



# BSc in Ocean Science and Technology (OST)

Earth is an ocean planet - more than 70 percent 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 absorbs 50 times more carbon dioxide than our atmosphere and regulating our climate and weather patterns. 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 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.

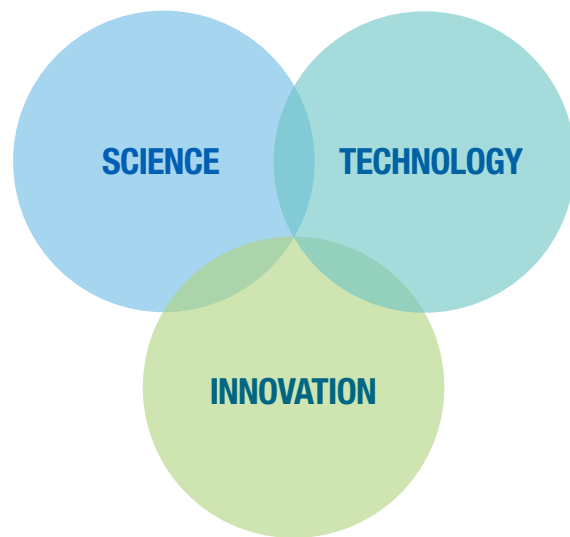


## Program Highlights

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: geographic information system, instrumentation, data management, pollution tracking;
- Applications: marine biotechnology, pollution bioremediation;
- Socio-economy: conservation and management of marine resources, fisheries.

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.



### Cross-disciplinary Curriculum

#### SCIENCE

- Biological Oceanography
- Physical Oceanography
- Chemical Oceanography
- Marine ecology
- Ocean Climate Change
- Marine Ecotoxicology
- Environmental Microbiology

#### TECHNOLOGY

- Marine Biotechnology
- Pollution Tracking

#### INNOVATION

- Research Project
- Internship

## Field Trips, Internship and Research Opportunities



Students preparing sample for experiment



Students identifying species found from a quadrat



Students learning diving techniques

## Major Options

The OST program offers Marine Ecology Option, Oceanography Option and International Research Enrichment (IRE) Track 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

The OST students can opt for an Extended Major in Artificial Intelligence (AI) or Digital Media and Creative Arts (DMCA). 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.

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

## 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 will continue to increase. In Hong Kong, as a coastal city within the biologically diverse Western Indo-Pacific region, the demand for talents and professionals in public, NGOs and private sectors is higher than ever due to the need to conserve our marine environment amidst urban development.

Students of the BSc in OST program will be well-equipped with the skills and knowledge to engage in higher studies and career paths in a number of sectors related to the investigating, conserving and managing ocean resources, including ocean exploration, marine biotechnology, research and development in the private sector and academia, environmental consultancies, government agencies, etc.





## Words from OST Student

At HKUST, you can find many enrichment activities and exchange opportunities. 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.

### TAM Wing Sum Winsum

BSc in Ocean Science and Technology, Class of 2023

## Admissions Requirements

Prospective students may apply for either Science (Group A) program or Science (Group B) program.

In Year 1, students will enroll in science foundation courses according to their interests and background, as well as courses in other areas to fulfil the University Common Core requirement. Upon completion of the major pre-requisite courses at the end of the first year, students can declare major in BSc in Ocean Science and Technology (OST).

The pre-requisite courses include:

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

## JOIN OST PROGRAM

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### School of Science – Undergraduate Admissions

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