topics of local and regional relevance are also introduced through hosting guest speakers.

**ENHL311 Human Health Risk Assessment (3.0; 3 cr.)**

Thousands of chemicals are currently in common use and hundreds are introduced newly every year. The toxic effects of these compounds on humans are of significant public health concern. Human health risk assessment (HHRA) studies the nature and probability of adverse health effects in humans who may be exposed to chemicals in contaminated environmental media. HHRA is an essential basis for decision-makers in remediation of environmental contamination and public health protection. This course introduces students to concepts, sources of data, and methods, which are used in the field of human health risk assessment, and provide them with an understanding of current issues in this field. The course examines in detail the four components of risk assessment: hazard identification, dose-response evaluation, exposure assessment, and risk characterization. Additionally, concepts in risk management and risk communication are discussed. The course includes lecture-style presentations, in-class exercises and assignments, and student lead discussions of reports/articles. Students will obtain enough experience to be able to successfully evaluate a health risk assessment report, which will be demonstrated in the final student presentations.

**ENHL 312/ Occupational Health 2.3; 3 cr.**  
**ENSC 641**

This course overviews the general principles of occupational health, relating work, the work environment, and workers' health and wellbeing to general principles of social equity and justice. The course surveys research on the social, economic, political, environmental, and health elements of a workplace using multidisciplinary approaches. Students who join the course are able to identify occupational hazards and work-related injuries and illnesses in workplaces and propose monitoring, management and prevention strategies to lessen their impact on workers. With its emphasis on social justice, the course discusses the factors that make some workers' groups more vulnerable than others. Its unique approach emphasizes global perspectives and popular imaginations of workers through academic publications, newspaper journalism, cinema, lectures and class discussions. This course is designed for students of multiple educational and training backgrounds and does not require prerequisite knowledge.

**ENHL 320 Special Topics in Environmental Health 1-3 cr.**

A course that covers selected topics such as risk analysis, environmental ethics and justice, or environmental policy and allows focused examination of special topics of interest to trainees in Environmental Health.

**ENHL 314/ Environmental Management Systems 3.0; 3 cr.**  
**ENSC 642**

The implementation of an Environmental Management System (EMS) integrates the precautionary and polluter pays principles into firms' operations and demonstrates commitment to sustainable development. This course provides an overview of the most common international standards for environmental management systems, primarily the International Standards Organization (ISO) harmonized management systems, and its implications for different organizations. It provides students with the skills to formulate and evaluate such management systems. Though the first part of the course is mainly lecture based, student participation in the form of questions and discussion is always welcomed and encouraged. Critical thinking will be promoted throughout the course. Students will be expected to formulate an EMS for an organization and prepare a technical report to communicate project findings to their colleagues through verbal presentation. Emphasis is placed on solving environmental problems using an integrated management approach in order to achieve an optimized environmental performance. *Alternate years.*

**ENSC 695 Comprehensive Exam 0 cr.**

**ENSC 699 Thesis 6 cr.**

**ENSC 697 Project 3 cr.**

The project must be undertaken, in partial fulfillment of the requirements for the degree, upon the completion of at least 27 credits of core and elective courses.

A student who is unable to finish the project in one term can register for it one additional time.