

# Master of Science in Environmental Management

Apply now for entry in September 2020



THE UNIVERSITY OF HONG KONG  
FACULTY OF SCIENCE



The MSc in Environmental Management is an inter-faculty multi-disciplinary coursework programme. The programme will involve part-time study for a period of two years or full-time study for one year. The programme provides comprehensive training in the field of environmental management, addressing both the major environmental problems and their social, legal and economic context. The contents of the programme have evolved as the World has changed, but the basic objective of providing a broad, integrated overview has remained the same. The teachers are internationally-recognized experts in their fields and have many years of experience in Hong Kong. The programme started in 1989 and over 1,000 graduates are now pursuing successful careers in government departments, environmental consultancies, NGOs and various industries.

## Admission in September 2020

### The Programme offers:

- A multi-disciplinary coursework programme with most teaching on weekday evening. The programme will involve part-time study for a period of two years or full-time study for one year.
- An integrated overview of the field of environmental management, addressing both the major environmental problems and their social, legal, ecological and economic contexts.
- Course materials focused on Hong Kong, but with a strong international and comparative dimension.
- Courses taught by ecologists, engineers, earth scientists, planners, economists, lawyers, and environmentalists from HKU, as well as local practitioners in the field.





## Programme Structure

To be eligible for the award of the MSc in Environmental Management, a student shall complete at least 60 credits of courses including core courses (42 - 51 credits) and elective courses (9-18 credits).

### Part-time Mode (from 2020-2021 onwards):

The list of courses and their contents may be changed from time to time.

#### Year 1: Core Courses (30-33 credits):

- ENVM7003 Introduction to ecology (3 credits)
- ENVM7012 Environmental economics and analysis (3 credits)
- ENVM7013 Sustainability, society and environmental management (3 credits)
- ENVM7014 Environmental quality management (6 credits)
- ENVM7015 Research methods and report writing in environmental management (6 credits)
- ENVM7016 Environmental policy (3 credits)
- ENVM7017 Environmental law in Hong Kong (3 credits)

Select at least one field study course from the following list:

- ENVM7018 Environmental field studies (3 credits)
- ENVM7019 Ecological field studies (3 credits)

#### Year 2: Core Courses (12-18 credits):

- ENVM8006 Environmental impact assessment (3 credits)

Select one capstone experience course from the following list:

- ENVM8004 Dissertation (15 credits)
- ENVM8021 Projects (9 credits)

### Elective Courses (9-18 credits, depending on the core courses taken):

[Indicative only: the availability of courses will vary from year to year]

- ENVM8003 Conservation biology and management (3 credits)
- ENVM8011 Environmental auditing and reporting (3 credits)
- ENVM8012 Environmental health and risk assessment (3 credits)
- ENVM8013 Air and noise pollution control and management (3 credits)
- ENVM8014 Special topics in environmental management (3 credits)
- ENVM8015 Directed studies in environmental management (6 credits)
- ENVM8016 Conservation and management of freshwater resources (3 credits)
- ENVM8017 Conservation and management of marine resources (3 credits)
- ENVM8018 Urban planning and environmental management (3 credits)
- ENVM8019 Corporate sustainability (3 credits)
- ENVM8020 Green buildings and energy management (3 credits)

### Full-time Mode (from 2020-2021 onwards):

The list of courses and their contents may be changed from time to time.

#### Core Courses (42-51 credits):

- ENVM7003 Introduction to ecology (3 credits)
- ENVM7012 Environmental economics and analysis (3 credits)
- ENVM7013 Sustainability, society and environmental management (3 credits)
- ENVM7014 Environmental quality management (6 credits)
- ENVM7015 Research methods and report writing in environmental management (6 credits)
- ENVM7016 Environmental policy (3 credits)
- ENVM7017 Environmental law in Hong Kong (3 credits)
- ENVM8006 Environmental impact assessment (3 credits)

Select one capstone experience course from the following list:

- ENVM8004 Dissertation (15 credits)
- ENVM8021 Projects (9 credits)

Select at least one field study course from the following list:

- ENVM7018 Environmental field studies (3 credits)
- ENVM7019 Ecological field studies (3 credits)

### Elective Courses (9-18 credits, depending on the core courses taken):

[Indicative only: the availability of courses will vary from year to year]

- ENVM8003 Conservation biology and management (3 credits)
- ENVM8011 Environmental auditing and reporting (3 credits)
- ENVM8012 Environmental health and risk assessment (3 credits)
- ENVM8013 Air and noise pollution control and management (3 credits)
- ENVM8014 Special topics in environmental management (3 credits)
- ENVM8015 Directed studies in environmental management (6 credits)
- ENVM8016 Conservation and management of freshwater resources (3 credits)
- ENVM8017 Conservation and management of marine resources (3 credits)
- ENVM8018 Urban planning and environmental management (3 credits)
- ENVM8019 Corporate sustainability (3 credits)
- ENVM8020 Green buildings and energy management (3 credits)
- ENVM8022 Environmental management internship (6 credits)

## Course Contents - Core Courses

### ENVM7003 Introduction to ecology (3 credits)

This course deals with the ecological processes determining the distribution and abundance of organisms, and which in turn govern the structure and function of communities and ecosystems. The focus of the course is on how an understanding of ecology is important for environmental management. Together with lectures and student-centered learning, this course also incorporates a practical fieldwork component.

Assessment: Written examination (100%)

### ENVM7012 Environmental economics and analysis (3 credits)

The aim of this course is to equip students with the ability to undertake economic analyses of the environment. The course provides an introduction to economic concepts and principles and applies them to the analysis and management of environmental problems. The course covers the economic understanding of environmental problems (e.g. external costs and benefits, public goods, resource scarcity), economic instruments for environmental management (e.g. taxes, subsidies, tradable permits), methods for valuing environmental goods and services (market and non-market approaches), and economic tools for supporting decision-making (e.g. cost-benefit analysis). All topics will be illustrated with current environmental and policy issues to emphasize their relevance and applicability.

Assessment: Course work (60%) and written examination (40%)

### ENVM7013 Sustainability, society and environmental management (3 credits)

This course begins with intellectual debates on the definitions, conceptions and different interpretations of the notion of sustainable development. The course then moves on to explore and analyse the implementation of the sustainability concept at the macro- and the micro- levels, covering a wide range of issues from international agreements and campaigns to local projects and practice. This will be followed by a number of implementation tools and techniques including community engagement and sustainability assessment. The course concludes with a series of real-life case investigations on innovative models to achieve sustainability in different contexts.

Assessment: Course work (100%)

### ENVM7014 Environmental quality management (6 credits)

This course introduces students to the types, sources and effects of environmental pollution and some of the key principles and strategies used in combating pollution and managing environmental quality. Topics include water and air quality management, solid waste management and noise pollution control, with an emphasis on the situation in Hong Kong.

Assessment: Course work (30%) and written examinations (70%)

### ENVM7015 Research methods and report writing in environmental management (6 credits)

This course is intended both as preparation for the dissertation or project course and as a general introduction to writing reports on environmental issues. Subjects covered include: research design, research methodology (quantitative and qualitative methods; basic data processing and analysis) and report writing. Other research skills such as avoiding plagiarism, literature search and review and giving oral presentations may also be taught.

Assessment: Course work (65%) and written examination (35%)

### ENVM7016 Environmental policy (3 credits)

This course focuses on key aspects of environmental policy making and the policy-implementation processes, such as how policy agendas emerge and evolve, how environmental discourse shapes policy outputs; and how institutions affect the trajectories and outcomes of environmental policy measures. Making references to local, national and international cases of successful and not-so-successful policies that pertain to the sustainable development agenda, the course also examines the theories and praxis of policy transfer and policy convergence, as well as the perennial problematics of policy integration, policy learning and policy failure.

Assessment: Course work (100%)

### ENVM7017 Environmental law in Hong Kong (3 credits)

This course focuses on the statutory interpretation of the four principal Ordinances and subsidiary legislation dealing with pollution in Hong Kong; namely the Water Pollution Control Ordinance, the Air Pollution Control Ordinance, the Noise Control Ordinance and the Waste Disposal Ordinance. Some consideration will also be given to the Dumping at Sea Ordinance, the Radiation Ordinance, the Merchant Shipping (Prevention and Control of Pollution) Ordinance, the Environmental Impact Assessment Ordinance, the Ozone Layer Protection Ordinance and international conventions effecting the law. Students will study the nature of environmental offences, including the requirement for proving "mens rea" (intent) in order for certain offences to be successfully prosecuted. Students will also be introduced to the principles of judge made law (the Common Law) and will learn to read and interpret relevant case law in order to better understand the current sentencing policies towards environmental offenders, both locally and in other Common Law jurisdictions.

Assessment: Course work (100%)

### ENVM7018 Environmental field studies (3 credits)

This is an experiential learning course. This course aims to broaden students' horizon and knowledge base on key aspects of environmental management and nature conservation through a series of field studies and visits to local and/or overseas organizations. Topics include, but not limited to, conservation and biodiversity management, waste and wastewater treatment processes, water treatment processes, and corporate environmental management in practices. Field studies will be conducted in form of guided visits, field work, service learning and invited lectures or forums according to the topics involved. Study trips outside Hong Kong such as Macau, Mainland China and Taiwan may be considered. Students are required to attend at least 6 sessions organized over the study period and may need to pay the participation fee of some local and/or non-local activities.

Assessment: Course work (100%)

### ENVM7019 Ecological field studies (3 credits)

This is an experiential learning course. This course aims to teach students with the field survey and study skills in biodiversity assessment through an intensive residential field course and some optional field trips. Rapid biodiversity assessment methods and report writing skills will be taught. Students taking this course have to conduct hands on field surveys of common plant and animal groups in Hong Kong such as vascular plants, mammals, birds, amphibians, reptiles and butterflies. Students completing this course shall be able to take part in ecological assessments.

Assessment: Course work (100%)

### ENVM8004 Dissertation (15 credits)

The dissertation is an individual, independent research project carried out under the supervision of one or more faculty members. Students may propose their own topics and approach possible supervisors, or they may consider those topics suggested by faculty members. Normally, the student develops the research outline in collaboration with his or her Faculty advisor(s) and then collects data, carries out analysis and writes the report prior to the research colloquium where the student will present his/her work. The candidate shall make a formal presentation on the subject of his/her during the second semester of the teaching programme. Substantial work, in particular, data collection and analysis, is required in this course.

Prerequisite: Part-time students must obtain a Grade B+ or above in ENVM7015 Research methods and report writing in environmental management by May of the first study year. Full-time students must pass a qualification assessment in September of the first study year.

Assessment: Individual presentation (10%), and a dissertation report of at least 15,000 words, excluding reference list and appendices (90%)

### ENVM8006 Environmental impact assessment (3 credits)

Environmental Impact Assessment (EIA) is one of the most important contemporary instruments of environmental management. Used widely around the world to identify the impacts of development projects as well as strategic plans and policies, EIA plays a key role in many regulatory systems for the environment. This course reviews the development of different approaches to EIA, basic analytical principles, administrative and legal systems for EIA, assessments at the project and strategic levels (SEA), and case study applications in Hong Kong.

Assessment: Course work (50%) and written examination (50%)

### ENVM8021 Project (9 credits)

This is a group project (2-3 students per group) to be carried out under the supervision of one or more teachers. The topic and content of the project will be agreed individually between students and the supervisor(s). Students may propose their own topics and approach potential supervisors, or they may consider those suggested by teachers. Apart from scientific research projects, creative projects such as the production of field guides, books, websites, videos, apps about the environment are encouraged.

Assessment: Individual project report (60%) and group presentation (40%)



## Course Contents - Elective Courses

### ENVM8003 Conservation biology and management (3 credits)

Conservation biology is the essential scientific element in biodiversity conservation. The course will cover the basic principles and methods of conservation biology from a management perspective. In reality, successful biodiversity conservation projects often require an integration of the welfare of local communities. As such, practical examples from Hong Kong and elsewhere will be used as case studies to illustrate the importance of different elements in conserving the world's biodiversity.

Assessment: Course work (50%) and written examination (50%)

### ENVM8011 Environmental auditing and reporting (3 credits)

This course provides an introduction on the concepts of environmental management, auditing and reporting. Detailed explanation of the development, implementation and continuous improvement of an environmental management system (EMS) based on ISO14001:2015 standards will be covered. With the understanding on the key elements of an EMS, audit methodology and skills based on ISO19011:2011 would be introduced with focus on environmental audit. Key elements of environmental audit under the Hong Kong EIA system and mechanism of carbon audit will also be covered. The function and importance of environmental reporting will be explained along with the contents of Global Reporting Initiative (GRI) Standards which is a guide for sustainability reporting.

Assessment: Course work (100%)

### ENVM8012 Environmental health and risk assessment (3 credits)

Environmental Risk Assessments (ERAs) are a tool to determine the likelihood that contaminant releases, either past, current, or future, pose an unacceptable risk to human health or the environment. Currently, ERAs are required under various regulations in many developed countries so as to support decision-makers in risk characterization or the selection of cost-effective remedial cleanup. This course introduces the theory and practice of human and ecological risk assessments. Students completing the course will gain a sound knowledge of the concepts and principles of ERAs, management and communication as applied in practice; understand the basic risk assessment tools (i.e. prospective, retrospective and tiered approaches) to environmental risk management; be able to select and apply the simpler tools to tackle risk issues; and appreciate the interpretations of risk and its role in environmental policy formulation and decision making.

Assessment: Course work (60%) and written examination (40%)



## Course Contents - Elective Courses

### ENVM8013 Air and noise pollution control and management (3 credits)

This advanced course focuses on various technical aspects related to air and noise pollution control and their management issues. The topics include micrometeorology; air dispersion modelling; advanced air pollution control (e.g. process modification, energy audit and emission trading); case studies on control of emissions from stationary and mobile source; concept of sound propagation; basic principles of noise control; noise impact assessment and technical mitigation measures for construction, industrial, road traffic, railway and aircraft noise.

Assessment: Course work (30%) and written examination (70%)

### ENVM8014 Special topics in environmental management (3 credits)

The contents of this course will vary from year to year, depending on the availability of teachers and topics, and will be announced before course selection each year. Hot topics in Hong Kong or overseas that are related to environmental management will be selected. Examples of such topics could include urban tree management; slope greening; nature conservation versus development in rural Hong Kong and China, sustainable development movements. With careful consideration of different needs of various stakeholders, various management options are reviewed and evaluated.

Assessment: Course work (100%)

### ENVM8015 Directed studies in environmental management (6 credits)

This course provides an opportunity for students to study a topic of particular interest under the supervision of a specialist (i.e., a Faculty member) or an experienced Environmental Practitioner. The contents of this course will be agreed individually between the student and the supervisor, and may include research project, directed reading, written assignment, laboratory or field work, and/or other activities relevant to environmental management.

Assessment: A written report or other form of output to be agreed by the supervisor (50%); Supervisor's assessment (20%); Oral presentation (30%)

### ENVM8016 Conservation and management of freshwater resources (3 credits)

The overall aim of this course is to introduce the global importance of freshwater resources to sustainable development of mankind. This course offers an introduction to the problems associated with human use of water and current patterns of water resource management, and explains how the characteristics of natural systems constrain sustainable use of water. Emphasis will be placed on examples of river and lake management that can indicate the reasons for success and failure of sustainable water resource use, with particular emphasis placed on regional examples. Students taking this course will gain an appreciation of the trade-offs inherent in water resource management, and the practices that can be adopted to conserve freshwater biodiversity in the complex context of maintaining human livelihoods.

Assessment: Written examination (100%)



### ENVM8017 Conservation and management of marine resources (3 credits)

The marine environment has been an important source of its fortunes but today suffers from a range of perturbations, from pollution and habitat destruction, to community loss and over-exploitation. This course primarily deals with pressing issues of marine resource conservation and management in Hong Kong. An overview of the current global situation of marine resources will be presented with an emphasis on the local situation. The past and present exploitation of marine resources and human impacts on the marine ecosystem are addressed with a view to identifying problems and providing practical solutions. Real cases are taken from Hong Kong as example to illustrate the crisis and its management options. Various management options are reviewed and evaluated with careful consideration of different needs of various stakeholders. The key topics of this course include marine pollution, habitat destruction, biological invasion, biodiversity conservation, fisheries, mariculture and harmful algal bloom.

Assessment: Course work (50%) and written examination (50%)

### ENVM8018 Urban planning and environmental management (3 credits)

This course lays down the challenges of achieving environmental sustainability in cities. It highlights the important role of urban planning and its related tools and instruments in managing development pressure, mitigating environmental impacts and conserving ecological sensitive areas. The course begins with an introduction to the fundamental functions and processes of planning. Illustrated with real-life case studies, the course then focuses on the application of various planning tools and methods and their effectiveness in resolving urban-rural conflicts. These include land-use planning, planning law and enforcement, public-private partnership models, etc. Through a series of Problem-based Learning (PBL) sessions, students debate on some selected current affair on environmental planning such as planning and development of ecological sensitive area on private land, planning for facilities with environmental nuisances, planning for quality open space, agricultural planning for conservation and rural revitalization.

Assessment: Course work (100%)



### ENVM8019 Corporate sustainability (3 credits)

Corporate sustainability focuses on the business sector's role and contribution to achieving sustainability. In recent years, the expectations of business to act sustainably are higher than ever before. The scope has extended from contributing to the social welfare of the society or avoiding environmental degradation to a new business approach that creates long term value for the business by embracing opportunities and managing risks deriving from economic, environmental and social developments. The course examines the commonly used tools in corporate sustainability and corporate social responsibility (CSR), including shared value, inclusive business, corporate community investment, environmental management systems, life-cycle analysis and clean production. It reviews the business relationships with the environment and society expressed in the concepts of sustainable production and consumption. The course also emphasizes the importance of learning about current practice in the business sector, and thus guests from corporate sector will be invited to share their experience with students.

Assessment: Course work (100%)

### ENVM8020 Green buildings and energy management (3 credits)

One of the ways to tackle global climate change is to significantly enhance energy efficiency especially in buildings. This course will introduce the global trends in the green building movement with focuses on current energy management in new and existing buildings in Hong Kong e.g. BEAM Plus. The course will introduce various aspects of energy efficiency including laws and codes; assessment tools; methods to analyse energy uses in different types of buildings and practical energy conservation measures. This course stresses on practical knowledge and experiences in energy management in buildings. Thus, experienced practitioners in the field are engaged to deliver some of the course contents.

Assessment: Course work (100%)

### ENVM8022 Environmental management internship (For Full-time students only) (6 credits)

This course provides an opportunity for students to undertake an internship in environmental management in universities, NGOs or commercial companies under the supervision of an experienced Environmental Practitioner or Faculty member. The student needs to work for at least 160 hours for the internship employer on either the first, second or summer semester. During the internship, the student needs to conduct a desktop study on a topic related to the internship job duties, which should be endorsed by the course coordinator. The written report for the internship shall contain a fully referenced report for the desk top study and some sharing and reflection of the internship experiences.

Assessment: Written report (60%); Supervisor's assessment (20%); Oral presentation (20%)

## Programme Duration and Class Schedules

This programme will involve part-time study for a period of two years or full-time study for one year. Teaching takes place mainly on weekday evenings, but there may be a few sessions on Saturday, as well as a small number of field trips. All lectures are given in English.

## Assessment

Courses in the programme are assessed in a variety of ways, by written coursework, examinations, or both. A dissertation or project on a topic of the student's choice forms an important part of the study.

## Target Students

Most students who enter the programme have experience in one of the relevant sub-disciplines – engineering, ecology, environmental chemistry, education, urban planning, journalism etc. However, the MSc is also suitable for fresh graduates and people working in other areas who intend to pursue a career in environmental management, or simply want to enhance their understanding of the field.

## Tuition Fees

The composition fee for the full-time programme is HK\$130,000<sup>#</sup> for 2020-21 intake and that for the part-time programme is HK\$65,000<sup>#</sup> per year for two years. The fee shall be payable in two instalments over one year for full-time study or in four instalments over two years for part-time study. In addition, students are required to pay Caution Money (HK\$350, refundable on graduation subject to no claims being made) and Graduation Fee (HK\$350). For occasional students, the tuition fee is HK\$2,170<sup>#</sup> per credit.

<sup>#</sup> Subject to approval

## Professional Accreditation

This programme is accredited by the Institute of Environmental Management and Assessment (IEMA) <https://www.iema.net>

## Prizes

Each year Ada and Arthur Hill Prize in Environmental Management and Fred Kan and Co. Prize are awarded to meritorious students.

## Admission Requirements

A Bachelor's degree with Honours in any field. Work experience is useful but not essential.

## Application

Application will be considered immediately until all places are filled. The closing dates for non-local and local applications are April 29, 2020 and June 30, 2020 respectively.

### Programme details:

<https://www.biosch.hku.hk/envm/index.html>

<https://www.scifac.hku.hk/prospective/tpg/about>

### Online application:

<https://aal.hku.hk/tpg/>



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