



# MASTER OF SCIENCE IN ENVIRONMENTAL HEALTH AND SAFETY

SCHOOL OF SCIENCE



香港科技大學  
THE HONG KONG  
UNIVERSITY OF SCIENCE  
AND TECHNOLOGY

## Introduction

The general public, private sectors and government agencies have been increasingly concerned about the impacts of urban development, pollution, climate change on the safety and health of our living environment. The Master of Science program in Environmental Health and Safety is designed to provide multidisciplinary training to current and prospective environmental professionals.

The curriculum covers the scientific, technical, legal and social issues that underpin environmental health practices, food safety, hazards and risks assessment, and occupational health and safety.

Currently, this is the only environment-related MSc program in Hong Kong that focuses on health and safety issues. We aim to educate students with cutting-edge knowledge in environmental health and safety, and equip them with the skills to integrate the knowledge into real-life situations and identify emerging environmental problems.

## Program Objectives

The MSc in Environmental Health and Safety program nurtures professionals with expertise/skills in key areas of environmental health and safety including pollution monitoring and control, hazard identification and risk assessment, food safety control, toxicology and health, and to meet the increasing demands in industry, education, government or commercial sectors in Hong Kong and the region.

## Program Intended Learning Outcomes

This program is designed to prepare highly dynamic and talented individuals with the knowledge required for a successful career in environment-related sectors. Upon successful completion of the program, students should be able to:

- Apply advanced knowledge from a variety of environmental/health related science disciplines to view environmental health in an integrated approach to improve health protection;
- Evaluate the impact of environmental stress on the health and safety of nature (ecosystems), as well as on the physical health and social well-being of humans;
- Analyze contemporary environmental health and safety issues in a local and regional context;
- Develop strategies and solutions to tackle environmental problems through class activities, seminars and site visits at government and/ or private sectors.





## Program Duration

1 year for full-time; 2 years for part-time

## Class Hours

Weekday evenings from 6:30pm to 9:20pm; Saturday afternoons.

## Course Works

Students are required to complete at least 30 credits of course works, with 12 credits of foundation courses and 18 credits of elective courses. Part-time students may take a maximum of 9 credits each semester.

## Study Mode

Full-time or part-time

## Medium of Instruction

All lectures and teaching materials are in English.

## Teaching Venue

HKUST Campus, Clear Water Bay, Hong Kong.

## Academic Excellence Scholarship

A merit-based student award will be offered to top-performing students of the graduation class each academic year.

## Entrance Scholarship

A scholarship will be offered to newly admitted student(s) based on outstanding academic background and merit each year.

*\* This scholarship is under the University's approval procedure.*

## Continuing Education Fund (CEF)

Students who are Hong Kong residents and who have successfully completed the MSc EHS program can apply for a subsidy from the Continuing Education Fund.

*\*Our program's CEF registration is under HKCAAVQ and LWB's approval procedure.*

## Elite Scholarship

A scholarship will be offered to newly admitted part-time student(s) with full-time job related to the industry of the environmental health and safety, based on a selective basis.

*\* This scholarship is under the University's approval procedure.*

## Program Fee

The program fee of 30 credits is

**HK\$110,000** for local students | **HK\$130,000** for non-local students

Deposit upon acceptance of admission offer is

**HK\$22,000** full-time | **HK\$10,000** part-time

Notes:

- The program fee is for 30 credits of course work.
- Students admitted with credit transfer are also required to pay the full program fee.
- Students who take course(s) beyond the nominal study period, or need to retake failed course(s) or take extra course(s) (including transferred course) beyond the 30-credit limit to fulfill the graduation requirement are required to pay HK\$4,333 for each extra credit.
- Once the fee is paid, it is non-refundable.

## Graduation & Degree

In order to graduate, students must complete 30 credits of coursework and pass all course requirements. In addition, students must attain a graduation grade average (GGA) of 2.850 or higher (out of a scale of 4.30) as required for all postgraduate students at HKUST.

On successful completion of the program, students will receive the "Master of Science in Environmental Health and Safety" degree from HKUST.

**Curriculum**  
TOTAL **30 credits**

**ELECTIVE COURSES**  
(choose any 6 courses)  
**18 credits**

**FOUNDATION COURSES**  
(all required)  
**12 credits**



## Course Descriptions

### Foundation Courses

ENVS 5111 3 CREDITS

#### Environmental Health

This course identifies the potential health hazards in the environment. It also emphasizes on the importance of environmental health for moral, legal and financial reasons. Environmental health systems as well as legislation and public organizations in Hong Kong, China and overseas will also be discussed and compared.

ENVS 5114 3 CREDITS

#### Environmental Diseases and Microbiology

This course aims to study microorganisms in the natural environment and their potential impacts on human beings. Pesticides, chemicals, radiation, air and water pollution are the manmade hazards that are believed to contribute to human illness. Microorganisms or environmental agents cause airborne and waterborne infectious diseases as well as microbial biodegradation of pollutants will also be discussed.

ENVS 5115 3 CREDITS

#### Food Safety Control

This course provides up-to-date technology, and industrial practices on food safety control. Several international food standards and food safety management systems (e.g. ISO 22000, HACCP), as well as changes in food safety legislation which coupled with a number of high profile food safety issues will be discussed.

ENVS 5117 3 CREDITS

#### Public Health and Hygiene

This course offers new perspectives of public health and hygiene, emphasizing on practical aspects of epidemiological investigations and public health managements. Health risk assessment issues in relation to environmental health will also be covered. Students will review the harmful or toxic effects of drugs on human health and environment, and epidemiological studies on both infectious and non-communicable diseases, which will be relevant to students pursuing a career in the public health sector.



## Elective Courses

**ENVS 5112** 3 CREDITS

### Environmental Hazards

This course aims to provide in-depth knowledge on the potential effects of environmental hazards on the abiotic and biotic environment through various routes and doses of exposure. Current approaches of managing chemical, biological, physical and mechanical hazards in the environment will be addressed.

**ENVS 5113** 3 CREDITS

### Marine Ecotoxicology

This course introduces the impacts and toxic effects of environmental pollutants on growth, morphology and species richness of marine organisms with emphasis at the population, community and ecosystem level. Concepts and methods to assess the impacts of toxicants in marine organisms and environment will also be discussed.

**ENVS 5116** 3 CREDITS

### Environmental Impact and Risk Assessment

This course introduces the general principles, processes and methodologies of EIA and ERA in different developmental projects locally and globally. Specific socio-economic impacts, environmental law and policy, as well as problems and constraints of EIA and ERA implementation will also be discussed and compared through various case studies from developed and developing countries.

**ENVS 5118** 3 CREDITS

### Conservation and Sustainable Development

This course aims to address the importance of different elements and practices in conserving our biodiversity. It also introduces the concept of sustainable development to meet the future needs and balance the objectives between society, economy and environment. It explores ways of finding solutions to the challenges through the promotion of sustainable development.

**ENVS 5119** 3 CREDITS

### Pollution Monitoring and Control

This course introduces environmental consequences of air, water and noise pollution. It also considers theoretical and practical aspects of the design and execution of pollution monitoring programmes. Major issues related to pollution control, such as pollution types and sources, technological aspects of pollution control, and pollution-related legislation and regulations will be discussed.

**ENVS 5120** 3 CREDITS

### Occupational Health and Safety

This course will cover the recognition, evaluation and control of various physical, chemical, biological and ergonomic hazards encountered in the occupational environment. Emphases will focus on the nature and impact of these hazards, assessment methods and corresponding control measures to ensure protection of workers' health and compliance with regulatory requirements.

**ENVS 6111** 3-6 CREDITS

### Environmental Health Research Project

This course enables students to conduct an independent research project in selected areas of environmental health and safety or related topics under the supervision of one or more Faculty members. Students will demonstrate their initiative and intellectual achievement of the investigation through the application of skills and knowledge learnt from the courses. They can develop their abilities to present findings in a precise and coherent manner.



## Courses Offered by Other Departments

**EVSM 5220** 3 CREDITS

### Advanced Environmental Chemistry

The course provides an in-depth coverage of topics on inorganic and organic environmental contaminants, their structures, functions, sources and emissions, distribution, transformation and fate in the environment.

**EVSM 5230** 3 CREDITS

### Environmental Health and Management

The course will give an overview on environmental health and management, including topics on outdoor and indoor environments, workplace environment, water and sewage, food, solid waste, hazardous wastes, vectors and control, radiation, environmental health standards, natural and manmade disasters, risk assessment and management, etc. Each topic will include nature of the issue, known and potential health effects, control and regulatory approaches. More in-depth discussions will be given to occupational health hazards, with emphases on current control methods and technology.

**JEVE 5320** 3 CREDITS

### Water Quality and Assessment

Water quality standards, chemical, physical and biological contaminants in water. General laboratory measurements and instrumental analysis based on optical, electrical and chromatography methods. Toxicity and BOD tests. Pathogenic micro-organisms and microbial examination of water. Environment sampling and quality control and assurance.

**JEVE 5420** 3 CREDITS

### Biological Waste Treatment and Management

Principles of secondary, biological treatment processes, including sewage sand filters, trickling filters, activated sludge plants, lagoons, ponds, rotating biological contactors, aerobic and anaerobic digesters, and biological nutrient removal. Management of waste treatment systems and works.

**JEVE 5440** 3 CREDITS

### Hazardous Waste Management

This course aims to provide students with necessary management concepts and skills in addressing the burgeoning intricate problems of hazardous waste created by the rapid urban development. Hazardous waste characterization will be discussed in terms of toxicology and standard test methods. Necessary regulations and legal framework on hazardous waste storage, import/export, transport and disposal/treatment will be covered. The contingency plan for accidental hazardous waste release and the associated remediation methods will be presented. Local and overseas case studies will be discussed as practical examples of the cradle-to-grave hazardous waste management.

**JEVE 5530** 3 CREDITS

### Environmental Management and Regulatory Compliance

The course aims at teaching students the principles of corporate sustainability and environmental management as well as the major environmental laws and good compliance practices in Hong Kong. The course consists of: Part I on Environmental Management covering essential topics including environmental management for sustainability, corporate environmental challenges and governance, ESG reporting, environmental and energy management systems; and Part II on Regulatory Compliance covering major environmental laws and compliance practices in Hong Kong.

\* These course offerings may vary each academic year.



# Career Prospects

## – Government agencies

- Agriculture, Fisheries and Conservation Department (AFCD)
- Environmental Protection Department (EPD)
- Department of Health (DH)

## – Non-governmental organizations (NGOs)

## – Environmental related private companies

## – Pursue further study

- MPhil, PhD

## – Others

- Teacher
- Laboratory research assistant



# Alumni Sharing



## POON Chung Yan, Kitty

PhD student, HKUST

The EHS program offers me a truly inspiring 1-year learning experience. The program has not only equipped me with a variety of health and environmental related science disciplines, but more importantly, the competence to analyse problems thoroughly and learn quickly. These skills are helpful and important for my coming PhD study and future career.

EHS is a supportive and warm community where you can always get guidance and inspiration from professors and professionals in related sectors. You can definitely explore different academic interests and career throughout the study of the EHS program. I am grateful to be part of the EHS family.



## XIE Chongxuan

Academic Excellence Scholarship Awardee 2018-19  
EHS Administrator, Dongguan Industrial Investment Holding Group Co., Ltd.

The study life in EHS Program light up the torches of my dream to become a person who can devote my whole life to help those suffered in pain and diseases. Through this program, I got a deeper understanding in pharmacology, microbiology, and the relation between environment and human health, acting as the foundation for my dream. From now on, I won't stop to achieve my goal.



## ZHANG Shuting

Engineering Consultant, Guangdong Guangzi International Engineering Investment Consultants Co., Ltd. Guangdong Guangzi International Engineering Investment Consultants Co., Ltd.

This program allows me to gain invaluable knowledge from professors who used real-life examples as part of their teaching. In the past year, the EHS program conducts many field trips for us, such as conserve parks and treatment plants in HK and Guangdong to broaden our horizon. Also, our professors invited officers and consultants from the government organizations and well-known enterprises to give lectures about the international laws and regulations on environmental protection, health and safety which definitely gave me invaluable insights and help me in my future career.

## JIANG Wiejie, Jervis

Assistant Technician,  
Vitargent (International) Biotechnology Limited

It was a wonderful year during the EHS program, no matter the courses, but also the professors, and all kinds of off-campus activities. The courses contents basically include general knowledge about both biology and environment, which can lay a solid foundation for the coming career life. The professors act as mentors in my daily life and provide guidance in my career plan. Last but not least, the fantastic class activities such as field trips, BBQ and lunch party, help to create a long-lasting friendship among classmates.



## LIU Wenchao

Research Assistant, HKUST

The year in HKUST was short but substantial. HKUST has a strong atmosphere of scientific research and abundant and practical learning facilities. The course schedule of MSc EHS is reasonable and compact, which provides a lot of fundamental knowledge in our major. In particular, the course Environmental Health Research Project provides us with a good opportunity to learn experimental skills. I joined the laboratory for systematic training of experimental skills, which made me have a deeper understanding of this major and learned many advanced scientific technologies and research means, which laid a good foundation for my future work and also made me realize my love for scientific research. Therefore, I chose to work in the laboratory after graduation.



# Admission Requirements

## General Requirements

Applicants to the Master of Science in Environmental Health and Safety Program must hold a Bachelor's degree in Life Science, Chemistry, Environmental Science or a related field from a recognized university or approved institution, with honors not lower than the second class or with an overall GPA not less than 70%.

Applicants who have professional experience or related work experience may also be considered on an individual basis.

## Language Requirements

English is the medium of instruction at HKUST.

Applicants whose first language is not English and whose degree or equivalent qualification was awarded by an institution with the medium of instruction was not English will need to meet the English Language Requirements as follows:

- ▶ Test of English as a Foreign Language (TOEFL) – a paper-based test score of no less than 550; or an internet-based test score of no less than 80; or
- ▶ International English Language Testing System (IELTS) – an overall score of 6.5 with no sub-score lower than 5.5.

## Admission Procedures and Timetable

Submit application online through HKUST Online Admissions System. Early application is highly encouraged as qualified applicants may be admitted before application deadline. Applicants will be considered on a first-come-first-served basis until all places are filled.

Non-local applicants are advised to apply as early as possible to allow sufficient time for student visa application, personal preparation, and arrival at Hong Kong.

## Application Timetable

- SEP ▶ Online application starts
- JUN ▶ Deadline for non-local applicants
- JUL ▶ Deadline for local applicants

## For Further Information

☎ (852) 3469 2507

☎ (852) 3693 4766

✉ ocesmsc@ust.hk

📍 Room 5474 (Lift 25 - 26), 5/F, Academic Building  
Department of Ocean Science  
The Hong Kong University of Science and Technology  
Clear Water Bay, Kowloon, Hong Kong



<http://ehs.ust.hk>