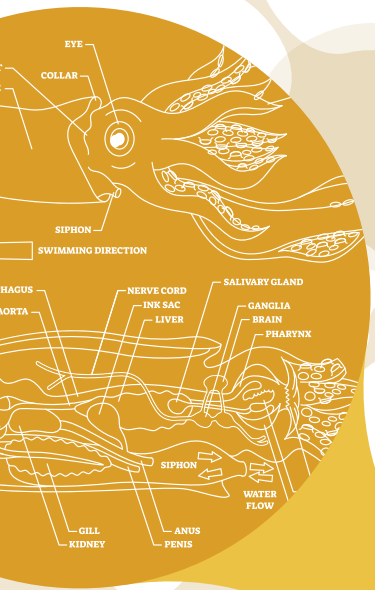
香港科技大學
THE HONG KONG UNIVERSITY OF SCIENCE AND TECHNOLOGY

BSc in Ocean Science and Technology (OST)

Earth is an ocean planet - more than 70% of its surface is covered by seawater. The ocean has been the largest and most important life-supporting system on the planet since the birth of life, producing over half of the world's oxygen and absorbing 50 times more carbon dioxide than our atmosphere. Apart from regulating the global climate, the ocean is also vital to the world's economy with more than 90% of trade using sea routes and as a source of jobs and food for millions of people. Unfortunately, our marine ecosystem has been facing unprecedented threats such as pollutions, habitat destruction and over-exploitation as a result of human activities.

Ocean science and technology is becoming essential for understanding the functioning of the Earth's ecosystem and supporting the sustainability of our future development. Scientific understanding of the ocean's responses to climate change and other human disturbances is fundamental for sustainable development. BSc in Ocean Science and Technology (OST) is an integrative program that offers students with a comprehensive foundational understanding of the cross-disciplinary ocean science and technology, and provides exposure to the cutting-edge scientific and technological development related to investigating, conserving and managing ocean resources.



School of 理學院 Science

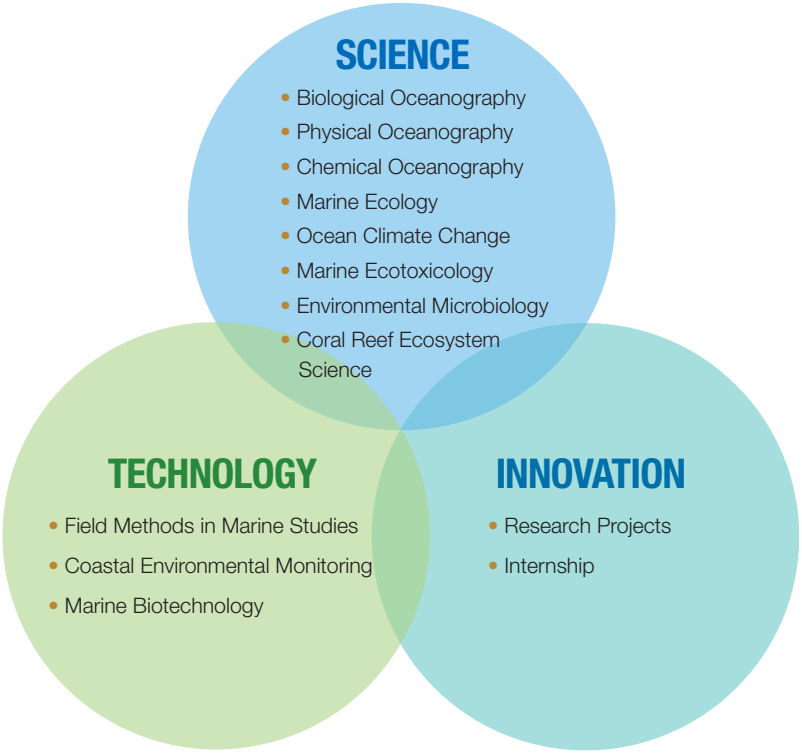
Program Highlights

This program covers a variety of courses in different aspects of ocean science, which include:

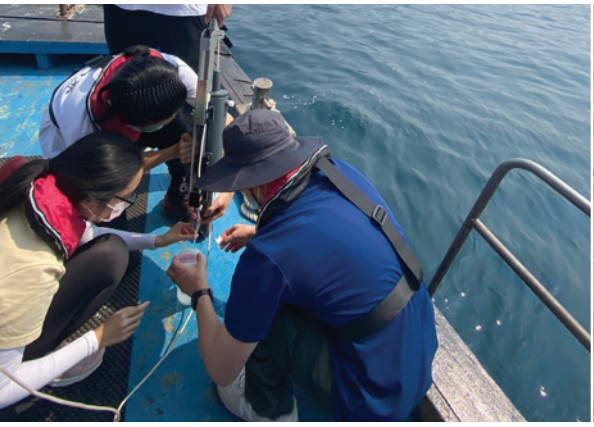
- **Foundation:** biological, chemical and physical processes in the ocean, ecosystem functions;
- **Technology:** marine instrumentation, data management, pollution tracking;
- **Applications:** pollution bioremediation, environmental impact and risk assessment;
- **Socio-economy:** conservation and management of marine resources, fisheries and aquaculture.

Cross-disciplinary Curriculum

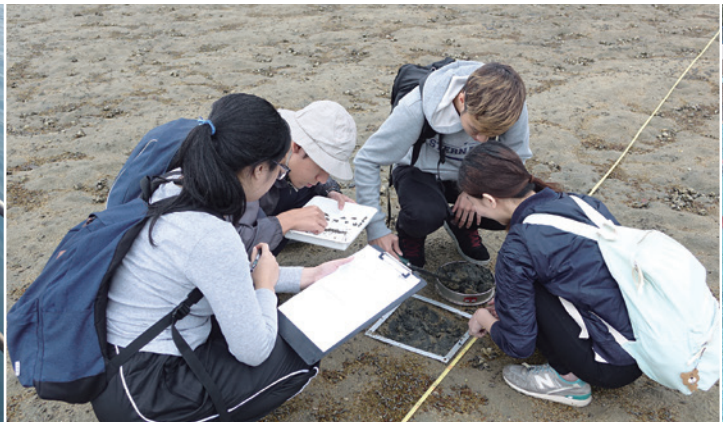
A major emphasis of the curriculum is the provision of practicum experience, experiential learning and field trips to enhance students' academic, career and personal development.



Field Trips, Internship and Research Opportunities



Students collecting seawater sample for experiment



Students identifying species found from a quadrat

Major Options

The OST program offers **Marine Ecology Option** and **Oceanography Option** for students to choose based on their study interests in Ocean Science. Students who are competent and interested in research career can also opt for the International Research Enrichment (IRE) Track, which offers outstanding students the additional resources and opportunities to nurture their research abilities.

Extended Major Options

Extended Major is not a standalone major, but is adhered to a certain majors as expanded choices, enabling students to keep abreast of emerging technology and innovation that are shaping our society in a multi-faceted way. OST students can opt for an **Extended Major in Artificial Intelligence (AI)** or **Digital Media and Creative Arts (DMCA)**.

On top of expertise in ocean science and technology, OST students with an Extended Major in AI will acquire the latest knowledge in this emerging technology and learn to apply the knowledge to solve real-world problems such as the predicting the occurrence of harmful algal bloom and predicting climate change.

The Extended Major in Digital Media and Creative Arts is for students who are interested in a career pathway that emphasizes the creation of multimedia contents for promotion and public education in environmental conservation and environmental protection.

Upon the fulfilment of the curriculum requirement, the students will be awarded one of the following degrees:

- BSc in Ocean Science and Technology with an Extended Major in Artificial Intelligence
- BSc in Ocean Science and Technology with an Extended Major in Digital Media and Creative Arts

Students learning diving techniques

Research Excellence

Research Foci

- Marine Ecology
- Oceanography
- Ocean Technology

The Department emphasizes building cross-disciplinary research and educational programs in Ocean Science and Technology. Our primary study sites include the estuarine environment of the Pearl River, the coastal bays of Hong Kong, and the deep sea in the Pacific Ocean and beyond.

The Ocean Research Facility on campus is a key item of infrastructure supporting our marine research, while the Environmental Central Facility provides a range of equipment and technology commonly used in water and atmospheric environmental research.

Career Prospects

Globally, the importance of the marine environment in the provision of natural resources and services to human society has been increasingly recognized. In Hong Kong, as a coastal city within the biologically diverse Western Indo-Pacific region, the demand for talents and professionals related to investigating, conserving and managing ocean resources, including ocean exploration, marine biotechnology and marine research development will be higher than ever due to the need to conserve our marine environment amidst urban development. The graduates of the BSc in OST program will be well-equipped with the skills and knowledge to engage in:

- Government agencies
  - Agriculture, Fisheries and Conservation Department (AFCD)
  - Environmental Protection Department (EPD)
- Non-governmental organizations (NGOs)
- Environmental consultancies
- Pursue further study
  - MPhil, PhD
- Others
  - Teacher
  - Laboratory research assistant

Words from OST Current Student & Graduate

At HKUST, you can find many enrichment activities and exchange opportunities. Through taking an internship course under OST curriculum, I got the chance to intern at Wetland Park and learn about managing wetland and escorting eco tour. Besides, the field trips, lab works and faculty guidance have broadened my horizons, and helped me prepare for career in environmental consultancy.

Winsum TAM
BSc in Ocean Science and Technology

Despite the challenges of being affected by COVID-19 during my study, I found that the OCES department and professors did an excellent job providing OST students with experiences in laboratory work, field trips on boats and visits to significant Hong Kong habitats. The OCES department has dedicated professors that are passionate about teaching and are easy to approach. The OST program is structured to give students a broad range of knowledge, from the physics and chemistry of the oceans to the present impacts of numerous pollution types and habitat destruction. It has an abundance of hands-on experiences and grants invaluable perspectives on current environmental issues.

Rauszen Ocean Annika ABBAS
BSc in Ocean Science and Technology, Class of 2023

Admissions Requirements

Prospective students may apply for either the *Science (Group A) program (JS5102)*, or the *Science (Group B) program (JS5103)* through direct choices in the JUPAS / Non-JUPAS admissions scheme. Students who want to opt for an Extended Major may also apply for the *Science (Group A) with an Extended Major in Artificial Intelligence program (JS5181)*.

Upon completion of the major pre-requisite courses at the end of the first year, students can declare major in Ocean Science and Technology.

The pre-requisite courses include:

- OCES 1001 The Earth as a Blue Planet
- OCES 1010 Principles and Applications of Environmental Science

JOIN OST PROGRAM

GO BEYOND YOUR LIMITS
FIND TRANSFORMATION HERE

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