

Master of Science/ Postgraduate Diploma in Environmental Science and Management (EVSM) 2017-2018



MANAGEMENT



ENVIRONMENT



TECHNOLOGY



SCIENCE



ENERGY

Introduction

The Hong Kong Special Administrative Region (HKSAR) has made the improvement of its environment a high priority to ensure sound future development. The Government has established mechanisms and agencies to support initiatives for promoting research, education and community programs in environmental protection. The Hong Kong University of Science and Technology (HKUST) is making significant contributions to these initiatives by innovative and relevant research and interdisciplinary postgraduate programs. The Master of Science (MSc) and Postgraduate Diploma (PGD) in Environmental Science and Management (EVSM) are unique programs that provide professional training for graduates to prepare themselves to deal with the rapidly developing environmental issues in Hong Kong and the world.

The multi-disciplinary programs encompass science, engineering and management courses. Students will not only be trained on advanced Environmental Science and Environmental Management courses, they will also have the unique opportunity to take several engineering electives to broaden their horizons.

In coping with the global trend on the demand for environmental management professionals, the Environmental Science and Management program was transformed from the Environmental Science program in 2010. The MSc/PGD in EVSM now provides a wealth of scientific, engineering and management courses to those who want to advance their career in environmental science and management.



Objectives

- To strengthen student's professional status with updated and advanced knowledge and development in important and emerging environmental issues and concepts.
- To enhance student's ability in applying latest environmental concepts (technologies or management strategies) to local, regional and global environmental problems.
- To provide professional and interdisciplinary training for graduates to prepare themselves to tackle the rapidly developing environmental issues in Hong Kong and the surrounding region.
- To cultivate student's stewardship towards sustainable development in their professional industries and sectors.

Program Duration

- MSc Degree: 1 - 1.5 years for full-time and 2.5 years for part-time study
- Postgraduate Diploma: 1 year for full-time and 1.5 years for part-time study

Target Students

The program is designed for students in government positions, environmental consulting firms, secondary school teachers, or recently graduated undergraduates who wish to advance their knowledge and training in environmental science and management.

Admission Requirements

Applicants for admission to the MSc or PGD in Environmental Science and Management Program should have a Bachelor degree with Second class honors or above.

Program Schedule

- Full-time students should take a minimum of 9 credits and up to a maximum of 15 credits per semester.
- Part-time students are normally expected to take 6 to a maximum of 8 credits (excluding MSc project) per semester.

The nominal program fee only covers a registered study period of 3 semesters for the PGD program and a registered study period of 5 semesters for the MSc program. Students are required to pay HK\$3,800 per credit for additional course(s) taken beyond the nominal program requirement and HK\$1,800 per credit for auditing course(s).

All lectures will be given in the weekday evening from 7:00 p.m.–9:50 p.m. and Saturday morning at the Hong Kong University of Science and Technology (HKUST). Each 3-credit course includes three lecture hours per week, or in the case of 4-credit courses, three hours of lectures plus tutorial section(s).

Credit Transfer

Credit transfer may be granted for **postgraduate courses** with satisfactory grades for appropriate environmental courses completed elsewhere. Application must be made to the Program Director during the first semester after admission. Upon the approval of the Program Director, a maximum of 9 credits can be transferred from other institutions to the MSc Program and a maximum of 6 credits to the Postgraduate Diploma Program.

Program Transfer

Students in the PGD Program may apply for transfer to the MSc Program with the approval of the Program Director, and vice versa. Students must apply for the transfer at least one regular term prior to the completion of their program study.

Accommodation Arrangement

Admission to the MSc/PGD program does not place the University under any obligation to arrange or to assign on-campus or off-campus accommodation to students. Students admitted to the program are required to arrange accommodation on their own.

Graduation Requirements

Courses will be assessed according to the grading scheme used for postgraduate courses at HKUST. Students in the MSc or PGD Program must complete the program with a **graduation grade average (GGA) of 2.850 or above**, as required for all postgraduate students at HKUST.

Tuition Fees

Master of Science (MSc) in EVSM Program HK\$110,000 (30 credits only)

Installment	Deadline	Amount (HK\$)	
		Full-Time	Part-Time
Non-refundable deposit	To be paid upon offer is made	27,500	27,500
1st installment	To be paid in early Sep 2017	27,500	27,500
2nd installment	To be paid in early Feb 2018	55,000	27,500
3rd installment	To be paid in early Sep 2018	—	27,500

Postgraduate Diploma (PGD) in EVSM Program HK\$55,000 (15 credits only)

Installment	Deadline	Amount (HK\$)	
		Full-Time	Part-Time
Non-refundable deposit	To be paid upon offer is made	13,750	13,750
1st installment	To be paid in early Sep 2017	13,750	13,750
2nd installment	To be paid in early Feb 2018	27,500	13,750
3rd installment	To be paid in early Sep 2018	—	13,750

Notes:

1. Any additional credits are not covered by the fees stipulated above.
2. Students admitted with credit transfer are also required to pay the nominal program fee.
3. Once the fee is paid, it is non-refundable.

Program Structure and Curriculum

Master of Science (MSc) in Environmental Science and Management Program (30 credits)	<ul style="list-style-type: none"> ▶ Minimum of 12 credits of foundation courses ▶ Up to 18 credits of electives, or electives plus MSc projects
Postgraduate Diploma (PGD) in Environmental Science and Management Program (15 credits)	<ul style="list-style-type: none"> ▶ Minimum of 6 credits of foundation courses ▶ Up to 9 credits of electives

Master of Science (MSc) / Postgraduate Diploma (PGD) in Environmental Science and Management

Foundation courses

Environmental Management Courses

▶ ENVR5260 - Environmental Policy and Management	3 credits
▶ EVSM5230 - Environmental Health and Management	3 credits
▶ EVSM6070 - Environmental Impact Assessment (CEF course)	4 credits

Environmental Science Courses

▶ ENVR5210 - Environmental Microbiology	3 credits
▶ EVSM5220 - Advanced Environmental Chemistry	3 credits
▶ EVSM5240 - GIS for Environmental Professionals	3 credits

Elective Courses

Environmental Management Courses

▶ ENVR5250 - Environmental Economics and Management	3 credits
▶ ENVR6040 - Special Topics in Environment	1 – 6 credit(s)
▶ EVSM5270 - Environmental Law	3 credits
▶ JEVE5900 - Carbon Management for Sustainable Environment	3 credits
▶ SOSOC5620 - Sustainable Development/ENVR6060 - Sustainability Economics	3 credits

Environmental Science Courses

▶ ENVR6050 - Introduction to Oceanography	3 credits
▶ ENVS5113 - Marine Ecotoxicology	3 credits
▶ EVSM5280 - Introduction to Atmospheric Aerosols	3 credits
▶ MATH5360 - Weather, Climate and Pollution	3 credits

Others

▶ ENVR6100 - Independent study	1 - 3 credit(s)
▶ EVSM6950 - MSc Project	3 or 6 credits
▶ JEVE5260 - Air Pollution Meteorology	3 credits
▶ JEVE5320 - Water Quality and Assessment	3 credits
▶ JEVE5420 - Biological Waste Treatment and Management	3 credits
▶ JEVE5460 - Design and Management of Physico/Chemical Processes of Environmental Engineering	3 credits

Notes:

MSc (EVSM)

Students are required to take a minimum of three Environmental Science courses and three Environmental Management courses. At least two Environmental Science courses and two Environmental Management courses must be chosen from the Foundation Course List. The remaining one Environmental Science course and one Environmental Management course can be from either the Foundation Course List or Elective Course List.

PGD (EVSM)

Students are required to take a minimum of two Environmental Science courses and two Environmental Management courses. At least one Environmental Science course and one Environmental Management course must be chosen from the Foundation Course List. The remaining one Environmental Science course and one Environmental Management course can be from either the Foundation Course List or Elective Course List.

Course Descriptions

Foundation Courses

Environmental Management Courses

ENVR 5260
Environmental Policy and Management 3 credits
This course focuses both on how to make and how to study environmental policy and management. It will review major theories related to the formulation of environmental policies, including government regulation and economic incentives, and discuss the types of policy measures implemented in various public and business sectors. The discussion of environmental problems and policies will focus on examples that are relevant for Hong Kong and the Chinese Mainland, but will also include the experience of other countries and the debate surrounding global environmental issues.

EVSM 5230
Environmental Health and Management 3 credits
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 waste, 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.

EVSM 6070
Environmental Impact Assessment 4 credits
Introduction to environmental impact assessment (EIA) and the EIA process in Hong Kong. The components of an EIA report including air, noise, water, waste management, environment risk, ecological impact, and socio-economic impact assessments will be analyzed. Environmental law, environmental management and the importance of public participation will also be discussed. Case studies from Hong Kong will be used and comparison with EIA in Mainland China will be made.

Environmental Science Courses

ENVR 5210
Environmental Microbiology 3 credits
The course provides an introduction to the fundamental features of environmental microorganisms and an understanding of their roles in the functioning of our ecosystems and their importance to mankind.

EVSM 5220
Advanced Environmental Chemistry 3 credits
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 5240
GIS for Environmental Professionals 3 credits
Introducing GIS concept, working with spatial data, managing GIS data, integrating GIS data with Google Earth/Map, remote sensing and model data, applying GIS technology to support environmental planning and management.



Course Descriptions

Elective Courses

Environmental Management Courses

ENVR 5250
Environmental Economics and Management 3 credits
The course is designed to introduce students to key contemporary concepts in environmental economics and equip them with the approaches in economics that are generally applied to analyze environmental problems and policies.

ENVR 6040
Special Topics in Environment 1 - 6 credit(s)
Offerings are announced each term, if deemed necessary, to cover emerging topics of environmental concerns not covered in the present curriculum. Typical topics are carbon audit and management, integrated environmental management systems, air-sea interactions, Life cycle analysis: a system perspective, etc.

ENVR 6060
Sustainability Economics 3 credits
This course is designed to give students an interdisciplinary understanding on the concepts of sustainability, and its contemporary trend of development. The course will cover component concepts on sustainability, its implications from resource (renewable and non-renewable) exploitation; the strength of sustainability with respect to human made or natural capitals; the assessment for sustainability; and the inter-relationships between sustainability and business, governmental policy and human communities.

EVSM 5270
Environmental Law 3 credits
The course will provide students with the basic legal concepts which include the hierarchy of courts in Hong Kong, the difference between civil and criminal proceedings and their possible redresses or remedies available from the courts. Some important provisions of the basic environmental legislation in Hong Kong, environmental prosecution policy of Hong Kong and how to instigate a judicial review against a ministerial decision relating to the environment will also be covered in the course.

JEVE 5900
Carbon Management for Sustainable Environment 3 credits
This course focuses on quantification and management of GHG emissions. It includes organizational GHG inventories; measurement standards and protocols; carbon information management systems; low carbon solutions; carbon trading and offsetting.

SOSC 5620
Sustainable Development 3 credits
This course is designed to give students an understanding of how government and business professionals formulate policies related to the foundations of sustainable development. The course begins with an exploration into the concept of prosperity and conventional view of development in the context of environmental limitations. From that basis we will consider the economic, political and social ramifications of sustainable development and investigate the need for rejuvenation and innovation.

Environmental Science Courses

ENVR 6050
Introduction to Oceanography 3 credits
An introduction to the fundamentals of physical, chemical, geological, geochemical, and biological oceanography. It unveils the mystery of the oceans including the formation of the continents, oceanic circulation, and formation of precious minerals in the deep oceans; discovers ocean resources from phytoplankton to fish. The course will lay the foundation for sustainable use of the oceans and discuss human threats such as global warming, overfishing, and coastal pollution.

ENVS 5113
Marine Ecotoxicology 3 credits
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.

EVSM 5280
Introduction to Atmospheric Aerosols 3 credits
Atmospheric aerosols, also known as, airborne particulate matter, are important air pollutants affecting our health, visibility, and global climate change. This course aims to provide a survey of the physical and chemical properties, the source identification, the atmospheric transformation, the sampling of atmospheric aerosols, and the determination of their chemical compositions.

MATH 5360
Weather, Climate and Pollution 3 credits
Composition and structure of the atmosphere; atmospheric thermodynamics; radiation balance; basic atmospheric dynamics, energy, momentum and water cycle of the earth; weather and climate of the Asian Pacific region; weather and pollution; variability of the climatic system; current issues (El-Nino, greenhouse warming).



Incineration Plant Visit at Shenzhen, Apr 2016

Others

ENVR 6100

Independent Study

1 - 3 credit(s)

Study on selected topics in environmental science under the supervision of a faculty member. The course may be repeated twice for credits if the topic is different. Graded P or F.

EVSM 6950

MSc Project

3 or 6 credits

An independent project on selected topics in environmental science under the supervision of a faculty member. Participation of external organizations in these projects will be particularly encouraged. The responsibility of control, administration and assessment of the projects rests with University. The course may be repeated once for credits. This course is for MSc students only. Approval from instructor is required.

JEVE 5260

Air Pollution Meteorology

3 credits

Atmospheric boundary layer, lapse rate, stability classification, atmospheric turbulence, dispersion modelling, boundary layer wind-tunnel.

JEVE 5320

Water Quality and Assessment

3 credits

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. Environmental sampling and quality control and assurance.

JEVE 5420

Biological Waste Treatment and Management

3 credits

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 5460

Design and Management of Physico/Chemical Processes of Environmental Engineering

3 credits

Principles, design and management practices of physico/chemical treatment processes for removing contaminants from drinking water and municipal wastewaters; includes coagulation and flocculation, sedimentation, air flotation, centrifugation, filtration, membrane, air stripping, carbon adsorption, disinfection, chemical oxidation processes, operation management and residual management.

Out-of-curriculum courses

A maximum of two postgraduate courses outside the above list of courses may be taken as elective(s) subject to the approval by the Program Director.



Congregation, Nov 2015



Orientation, Aug 2016



Scholarship

A merit-based scholarship of HK\$20,000 will be offered to top students of the graduation class each academic year.

Financial Assistance

Continuing Education Fund

Reimbursable Course

Students who are Hong Kong residents and have successfully completed the foundation course – Environmental Impact Assessment (CEF course code: 21Z04168-1) in the MSc/PGD EVSM Program can apply for a subsidy from the Continuing Education Fund. Eligible applicants will be reimbursed HK\$10,000. For details, please contact the Office of the Continuing Education Fund.

Tel no.: (852) 3142-2277

<http://www.wfsfaa.gov.hk/cef/index.htm>

Extended Non-means-tested Loan Scheme

Students of the MSc/PGD in EVSM program are eligible to apply for the Extended Non-means-tested Loan Scheme, which provides financial assistance to students in the form of loan. For details, please contact the Student Financial Assistance Agency.

Tel no.: (852) 2150-6223

<http://www.wfsfaa.gov.hk/sfo/eng/schemes/nlss.htm>

Application Procedures

All applications should be submitted through <http://pg.ust.hk/admissions> to Postgraduate Outreach and Admissions Team (PGOA) of HKUST before 1 June 2017 (Non-Local Applicants) / 15 July 2017 (Local Applicants). Late applications may be considered on a first-come-first-serve basis until all spaces are filled.

Application Timetable for 2017/2018

Application starts on: 1 September 2016

Application closes on:

Non-Local Applicants

1 June 2017

Local Applicants

15 July 2017

Early submission is highly encouraged as qualified applicants may be admitted before the application deadline.



Seoul Study Trip, Jan 2016

Postgraduate Outreach and Admissions Team (PGOA)

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