



SHKU
Science

FACULTY OF SCIENCE
THE UNIVERSITY OF HONG KONG
香港大學理學院



Master of Science in

INTEGRATIVE MARINE ECOLOGY & CONSERVATION

*Safeguarding our oceans for a sustainable future through
integrated marine ecology and conservation practices*

2026-27 (September 2026 intake)

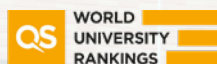
IS THE PROGRAMME FOR YOU

Why this Programme

The curriculum is designed to provide students with training in the principles and practices of integrative marine ecology and conservation. Candidates will gain a fundamental understanding of what is in the coastal ocean, the exploitation of these resources, their function, and how they can be conserved for the future with progressive interventions.

World-class Rankings of HKU

Quacquarelli Symonds (QS)



#11 World Rankings 2026

#1 Asia Rankings 2026

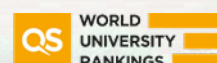
Times Higher Education (THE)



#33 World Rankings 2026

#6 Asia Rankings 2025

Eminent Subject Rankings



QS World University Rankings by Subject 2025:

#29 Earth and Marine Sciences

Top-notch Scientists in the Faculty

Clarivate Analytics' Essential Science Indicators

20.8% of our professoriate staff (average over the past decade) are classified Top 1% scholars

- ◇ Designed to empower environmental practitioners specialised in ocean science and policy
- ◇ Emphasises applications of marine ecology and conservation principles in real-world scenarios, focusing on biodiversity, fisheries, conservation strategies and sustainable practices
- ◇ Curriculum covers a broad spectrum of subjects, including marine biodiversity, seafood trade dynamics, blue carbon and biogeochemistry processes, genomics, conservation methodologies, mariculture techniques and restoration practices
- ◇ Aims to cultivate critical thinking, problem-solving skills and practical experience through hands-on projects and interactions with industry experts

What the Programme Covers

Programme Information



Tuition fees

Composition fee: HK\$300,000 (subject to approval)

Students are required to pay Caution Money (HK\$350, refundable on graduation subject to no claims being made) and Graduation Fee (HK\$350). All full-time students will be charged a student activity fee of HK\$100 per annum to provide support for activities of student societies and campus-wide student events.



Programme duration

Full-time: 1 year



Medium of instruction

English



Study load

Credits: 66 credits

Learning hours: about 1,320 – 1,980 hours



Class schedule

- Core courses held at the Swire Institute of Marine Science in sequential one-month intensive modules
- Bi-weekly day-long courses with lectures in the morning and tutorials in the afternoon



Assessment

- Written coursework
- A dissertation (subject to approval) or project on a topic of the student's choice

Where will this Programme Lead You

Flexibility for students to pursue electives and capstone projects in three tracks:

Academic/Research track: Engage in a comprehensive year-long dissertation project under the guidance of experienced academic supervisors from Hong Kong and China. This track prepares you for a future in academic research and advanced studies.

Policy/NGO track: Gain valuable hands-on experience through a semester-long placement with environmental organisations, complemented by elective courses that enhance your understanding of environmental advocacy.

Entrepreneurship/Industry track: Immerse yourself in the marine innovation sector through internships with regional start-up companies, gaining practical industry experience and entrepreneurial insights in the marine conservation field.

Hosts

School of Biological Sciences

The School was founded in 2007 following the merger of the Departments of Zoology, Botany, and Ecology & Biodiversity. Our members are committed to undertaking research of the highest standard that will be read, cited and applied by colleagues internationally.

The Swire Institute of Marine Science

The Swire Institute of Marine Science (SWIMS) is a research facility of The University of Hong Kong's Faculty of Science, situated on the Cape d'Aguilar peninsula, on the shores of Hong Kong's only Marine Reserve. SWIMS provides a first class research environment for marine scientists, especially postgraduate students.



Learn more about SWIMS:
<https://t.ly/tWWkA>



Design of curriculum (66 credits)
Core Courses (54 Credits)
IMEC7001 Ocean Biodiversity (9 credits)
IMEC7002 Fisheries (9 credits)
IMEC7003 Seafood: Mariculture & Trade (9 credits)
IMEC7004 Conservation Genomics (9 credits)
IMEC7005 Blue Carbon Ecosystems (9 credits)
IMEC7006 Sustainable Development and Engineering (9 credits)
Capstone Courses (9 or 12 credits)
Select one of the capstone courses:
IMEC8007 Dissertation (12 credits) ^A
IMEC8008 Project (9 credits) ^{PE}
Elective Courses (0 or 3 credits)
(Depending on the capstone course taken)
Students choosing the capstone dissertation course to fulfil the 12 credits beyond the core courses, are not required to take additional electives.
IMEC7007 Qualitative Data, Social Science Methods and Decision-making in Environmental Science (3 credits) ^{A,P}
IMEC7008 Tropical and Temperate Marine Ecology Field Course (3 credits) ^A
IMEC7009 Principles of Technology Entrepreneurship (3 credits) ^E
IMEC8009 Internship (3 credits) ^{PE}
BIOL8022 Science Communication (3 credits) ^{A,PE}
ENVM7016 Environmental Policy (3 credits) ^P
ENVM8006 Environmental Impact Assessment (3 credits) ^P

Note: Students may choose electives based on their interest but we identify recommended courses for specific career tracks.
A: recommended for an Academic/Research track
P: recommended for a Policy/NGO track
E: recommended for an Entrepreneurship/Industry track

Core Courses

IMEC7001 Ocean Biodiversity

This course will serve as the basis for understanding the role of biodiversity in underpinning healthy and functioning ecosystems. Coastal marine ecosystems are studied with respect to how biodiversity is measured in these systems, the functions it serves, and the major drivers of biodiversity loss. Students will develop a fundamental understanding of the foundational role of biodiversity in providing services to the environment, economy and society.



IMEC7002 Fisheries

This course will lay the foundation for understanding global capture fisheries and their management and sustainability. Fish biology will be studied in the context of quantifying maximum sustainable yield and evidence-based stock assessments of targeted species. The course will also explore socio-economic considerations for both the developed and developing world, emphasising government subsidies in the former and food security in the latter. Students will develop a fundamental understanding of natural fisheries exploitation and management, and will critically evaluate mechanisms for achieving sustainability and equity across the planet.

IMEC7003 Seafood: Mariculture & Trade

As a natural extension to the Fisheries module, this course will highlight the past, present and future potential of aquaculture and global trade, along with the challenges they face. Aquaculture will be studied in the context of a cost-benefit

analysis with particular attention to 1) the merits of sustainable production to enhance the conservation of natural populations of exploited species and 2) the environmental costs of land and sea-based mariculture. This course will also focus on the global seafood supply chain with respect to the monitoring and enforcement mechanisms. Students will develop a fundamental understanding of global seafood production and trade, and how technological innovation can improve the tractability of aquaculture and traceability of seafood products to the consumer.

IMEC7004 Conservation Genomics

This course will provide students with state-of-the-art genomics tools for the conservation and management of coastal ocean resources. Topics include genetic connectivity of focal species; natural selection and local adaptation across dynamic environments; and the emerging role of assisted evolution in conservation and management. The major emphasis will be on understanding the principles of evolutionary genomics that underlie these analyses/concepts with a focus on the protocols design, their limitations and the data interpretation. In collaboration with BGI, students will be introduced to the emerging technologies in the field and cutting-edge genomic science.



IMEC7005 Blue Carbon Ecosystems

This course will cover the fundamental concepts of coastal biogeochemistry with emphasis on the elemental cycling of carbon and other nutrients. It explores how these cycles can be harnessed as ecosystem services, particularly focusing on Blue Carbon/Blue Finance vehicles for investment in climate adaptation and mitigation. The course primarily centres around examples from Blue Carbon Ecosystems (wetlands, mangroves and seagrasses), with a critical examination of major gaps in translating ecosystem functions into ecosystem services and constraining uncertainties relevant to the realisation of fit-for-purpose financial products. Students will develop a fundamental understanding of coastal marine chemistry and cycling, while being introduced to vital socio-economic considerations for Environmental, Social, and Corporate Governance (ESG) frameworks.

IMEC7006 Sustainable Development and Engineering

This course will focus on active restoration and engineering techniques that aim to restore healthy and productive coastal ocean environments.

Students will be challenged to apply the foundational knowledge gained in previous courses to integrate environmental conservation goals into economic development plans. They will be introduced to the basic concepts of sustainable development and the important role of various stakeholders, i.e., business and financial sectors, local communities, civil society, government and academia.

Capstone Courses

IMEC8007 Dissertation

All students are required to undertake a capstone course as either IMEC8007 or IMEC8008. The Dissertation course is an individual and 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, students develop the research outline in collaboration with their Faculty advisor(s), and then collect data, carry out analysis and write the reports prior to the research colloquium where they will present their work. The candidate shall make a formal presentation on the subject of his/her research

during the second semester of the teaching programme. Substantial work, particularly data collection and analysis, is required in this course.

IMEC8008 Project

All students are required to undertake a capstone course as either IMEC8007 or IMEC8008. This is a group project (2-3 students per group) to be carried out under the supervision of one or more Faculty members. The topic and content of the project will be agreed upon individually by students and the supervisor(s), subject to endorsement by the respective course coordinator. Students may propose their own topics and approach potential supervisors, or they may consider those suggested by Faculty members. Apart from research projects, creative projects such as the production of field guides, books, websites, videos, apps about the environment, environmentally sustainable business models, technological innovations, and action projects such as waste upcycling, biodiversity conservation, environmental education and public campaigns are encouraged.

Elective Courses

IMEC7007 Qualitative Data, Social Science Methods and Decision-making in Environmental Science

This course will introduce the social science and qualitative approaches in environmental science. It will introduce the historical context and philosophical foundation of different approaches to environmental sciences. The course will then adopt a case study-based approach to introduce methodologies and methods. These include the ethical process, collection and analysis of qualitative and quantitative data from focus groups, surveys, interviews and questionnaires. We will also discuss wider methodologies, including ethnographic approaches. Attention will be paid to the suitability of methods to research questions, how studies are conducted and what analyses are used. Students will also investigate how these data are or can be integrated into decision-making processes, including different tools that can be employed for decision-making.

IMEC7008 Tropical and Temperate Marine Ecology Field Course

This course utilises a field-based approach to equip students with an advanced understanding of marine and estuarine ecology in both tropical and temperate regions. Students will acquire scientific techniques in Hong Kong and then leverage these techniques to compare the ecosystems in Australia, gaining insights into their similarities and differences. The course culminates with students developing field-based research projects to unravel ecological questions, using creative and innovative thinking to overcome problems for successful outcomes.



IMEC7009 Principles of Technology Entrepreneurship

The purpose of this course is to introduce students to the entrepreneurial process of the technology industry in general. The introductory course will go through the fundamental aspects of launching a technology entrepreneurial venture to complement the science and technology research and development activities. It will expose students to common practices in the venture development processes, such as opportunity identification and verification, technology transfer and commercialisation. Topics on legal subjects, e.g., intellectual properties and patent laws, and simple financing and strategic approach in business plans will be covered. The course also features sharing sessions by entrepreneurs, providing valuable real-life insights into the technology industry and fostering an entrepreneurial mindset.

IMEC8009 Internship

This course offers students the opportunity to undertake an internship related to integrated marine ecology in universities, NGOs or commercial companies under the supervision of an experienced Environmental Practitioner or Faculty member. Students are required to work for at least 160 hours for the internship during either the first, second or summer semester. During the internship, students need to conduct a desktop study on a topic related to the internship job duties, subject to endorsement by the course coordinator. The written report for the internship should include a fully referenced report for the desktop study, along with sharing and reflection on the internship experiences.

BIOL8022 Science Communication

It is increasingly urgent that scientists effectively communicate their research findings to the general public to enhance scientific literacy and subvert pseudoscientific beliefs and misinformation in a 'post-fact' era. This course aims to equip students with a modern toolkit for effective communication of science while exploring other transferable skills related to professional development in the sciences.

ENVM7016 Environmental Policy

This course focuses on key aspects of environmental policy-making and the policy-implementation processes, such as the emergence and evolution of policy agendas, the shaping of policy outputs by environmental discourse, and the impact of institutions on the trajectories and outcomes of environmental policy measures. Making references to local, national and international cases of both 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.



ENVM8006 Environmental Impact Assessment

Environmental Impact Assessment (EIA) is one of the most important contemporary instruments of environmental management. EIA plays an integral role in many regulatory systems for the environment and is used widely around the world to identify the environmental impacts of development projects, strategic plans and policies. 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.

Research Methods

This course aims to give students some fundamental experience needed to produce a successful Capstone dissertation or project. Students will cover topics such as hypothesis testing, experimental design, scientific writing, data analysis and graphing, coding, and ways to integrate AI.

More course information at:

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





‘The ocean is at the heart of our global Blue Economy. Irrespective of their backgrounds, students from the IMEC programme will be equipped to tackle the challenges of sustainable coastal development.’

Programme Director

Professor David Michael BAKER
Interim Director of SWIMS and Professor
School of Biological Sciences
BA SMCM; MSc American; PhD Cornell

Programme Coordinator

Dr Jonathan CYBULSKI BSc(Hon) USA, MSc USA; PhD HK

Academic Staff

Dr CY LEE BSc(Hon) HK, PhD HK

Expert Lecturers

Professor Fabrice NOT Station Biologique de Roscoff, French National Centre for Scientific Research, France

Professor Kelton MCMAHON University of Rhode Island, Graduate School of Oceanography, USA

Professor Daniel PAULY University of British Columbia, Canada

Professor Cui LIANG Institute of Oceanology, Chinese Academy of Sciences, China

Professor Vicky LAM University of British Columbia, Canada

Professor Ling CAO Xiamen University, China

Dr Andy CORNISH Cornerstone Strategies, Hong Kong

Professor Mónica MEDINA Penn State University, USA

Professor Matt LERAY HKU, Hong Kong; Smithsonian Tropical Research Institute, Panama

Professor Guanghui LIN Tsinghua University, China

Professor Laura AIROLDI University of Padova, Italy

Admissions

Requirements

- ◇ A Bachelor’s degree in any field
- ◇ Should possess knowledge of basic biology, ecology and chemistry with a record of relevant coursework
- ◇ Fulfil the University Entrance Requirements

How to apply

Application deadlines:
Non-local applicants: **12:00 noon (GMT +8), April 30, 2026**
Local applicants: **12:00 noon (GMT +8), May 29, 2026**

Online application:
admissions.hku.hk/tpg



Expected degree conferment will take place in

November / December 2027 (Winter Congregation)

Further Information


Programme details
t.ly/3W8HN



Enquiries

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