

Master of Science in
**GLOBAL MARINE
RESOURCES MANAGEMENT**



For Further Information

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DOUBLE YOUR
**Experience & Qualification
in Marine Studies**

HONG KONG. ENGLAND.

A UNIQUE LEARNING EXPERIENCE

ACROSS 2 CONTINENTS

ABOUT HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

Hong Kong University of Science and Technology is a dynamic, internationally renowned research university that pursues excellence in science and technology, and educates future generations of global leaders and thinkers. Since it opened its doors in October 1991, HKUST has established itself as an intellectual powerhouse, contributed to the rise of the Greater Bay Area as one of the world's leading centers of innovation, and secured a place on the academic world map. In under three decades, HKUST has risen rapidly in the global academic rankings to become one of the Asia's top universities.

#1

World's Top 400 Young Universities 2020 in *Times Higher Education*

#10

Global University Employability Ranking 2019 (No. 1 in Greater China, 7 years in a row) in *Emerging/Trendence*

#27

World's Top 100 Universities 2021 in *QS World University Rankings*



ABOUT THE UNIVERSITY OF SOUTHAMPTON

At the University of Southampton, a Russell Group university, the combination of incredible people, facilities and support will empower you to get to where you want to be. Studying at a Russell Group university, in the UK top 12 and global top 100, you'll learn from trailblazing academics who are solving the world's most complex challenges. Your degree will take you into the depths of the field, giving you the skills, knowledge and experience you need for your future career.

#12

Joint 12th in the UK in the *Times Higher Education (THE) World University Rankings 2023*

#97

Over 97% of our research environment is world-leading or internationally excellent (*Research Excellence Framework 2021*)

#78

Global Top 100 Universities in *QS World University Rankings 2023*



WHAT SETS THE GMRM PROGRAM APART?

Global Exposure

- Learning activities in Hong Kong and Southampton
- Multi-cultural and cross-continental learning experience
- Learning from the contrasting marine ecosystems in temperate and subtropical regions
- Building professional networks in Hong Kong, Southampton, and beyond
- Alumni memberships in the Hong Kong University of Science and Technology and the University of Southampton

Prestigious Degree

- Double award degree from top-ranked universities
- Uniquely structured programme with comprehensive and coordinated learning activities that take place across two continents
- Springboard to career success and high

academic achievement with cross-disciplinary knowledge and skill sets and multi-national exposure

- Wide range of career opportunities in academia, private entities, NGOs and governmental agencies

World-class Teaching and Research Resources

- Internationally renowned marine scientists at HKUST and the University of Southampton
- Access to learning resources and research facilities at HKUST and the University of Southampton
- Cutting-edge research infrastructure in the Department of Ocean Science and the Ocean Research Facility at HKUST with immediate access to a wide range of coastal habitats
- National Oceanography Centre Southampton (NOCS) with modern laboratory facilities and research vessels

AT A GLANCE

Study Mode

Full-time

Program Duration

1 year

Course Works

Students are required to complete at least 45 credits (90 ECTS) of course works.

Teaching Venue

September to January at National Oceanography Centre Southampton (NOCS), European Way, Southampton.

February to August at HKUST Campus, Clear Water Bay, Hong Kong.

Medium of Instruction

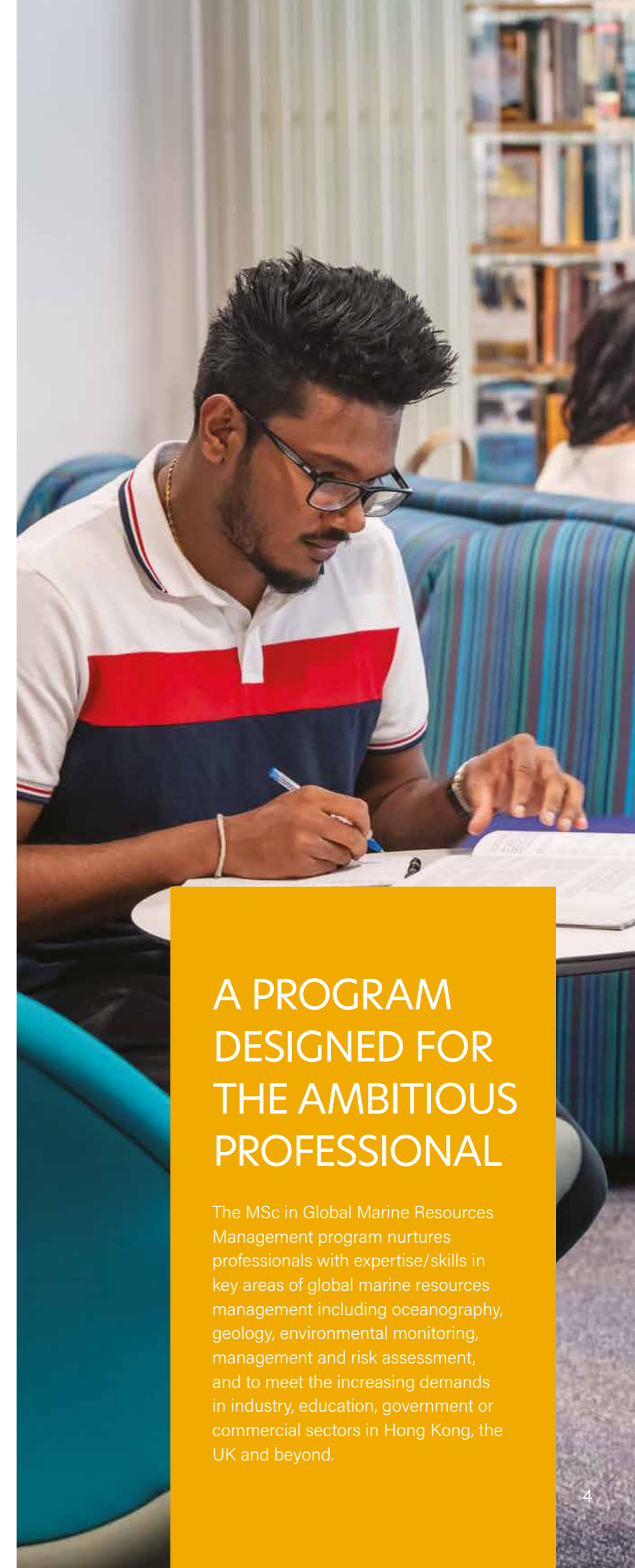
All lectures and teaching materials are in English.

Program Fee

	HKUST	University of Southampton
Non-UK students	\$110,000 +	£8,784
UK students	\$110,000 +	£3,083

Graduation & Degree

- Students must
 - Complete 30 ECTS and 30 credits of work and pass all course requirements at the University of Southampton and The Hong Kong University of Science and Technology; and
 - Attain a cumulative grade average (CGA) of 2.850 or higher (out of a scale of 4.30) as required for all postgraduate students at HKUST; and
 - Achieve a Final Average Mark of 50 or above at the University of Southampton.
- Students will receive two separate certificates from the two universities for the degree of "Master of Science in Global Marine Resources Management", and a transcript from each university.
- A statement will be added to the certificate of each university to reflect that the degree has been awarded under a dual degree arrangement between The Hong Kong University of Science and Technology and the University of Southampton.



A PROGRAM DESIGNED FOR THE AMBITIOUS PROFESSIONAL

The MSc in Global Marine Resources Management program nurtures professionals with expertise/skills in key areas of global marine resources management including oceanography, geology, environmental monitoring, management and risk assessment, and to meet the increasing demands in industry, education, government or commercial sectors in Hong Kong, the UK and beyond.

CROSS-DISCIPLINARY CURRICULUM

SEPTEMBER TO JANUARY AT THE UNIVERSITY OF SOUTHAMPTON

Required Courses		
Key Skills for Global Marine Resources Management	7.5 ECTS	This module provides essential key skills training to MSc students within Ocean and Earth Science.
Introduction to Biological Oceanography	3.75 ECTS	Introduction to general aspects of biological oceanography from phytoplankton to fish. The module follows the flow of energy from light, via primary producers and then through the food chain in a number of typical oceanic systems - from coastal to open-ocean. Students will learn via a series of lectures and guided background reading. Students will gain practical experience through the sampling and data analysis of an estuarine marine systems; this data will be used as the basis of a short report describing the biological components of this system.
Introduction to Physical Oceanography	3.75 ECTS	An introductory module for MSc/MRes students. Topics covered will include: the physical properties of sea water, the dynamics of wind-driven ocean circulation, description of the thermohaline circulation and the role of the ocean in climate variability.
Introduction to Chemical Oceanography	3.75 ECTS	Chemical oceanography covers many facets of marine environmental science and a multitude of different spatial and temporal scales. Topics covered in this module span from evolution of the ocean to controls on chemical speciation in sea water and molecular diffusion processes. Chemical processes are essential in biological systems, they control the geology of the planet and they are key tracers utilised in understanding the physics of the ocean.
Introduction to Marine Geology	3.75 ECTS	This course will cover the formation of ocean basins; the role of mid-ocean ridges in basin scale processes; structure and geological processes at continental margins; sedimentary processes within and on the boundaries of ocean basins; and the past history and impact of sea level change. In addition, methodologies will be covered including the principles and survey design considerations behind bathymetric, echo-sounder, side-scan sonar and seismic methods. Emphasis will be placed on the use of these techniques in both research-led and commercially-led environments. Experience collecting data at sea and practical analysis of example datasets will be included.

Elective Courses* (Choose Any 1 Course)		
Applied and Marine Geophysics	7.5 ECTS	The module covers, at advanced level, three topics that are central to applied geophysics in the marine environment. The first is reflection seismology; the second is potential field methods; and the third is marine electromagnetic surveying.
Biogeochemical Cycles in the Earth System	7.5 ECTS	This module examines in greater depth the sources, sinks and cycles of chemical constituents in the Earth System, particularly the Ocean, with particular reference to processes at the ocean boundaries, the role of particle fluxes and scavenging in removing and redistributing material, and the interactions of biological, geological, chemical and physical oceanographic phenomena.
Deep Sea Ecology**	7.5 ECTS	This module examines the patterns of life in deep-sea environments & the processes that govern those patterns. Students gain experience of analysing real data from ecological surveys of deep-sea environments, including large-scale patterns in diversity and small-scale variation in faunal distribution revealed by a remotely operated vehicle (ROV) dive transect.
Computational Data Analysis for Geophysicists and Ocean Scientists	7.5 ECTS	This module will present a variety of different types of geophysical, oceanographic and remote sensing data and will explore methods for processing, analysing and modelling using MATLAB. The module will introduce statistical analysis, curve fitting and the interpolation of data. The analysis of data in the frequency domain using the Fourier Transform will be covered with applications to filtering in 1-D and 2-D. The fundamentals of computer programming will be taught in practical sessions using MATLAB and will involve implementing the techniques covered in the lectures. The course will include optimal methods for the display of data.
Shelf Seas and Shelf Edge Dynamics	7.5 ECTS	The shelf seas and shelf edge are dynamically very different from the open ocean in terms of typical levels of turbulence and of the control exerted by coastal and seabed boundaries. This module provides you with core knowledge of the processes that govern the relatively shallow shelf seas, from coastal waters to the shelf break. By the end of the course, you will understand a range of physical and biological processes that explain observed structures, distributions and phenomena, both physical and biological, on time scales ranging from seconds to years.

* Course offering of elective courses may vary each year.

** Students who select Deep Sea Ecology at the University of Southampton will not be allowed to select Deep Sea Resources at HKUST.

FEBRUARY TO MAY AT THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY (HKUST)

Required Courses		
Environmental Impact and Risk Assessment	3 credits	This course introduces the general principles, processes and methodologies of EIA in different developmental projects locally and globally. Specific socio-economic impacts, environmental law and policy, as well as problems and constraints of EIA implementation will also be discussed and compared through various case studies from developed and developing countries.
Conservation and Sustainable Development	3 credits	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 stakeholder interests among society, economy and environment. It explores ways of finding solutions to the challenges through the promotion of sustainable development.
Sustainable Fisheries and Aquaculture	3 credits	The course aims to acquaint students with the status and operation of marine capture fisheries and aquaculture, as well as their importance to food supply and economics of human society. The course will focus on how natural populations or cultivated stocks of fish and invertebrates can be exploited in a sustainable manner by understanding how abiotic and biotic factors in the marine ecosystem interact to influence biological productivity, consequently the abundance and distribution of fishery target species. The biology of fishery resources, fish stock assessment methods and fishery management strategies are covered using local and global examples to explain how sustainable fisheries and aquaculture can be realized.
Marine Resources Management	3 credits	The course aims to allow students to develop an in-depth knowledge on the marine resources management, with special emphasis on the importance of integrated coastal management (ICM), sustainability of marine resources, as well as marine spatial planning. On completion of this course, students will have thorough understandings on current technologies of ocean surveying, ICM practices in different maritime regions, as well as policies to open oceans.
Research Project in Global Marine Resources Management I	3 credits	This course is the first part of a two-term research project. The aim of the course is to give the students an opportunity to perform a research project within the field of marine resources management under supervision. Students will identify research questions, conduct literature review and draft a research plan on completion of the course.

Elective Courses* (Choose Any 1 Course)

Climate Change: Science, Policy and Management	3 credits	This course prepares graduate students for the development of interdisciplinary research on environmental science, policy and management through a detailed investigation of climate change issues. Based on a review of the scientific research and models that have been developed through international cooperation, students will discuss relevant approaches of atmospheric and oceanographic science and the likely consequences in terms of climate change. In addition, the various technologies of mitigation and adaptation will be surveyed, leading to a discussion of appropriate policies for managing climate change at the global or national level.
Pollution Monitoring and Control	3 credits	This course introduces environmental consequences of air, water, soil 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 applications of modern control technologies, pollution-related legislation and regulations, will also be discussed.
GIS for Environmental Professionals	3 credits	This course Introduces GIS concepts, 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.
Deep Sea Resources**	3 credits	This course covers the essential topics of deep sea science and resource management. It aims to train students with comprehensive understanding of deep sea science and with broad knowledge of deep sea resources. Students should develop the methodologies to utilize different deep sea resources. Students should also know the current status of environmental concerns and regulations of deep sea resources.

JUNE TO AUGUST AT THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY (HKUST)

Required Courses		
Research Project in Global Marine Resources Management II	6 credits	This course is a continuation of Research Project in Global Marine Resources Management I. Students are required to submit interim reports of their works and present their research progress. The aim of the course is to give the students an opportunity to carry out a substantial research project in selected areas of marine resources management, to demonstrate the initiative and intellectual achievement of the investigation by applying skills and knowledge learnt.
Research Project in Global Marine Resources Management III	6 credits	This course is a continuation of the course Research Project in Global Marine Resources Management II. The aim of the course is to give the students an opportunity to perform a research project within the field of marine resources management under supervision according to an individual study plan, to summarize the results in a research report and present the results of the project in an oral exam.

* Course offering of elective courses may vary each year.

** Students who select Deep Sea Ecology at the University of Southampton will not be allowed to select Deep Sea Resources at HKUST.



ENTRY REQUIREMENTS

General Requirements

Applicants to the Master of Science in Global Marine Resources Management Program must hold a Bachelor's degree in Ocean Science, Marine Science, Life Science, Environmental Science, or Earth Science with honors not lower than the second class or with an overall GPA not less than 70%.

Language Requirements

English is the medium of instruction at the University of Southampton and 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 a revised paper-delivered test score of no less than 60 (total scores for Reading, Listening and Writing sections); or
- International English Language Testing System (IELTS) , Academic Module – an overall score of 6.5 with no sub-score lower than 5.5.

Additional Information

Applicants who received an offer with IELTS (Academic Module) overall score lower than 7 (or equivalent TOEFL Test score) are required to attend a 6-week Pre-session English language course offered by the University of Southampton. The tuition fee is £2,700.**

Admission Procedures and Timetable

Submit their applications through HKUST Online Admissions System. Early application is highly encouraged. Offers will be made on a rolling basis.

Applicants are advised to apply as early as possible to allow sufficient time for student visa application, personal preparation, and arrival at England and Hong Kong.

Application Timetable

NOV 2022 | Online application starts
JUN 2023 | Deadline for application

** refers to the total score in one single attempt*

*** subject to annual review and adjustments*



PLANNING YOUR FUTURE CAREER

- Government agencies
- Non-governmental organizations (NGOs)
- Marine environmental consultancies and industrially funded organizations
- Industry (port authorities, aggregate extraction, geophysical survey)
- Pursue further study
 - MPhil, PhD