



# MARINE SCIENCE

## General Senior Subject

Marine Science is a great choice for students interested in environmental science and marine biology. This subject is a General senior science [ATAR] that focuses on the study of marine environments and marine organisms and the consequences of human influences on the function of ecosystems and the sustainability of the use of ocean resources.

This is a multi-disciplinary science that incorporates aspects of chemistry, biology, geology and oceanographic science in order to understand marine systems. Marine Science aims to develop students sense of wonder and curiosity about the complexity of marine life and the fragile nature of the ecosystems this life occupies; and to develop an appreciation of the need for global stewardship to maintain biological support systems.

Students will learn valuable skills required for the scientific investigation of questions, such as data collection and the interpretation of evidence. Marine Science aims to develop a student's understanding of the techniques used to effectively manage marine resources such as global fisheries and to evaluate critical future issues such as ocean acidification and the effects of a changing climate.

In this subject, students carry out fieldwork [excursions], conduct laboratory experiments and perform research investigations, including the collection and analysis of a range of data.

Marine Science is suited to students who have demonstrated success in junior science and who possess good literacy and numeracy ability.

### Pathways

A course of study in Marine Science can help prepare students for higher education and employment in the fields of marine sciences and marine biology, Great Barrier Reef monitoring and management, marine and Antarctic governance, aquaculture, environmental rehabilitation, biosecurity and quarantine, ports and logistics, natural resource management [government and non-government agencies], conservation and sustainability. Projected industry growth in natural and physical science professionals to 2050 is 21.5% [uTas, 2022]

### Objectives

By the conclusion of the course of study, students will:

- describe and explain scientific concepts, theories, models and systems and their limitations
- apply understanding of scientific concepts, theories, models and systems within their limitations
- analyse evidence
- interpret evidence
- investigate phenomena
- evaluate processes, claims and conclusions
- communicate understandings, findings, arguments and conclusions.

## Structure

Unit 1	Unit 2	Unit 3	Unit 4
<b>Oceanography</b> <ul style="list-style-type: none"> <li>• An ocean planet</li> <li>• The dynamic shore</li> </ul>	<b>Marine biology</b> <ul style="list-style-type: none"> <li>• Marine ecology and biodiversity</li> <li>• Marine environmental management</li> </ul>	<b>Marine systems — connections and change</b> <ul style="list-style-type: none"> <li>• The Reef and beyond</li> <li>• Changes on the reef</li> </ul>	<b>Ocean issues and resource management</b> <ul style="list-style-type: none"> <li>• Oceans of the future</li> <li>• Managing fisheries</li> </ul>

## Assessment

Schools devise assessments in Units 1 and 2 to suit their local context.

In Units 3 and 4 students complete four summative assessments. The results from each of the assessments are added together to provide a subject score out of 100. Students will also receive an overall subject result (A–E).

## Formative assessments

Unit 1		Unit 2	
Formative internal assessment (FIA1): • Data Test – examination	10%	Formative internal assessment (FIA3): • Research Investigation	20%
Formative internal assessment (FIA2): • Student Experiment – report	20%		
Formative internal assessment (FIA4): 50% • Examination – combination responses covering Units 1 & 2			

## Summative assessments

Unit 3		Unit 4	
Summative internal assessment (IA1): • Data Test - examination	10%	Summative internal assessment (IA3): • Research Investigation	20%
Summative internal assessment (IA2): • Student Experiment – report	20%		
Summative external assessment (EA): 50% • Examination — combination responses covering Units 3 & 4			