



# FACULTY OF SCIENCE

## ADMISSION REQUIREMENTS

ELIGIBLE		ADMISSION REQUIREMENTS
All applicants	Band A (FPS)	<b>GUARANTEED ADMISSION</b> FPS of 660 or above and Physical Science 60% or above (see Notes 2 & 3) Mathematics 70% or above and Physical Science 60% or above (see Notes 2 & 3) NBTs in Mathematics; AL & QL to be written
	Band B (WPS)	<b>ADMISSION VERY LIKELY</b> (The Weighted Points Score (WPS; only in Band B) will be determined by applying a weighting factor to the FPS, adjusted by a maximum of 10%, to accommodate school or home background) WPS of 620 or above Mathematics 70% or above and Physical Science 60% or above (see Notes 2 & 3) NBTs in Mathematics; AL & QL to be written
SA applicants in targeted redress race groups	Band C (FPS)	<b>ADMISSION POSSIBLE</b> FPS of 550 or above Mathematics 70% or above and Physical Science 60% or above (see Notes 2 & 3) NBTs in Mathematics; AL & QL to be written

**Note 1:** Acceptance into the Science Faculty does not guarantee acceptance into a chosen major because some majors (currently Biochemistry, Genetics, Geology and Human Anatomy & Physiology) have limits on the number of students that can be accommodated. Selection for these is based on academic criteria which will be clearly communicated to students during the first year of study. Students will be advised in their first year to take courses which could lead to several majors.

**Note 2:** Where applicants have not completed Physical Science in their school-leaving examinations, Life Sciences may replace this requirement but the choice of majors will be restricted to Archaeology and Environmental & Geographical Science.

**Note 3:** For majors in Computer Science and Business Computing only, applicants who have not taken Physical Science may replace it with Information Technology.

**Note 4:** The NBTs are not used as part of the admission point score calculation, but we require all applicants to write these tests as it is used (together with the first class test results and NSC) to identify the first-year students who will be transferred into an extended degree.

**Calculating your Faculty Points Score (FPS):** The FPS (a score out of 800) is calculated as the sum of the percentages achieved in the best six NSC subjects, including English but excluding Life Orientation, and doubling the percentages achieved in Mathematics and Physical Sciences.

For further information contact the Science Faculty Office

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# MARINE BIOLOGY

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Marine biology is the study of life in the sea in all its aspects. The world's oceans cover 70% of the surface of the planet and have an average depth of almost 4 km, thus providing more than 95% of all the 'living space' on earth. They are also the most poorly known of all environments, making marine biology a pioneering science in which new discoveries are frequently made. Cape Town is one of the best locations in the world to study marine biology, as it is situated near three of the world's major oceans: the Atlantic, Indian and Southern. UCT has a long and proud history as a centre of research and education in marine studies.

Students taking this major will learn about marine life in all its forms, from viruses to whales, and about the structure and function of various marine ecosystems, ranging from coral reefs to polar seas and from estuaries to the abyssal depths, with a focus on southern Africa. The third-year courses address management and conservation of marine resources. In addition to formal lectures and assignments, the various courses making up this major have field trips, tutorials and practical sessions that introduce students to experimental and analytical methods used by professional marine scientists.

**WHO WOULD BE INTERESTED IN THIS MAJOR?**  
Any student interested in life in the sea and in the sustainable management of human activities in the sea would find this major of interest. It is also of great interest to anyone with an interest in the diversity of marine life, in nature conservation and in global environmental issues.

### WHAT COURSES WILL YOU TAKE?

The compulsory courses listed below must be included in your selection of courses for a major in Marine Biology. Students are encouraged to take co-majors in either Ocean and Atmosphere Science, Biology, Biochemistry, Genetics, Quantitative Biology or Environmental and Geographical Science.

### 1ST YEAR LEVEL COURSES

- Cell Biology (BIO1000)
- Biological Diversity (BIO1004)
- Chemistry (CEM1000)
- Mathematics (MAM1004)
- Introductory Statistics for Scientists (STA1007)

### 2ND YEAR LEVEL COURSES

- Principles of Oceanography (SEA2004)
- Principles of Ecology & Evolution (BIO2014)

At least one of the following three courses:

- Vertebrate Diversity & Functional Biology (BIO2015)
- Invertebrate Diversity & Functional Biology (BIO2016)
- Plant Diversity & Functional Biology (BIO2017)

### 3RD YEAR LEVEL COURSES

- Marine Ecosystems (BIO3002)
- Marine Resources (BIO3017)

### CAREER OPPORTUNITIES FOR GRADUATES

Students graduating with a BSc degree with a major in Marine Biology are well placed to study further at postgraduate level in either Marine Biology or similar disciplines, either in South Africa or elsewhere. There are career opportunities in private consulting firms, marine fisheries and aquaculture companies; in research establishments such as the Council for Scientific and Industrial Research (CSIR); in the government Department of Environment, Forestry and Fisheries; in conservation agencies; in natural history museums; in the education sector; in various forms of media and tourism; and many more.

### MINIMUM ADMISSION

### AND SUBJECT REQUIREMENTS

FPS of 550  
Mathematics 70% & Physical Science 60%  
NBT in Mathematics; AL & QL to be written





# OCEAN & ATMOSPHERE SCIENCE

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This course deals with the physical attributes of the oceans and their interactions with the atmosphere which determine the weather and climate patterns we experience. Understanding the ocean and the atmosphere is fundamental to understanding climate change and its impacts. Oceanography covers the extent of the oceans, the physical, chemical and biological properties of sea water including salt and heat budgets, sea surface fluxes and ocean circulation. The principal forcing of the ocean is from the atmosphere and the responses of the sea to this forcing produces the tides, the currents and many types of waves. Aspects of currents and water masses in the oceans of the world and coastal oceanography around South Africa provide the focus of regional oceanography and marine biology.

The ocean covers 71% of the planet, but it is the least well known of the environments on Earth. An estimated 40% of marine species have yet to be discovered. You will learn about the functioning of ocean physical and chemical processes, atmosphere-ocean interaction, and biogeochemical cycles in a variety of regions from the tropics to the polar seas and from estuaries to the abyssal depths. Third year courses focus on an integrated approach to ocean circulation in different regions and on the dynamics of the ocean-atmosphere system and climate.

**WHO WOULD BE INTERESTED IN THIS MAJOR?**  
All students who are interested in how the oceans work, in weather and climate patterns, and in climate change. With the new interest in global change, there are excellent opportunities to understand how the ocean plays an important role in keeping our wonderfully diverse and complex planet a sustainable environment for all.

**WHAT COURSES WILL YOU TAKE?**  
The compulsory courses listed below must be included in your selection of courses for a major in Ocean & Atmosphere Science. You are encouraged to take a co-major in either the Biological Sciences, or the Earth and Physical Sciences.

### 1ST YEAR LEVEL COURSES

- Chemistry
- Introduction to Earth & Environmental Sciences
- Mathematics 1004 or Mathematics 1000
- General Physics

- ### 2ND YEAR LEVEL COURSES
- Principles of Oceanography
  - Marine Systems

- ### 3RD YEAR LEVEL COURSES
- Ocean & Atmosphere Dynamics
  - Atmospheric Science

### POSTGRADUATE OPPORTUNITIES FOR GRADUATES

The Oceanography Department also offers postgraduate opportunities in both MSc and PhD degrees. A Masters in Oceanography can either be through the Taught MSc course in Operational Oceanography or as a dissertation study. The taught MSc course covers the global ocean and coastal observing systems, the usage of ocean diagnostics and climate indicators as well as an introduction to the major monitoring techniques for physical and biogeochemical oceanography. Qualified students will have the possibility of participating in an open ocean research cruise. MSc and PhD degrees are also available as a dissertation base, which consists of an investigation of an approved topic chosen for intensive study by the candidate and culminating in the submission of a dissertation. The dissertation demonstrates the successful completion of a programme of training in research methods; a thorough understanding of the scientific principles underlying the research and an appropriate acquaintance with the relevant literature.

### CAREER OPPORTUNITIES FOR GRADUATES

Students graduating with a BSc degree with a major in Ocean & Atmosphere Science are well placed to study further at postgraduate level in Ocean & Atmosphere Science, or in Physical Oceanography, or in Climate Science, to join private industry firms, marine and environmental consulting firms, government agencies such as the South African Weather Service and Department of Environmental Affairs - Oceans & Coast Division, and research establishments such as the Council for Scientific Research (CSIR), the Institute of Maritime Technology and the South African Environmental Observation Network (SAEON).

### MINIMUM ADMISSION AND SUBJECT REQUIREMENTS (See Table on Page 2)

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in Mathematics, AL & DL to be written



UNIVERSITY OF CAPE TOWN  
IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

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## ELIGIBLE

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