

**REGULATIONS FOR THE DEGREES OF  
MASTER OF SCIENCE (MSc) AND MASTER OF SCIENCE IN ENVIRONMENTAL  
MANAGEMENT (MSc[EnvMan])**

For students admitted in 2021-22 and thereafter

*(See also General Regulations and Regulations for Taught Postgraduate Curricula)*

Any publication based on work approved for a higher degree should contain a reference to the effect that the work was submitted to the University of Hong Kong for the award of the degree.

The degree of Master of Science is a postgraduate degree awarded for the satisfactory completion of a prescribed course of study in one of the following five fields: Applied Geosciences, Food Industry: Management and Marketing, Food Safety and Toxicology, Physics and Space Science.

The degree of Master of Science in Environmental Management is a postgraduate degree awarded for the satisfactory completion of a prescribed course of study in Environmental Management.

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**Admission requirements**

**Sc21**

- (a) To be eligible for admission to the courses leading to the degree of Master of Science or Master of Science in Environmental Management, a candidate
- (i) shall comply with the General Regulations and the Regulations for Taught Postgraduate Curricula;
  - (ii) shall hold a Bachelor's degree with honours of this University; or another qualification of equivalent standard of this University or another University or comparable institution accepted for this purpose;
  - (iii) in respect of the courses of study leading to the degree of Master of Science in the field of Space Science, shall hold a Bachelor's degree in a relevant science or engineering discipline, and prior knowledge expected in basic college-level physics, mathematics, statistics, and computer programming;
  - (iv) in respect of the courses of study leading to the degree of Master of Science in the field of Physics, a Bachelor's degree with honours in a relevant science (e.g. physics, astronomy, earth science, mathematics) or engineering, and prior knowledge expected in university-level electromagnetism, quantum mechanics and thermodynamics, university-level linear algebra and multi-variable calculus, basic statistics, and some computer programming experience (e.g. coding in C++, Mathematica, Matlab or Python); and
  - (v) shall satisfy the examiners in a qualifying examination if required.
- (b) A candidate who does not hold a Bachelor's degree with honours of this University or another qualification of equivalent standard may in exceptional circumstances be permitted to register if the candidate demonstrates adequate preparation for studies at this level and satisfies the examiners in a qualifying examination.
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**Qualifying examination**

**Sc22**

- (a) A qualifying examination may be set to test the candidate's academic ability to follow the course of study prescribed. It shall consist of one or more written papers or equivalent and may include a project proposal.
- (b) A candidate who is required to satisfy the examiners in a qualifying examination shall not

be permitted to register until he/she has satisfied the examiners in the examination.

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### **Award of degree**

**Sc23** To be eligible for the award of the degree of Master of Science or Master of Science in Environmental Management, a candidate

- (i) shall comply with the General Regulations and the Regulations for Taught Postgraduate Curricula; and
  - (ii) shall complete the curriculum and satisfy the examiners in accordance with these regulations and syllabuses.
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### **Advanced standing**

**Sc24** In recognition of studies completed successfully before admission to the Master of Science in Environmental Management, Master of Science in the field of Applied Geosciences and Master of Science in the field of Space Science, advanced standing of up to 12 credits may be granted to a candidate with appropriate qualification and professional experiences, on production of appropriate certification, subject to the approval of the Board of the Faculty. Credits gained for advanced standing shall not be included in the calculation of the GPA but will be recorded on the transcript of the candidate. The candidate should apply before commencement of first year of study via the Department and provide all the supporting documents.

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### **Period of study**

**Sc25** The curriculum of the Master of Science or the Master of Science in Environmental Management shall normally extend over one academic year of full-time study or two academic years of part-time study. Candidates in either degree shall not be permitted to extend their studies beyond the maximum period of registration of two academic years of full-time study or three academic years of part-time study, unless otherwise permitted or required by the Board of the Faculty.

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### **Completion of curriculum**

**Sc26** To complete the curriculum of the Master of Science or Master of Science in Environmental Management, a candidate

- (a) shall satisfy the requirements prescribed in TPG 6 of the Regulations for Taught Postgraduate Curricula;
  - (b) shall follow courses of instruction and complete satisfactorily all prescribed written, practical and field work;
  - (c) shall complete and present a satisfactory dissertation or project on an approved subject or complete courses with equivalent credits as a replacement; and
  - (d) shall satisfy the examiners in all courses prescribed in the respective syllabuses.
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### **Dissertation or Project**

**Sc27** The title of the dissertation or project shall

- (a) for the full-time mode of Master of Science (except MSc in Environmental Management), be submitted for approval by October 15 and the dissertation or project report shall be

- submitted not later than August 15 in the subsequent year;
- (b) for the full-time curriculum of MSc in Environmental Management, be submitted by October 30 and the dissertation or project report shall be submitted not later than the last Friday in June of the first year of study, unless otherwise permitted or required by the course coordinator(s);
- (c) for the part-time curriculum (except Master of Science in the field of Applied Geosciences, Master of Science in the field of Physics and MSc in Environmental Management), be submitted for approval by March 15 of the first year of study and the dissertation or project report shall be submitted not later than July 1 of the second year of study;
- (d) for the part-time curriculum of MSc in Environmental Management, be submitted by June 30 of the first academic year, unless otherwise permitted or required by the course coordinator(s). The dissertation shall be submitted not later than the last Friday in May of the second year of study and the project report shall be submitted not later than the last Friday in June of the second year of study, unless otherwise permitted or required by the course coordinator(s);
- (e) for the full-time curriculum of Master of Science in the field of Physics, be submitted by October 15 and the dissertation or project report shall be submitted not later than the last Friday in May of the first year of study;
- (f) for the part-time curriculum of Master of Science in the field of Physics, be submitted by October 15 of the first academic year and the dissertation or project report shall be submitted not later than the last Friday in May of the second year of study.

**Sc 28** A candidate shall submit a statement that the dissertation or project represents his/her own work (or in the case of co-joint work, a statement countersigned by his/her worker, which shows his/her share of the work) undertaken after registration as a candidate for either degree.

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### Assessments

**Sc29** The assessment in any course shall consist of elements prescribed by the course teachers, and will normally comprise either written coursework alone, or coursework combined with formal examinations; in either case participation in field work or practical work may form part of the assessment.

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**Sc30** A candidate who has failed to satisfy the examiners

- (a) at his/her first attempt in any course in the examination held during any of the academic years of study may be permitted to present himself/herself for re-examination in the course or courses at a specified subsequent examination, with or without repeating any part of the curriculum;
  - (b) at his/her first submission of dissertation or project report may be permitted to submit a new or revised dissertation or project report within a specified period;
  - (c) in any prescribed fieldwork or practical work may be permitted to present himself/herself for re-examination in fieldwork or practical work within a specified period.
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**Sc31** Failure to take the examination as scheduled, normally results in automatic course failure. A candidate who is unable because of illness to be present at any examination of a course, may apply for permission to be present at some other time. Any such application shall be made on the form prescribed within two weeks of the examination.

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### Discontinuation

- Sc32** A candidate who
- (a) has failed to satisfy the examiners in more than half the number of credits of courses during any of the academic years or in any course at a repeated attempt, or
  - (b) is not permitted or fails to submit a new or revised dissertation or project report, or
  - (c) has failed to satisfy the examiners in their dissertation or project report at a second attempt, may be recommended for discontinuation of studies.
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### Assessment results

**Sc33** On successful completion of the curriculum, candidates who have shown exceptional merit may be awarded a mark of distinction, and this mark shall be recorded in the candidates' degree diploma.

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### Grading systems

**Sc34** Individual courses shall be graded according to one of the following grading systems as determined by the Board of Examiners:

- (a) Letter grades, their standard and the grade points for assessments as follows:

Grade	Standard	Grade Point
A+	Excellent	4.3
A		4.0
A-		3.7
B+	Good	3.3
B		3.0
B-		2.7
C+	Satisfactory	2.3
C		2.0
C-		1.7
D+	Pass	1.3
D		1.0
F	Fail	0

or

- \*(b) 'Pass' or 'Fail'

Courses which are graded according to (b) above will not be included in the calculation of the GPA.

\*Only applies to certain courses in MSc in the field of Applied Geosciences and MSc in the field of Physics

**SYLLABUSES FOR THE DEGREE OF  
MASTER OF SCIENCE IN THE FIELD OF  
FOOD SAFETY AND TOXICOLOGY**

For students admitted in 2021-2022 and thereafter

All courses in this programme are compulsory. A candidate shall be examined shortly after the completion of each course.

**A. Course Structure**

<b>Programme Structure of the <u>Full-time</u> Mode:</b>		
<b>Year 1 (69 credits)</b>		
FSTX7001	Principles of toxicology I	(9 credits)
FSTX7002	Principles of toxicology II	(9 credits)
FSTX7003	Toxicity tests and hazards evaluation methods	(9 credits)
FSTX7004	Regulatory toxicology: risk assessment, risk management and communication	(12 credits)
FSTX8005	Chemical and microbial hazards in food	(9 credits)
FSTX8006	Food safety management	(9 credits)
FSTX8007	Project [ <i>Capstone experience</i> ]	(12 credits)

<b>Programme Structure of the <u>Part-time</u> Mode:</b>		
<b>Year 1 (39 credits)</b>		
FSTX7001	Principles of toxicology I	(9 credits)
FSTX7002	Principles of toxicology II	(9 credits)
FSTX7003	Toxicity tests and hazards evaluation methods	(9 credits)
FSTX7004	Regulatory toxicology: risk assessment, risk management and communication	(12 credits)
<b>Year 2 (30 credits)</b>		
FSTX8005	Chemical and microbial hazards in food	(9 credits)
FSTX8006	Food safety management	(9 credits)
FSTX8007	Project [ <i>Capstone experience</i> ]	(12 credits)

**B. Course Content**

**FSTX7001 Principles of toxicology I (9 credits)**

This module introduces students to the general principles and practice of toxicology. The major focus of the course is on basic principles, mechanisms and common methods underpinning the science of toxicology. Selected target organ systems (e.g. respiratory, nervous and immune systems) are studied with respect to understanding how representative chemicals damage and impair their ability to function. Students will develop a fundamental understanding of how chemicals may exert toxic effects and gain insight into the importance of organ-specific toxicity.

Assessment: Course work (25%); Examination (75%)

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### **FSTX7002 Principles of toxicology II (9 credits)**

This module continues to introduce students to the general principles and practice of toxicology. The course continues to focus on basic principles, mechanisms and common methods underpinning the science of toxicology. Selected toxicants are studied with respect to their source of exposure and mechanisms of effects. Selected disease processes (e.g., mutagenesis, carcinogenesis, reproductive toxicity, teratogenesis and developmental toxicity) are studied with respect to understanding their basic pathways and common mechanisms. Selected fields are presented to give students insight into the applications of toxicology and its relationship with other fields.

Assessment: Examination (100%)

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### **FSTX7003 Toxicity tests and hazards evaluation methods (9 credits)**

This module will provide students with the current state-of-the-art methodology employed to investigate the effect of chemical and microbial toxins and environmental pollutants on living systems. Topics include exposure estimate, animal tests for acute toxicity, short-term and long-term toxicity, for mutagenicity, genotoxicity and carcinogenicity, for reproductive toxicity, teratogenicity, developmental toxicity and delayed neurotoxicity. Major focus is on the basic principles underpinning each test method including the test rationale, protocol design, limitations and data interpretation. Students will also be introduced to the basic concepts of toxicological evaluation and criteria for setting guidance values for dietary and non-dietary exposure to chemicals. The role of biochemical, metabolic and toxicokinetic studies in toxicological evaluation is also considered.

Assessment: Course work (20%); Examination (80%)

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### **FSTX7004 Regulatory toxicology: risk assessment, risk management and communication (12 credits)**

In order to fully appreciate risks that arise from human exposure to chemicals in our living environment, it is essential to quantify levels of chemical contamination in environmental media and foods, and estimate total chemical exposure from dietary and non-dietary sources. This module will provide students with intensive training to develop the necessary practical skills to measure and model the extent to which human populations come into contact with toxic agents in the environment and foods, to conduct qualitative and quantitative risk assessments, to set safe levels of chemical exposure in foods (based on local food consumption patterns), and to implement effective risk management in protecting human health and the environment. The roles of international food safety authorities such as WHO, FAO, Codex Alimentarius Commission, JECFA, IARC and OECD will be described. Introduction to local and international food laws will be provided.

Assessment: Course work (20%); Examination (80%)

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### **FSTX8005 Chemical and microbial hazards in food (9 credits)**

This module will introduce students to the chemical and microbial hazards in food and their effects on human health. Special reference is made to heavy metals, pesticides, food additives, persistent organic pollutants and natural food contaminants of current public concern. An emphasis will also be placed

on developing the understanding of the actual impact of food and waterborne pathogens, their epidemiology and factors contributing to the increase in their incidence. Determination of exposure pathways and linking food hazards to human health is the primary focus. Topics include: contamination monitoring, quantification of exposure at the individual level, interactive effects of exposure to multiple risk factors, perceptions of risk and integration of laboratory science with population-based studies.

Assessment: Course work (20%); Examination (80%)

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### **FSTX8006 Food safety management (9 credits)**

Good manufacturing practice has a significant impact on the daily operation of a food processing facility. Quality products and a safe work place are important components of a good company. This course will focus on issues arising from GMP and aspects of the physical design of a food processing facility which impact the safety of workers and products. In food supply chain, traceability is the ability to follow the movement of a food product through the stages of production, processing, and distribution, and is an important component of the food safety management system. As a core quality management tool in the food industry, the relevance, impact and use of ISO 22000 and HACCP in manufacturing and catering will be discussed. Topics covered will include the international/national HACCP standards, and designing safety into food products and processes as well as the practical development and implementation of a HACCP Plan using local and Asian case studies.

Assessment: Course work (20%); Examination (80%)

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### **FSTX8007 Project (12 credits) [Capstone experience]**

All students are required to undertake to attend training (up to maximum 6 months) in one of the following areas:

- Academic institutions, to carry out basic research project using the most advanced techniques in molecular biology, analytical chemistry and biomedical sciences.
- Food, chemical and pharmaceutical industries, to overlook industry procedures on ensuring that the emerging/newly developed food and chemical products meet regulatory standards and requirements and are safe for consumers; their potential health implications, and
- Government agencies, to gain knowledge on the procedures implemented by the local/national authorities in formulating science-based policies, laws and regulations to ensure the safe production and use of food and chemicals.

The candidate shall make a formal presentation on the subject of his training during the final semester of the teaching programme.

Assessment: Coursework (100%)