



Joint UTAS-CSIRO PhD Program in

Quantitative Marine Science



FACULTY OF SCIENCE, ENGINEERING & TECHNOLOGY

ELIGIBILITY

Students majoring in physical sciences, life sciences or engineering that meet University PhD entry requirements are eligible. Students will have either a strong quantitative background (e.g. maths, physics, statistics) or be required to develop adequate skills through coursework. Prospective students should apply through the discipline or school that is appropriate for their research project.

SCHOLARSHIP INFORMATION

Domestic and international applicants are encouraged to apply for a QMS scholarship. Information on how to apply is available at www.utas.edu.au/cms/scholarships

INTERNATIONAL STUDENTS

International applicants are encouraged to apply for an Endeavour International Postgraduate Research Scholarship as well as the QMS PhD scholarship. The closing date for this scholarship is typically **one month before** the closing date of the QMS PhD scholarship. See further details at www.research.utas.edu.au/gr/scholarships/international_scholarships.htm

QMS PhD scholarships can only be awarded to international applicants who can demonstrate a capacity to meet the extra costs associated with studying abroad, either using personal funds or funds obtained from a scholarship other than the QMS PhD scholarship.

Other useful websites include:

Endeavour Programme

www.endeavour.dest.gov.au

Studying in Australia

www.studyinaustralia.gov.au/Sia/en/Home.htm

FOR MORE INFORMATION

Full course details of the Joint UTAS-CSIRO PhD Program in Quantitative Marine Science are available at www.utas.edu.au/cms/qms

OR CONTACT

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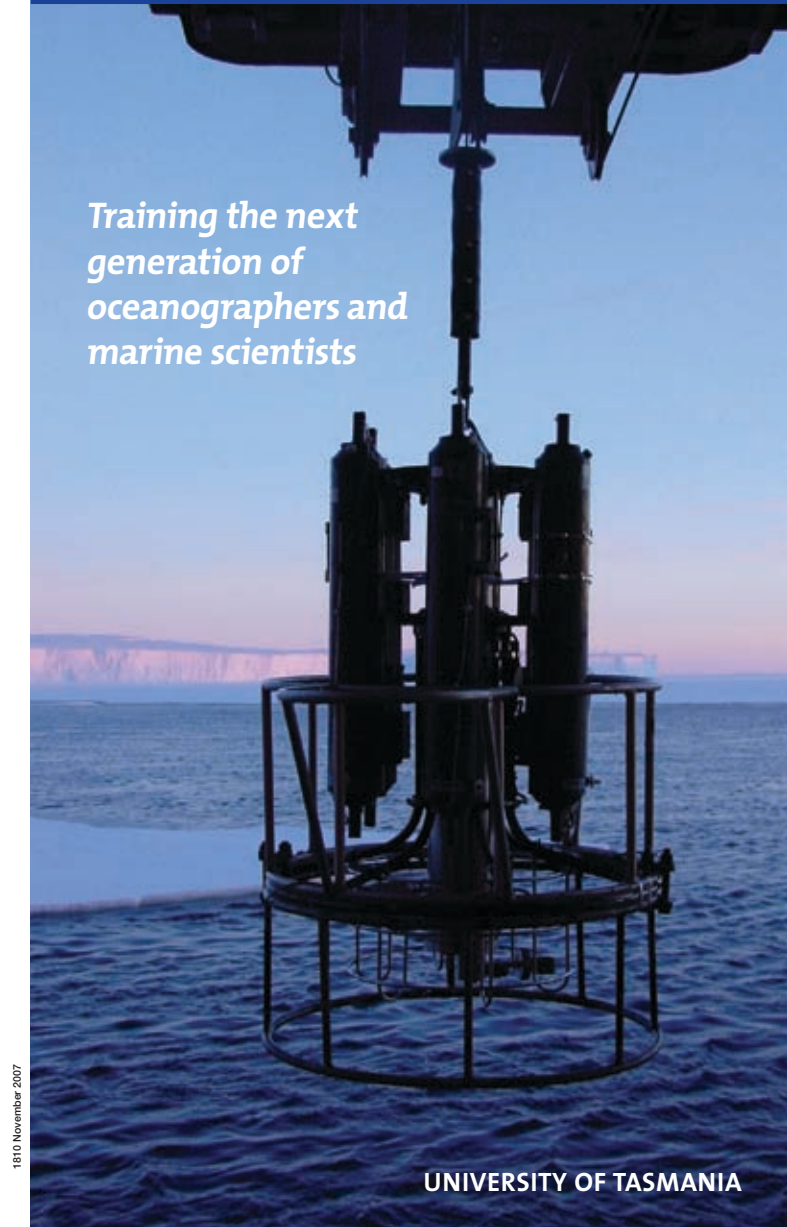
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www.utas.edu.au/cms



CRICOS Provider Code:00586B



Training the next generation of oceanographers and marine scientists

The Faculty of Science, Engineering and Technology encourages applicants from all equity groups.

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UNIVERSITY OF TASMANIA



QUANTITATIVE MARINE SCIENCE

CSIRO Marine & Atmospheric Research and the University of Tasmania are offering a unique PhD program to establish the next generation of oceanographers and marine scientists. The jointly-run program is the first nationally to offer specialised graduate-level coursework in quantitative marine science (QMS). Marine research attracts scientists from a diverse range of backgrounds, with the majority of PhD candidates entering from marine and non-marine bachelor degrees.

Hobart has an international reputation as a centre of excellence in marine science, with a concentration of leading marine scientists from the University of Tasmania, CSIRO Marine & Atmospheric Research (CMAR), the Tasmanian Aquaculture & Fisheries Institute (TAFI), the Antarctic Climate & Ecosystems CRC (ACE CRC), the National Oceans Office, the Commission for the Conservation of Antarctic Marine Living Resources (CCAMLR) and the Australian Antarctic Division.

RESEARCH AREAS

The QMS program is focused on the following four research areas:

Marine Environment Prediction utilises advanced skills to make physical, biological or chemical marine science increasingly predictive and quantitative. New ocean observing systems, numerical models and advanced approaches to model-data assimilation are leading to research projects in ocean-circulation modelling; estimation of the physical state of the ocean; downscaling to coastal environments; biogeochemical and ecosystem modelling; and new applications in interdisciplinary sciences such as fishery oceanography and ecosystem management.

Climate Variability and Resource Management employs skills that allow economic sectors to respond efficiently to climate variability by providing useful predictions based on understanding ocean processes. This project builds on CMAR's *Oceans to Farms* project and capabilities within the University, developing skills in

statistical and dynamical methods of climate prediction and targeting predictions for specific economic management decisions in both terrestrial and marine environments.

Climate and Ecosystems examines ocean processes at basin-wide scales, the role of ocean processes in climate change and the influence of oceanic environment on large marine ecosystems. This area links into ACE CRC research, with a focus on delivering environmental, economic and social value from Australia's engagement in Antarctica, and developing research skills on the dynamics of the role of oceans in the climate system and feedback from ecosystems to the climate system.

Environmental Conservation and Management provides the quantitative decision tools and processes to enable Australia to effectively manage marine biodiversity, ecosystem function and use of marine resources. This area aims to train researchers and managers to use tools to 'see' and understand environmental problems at the systems level. Specific components include habitat and spatial dynamics; population and ecosystem dynamics; the science of fisheries management; environmental risk assessment; management strategy evaluation; and ecological economics.

PROGRAM

Each candidate will have a minimum of two supervisors, one from the relevant school within the University of Tasmania and one from CSIRO Marine & Atmospheric Research. PhD projects undertaken in the QMS program must be approved by the QMS Steering Committee. For a list of approved QMS PhD projects, students should visit www.utas.edu.au/cms/qms.

Applicants are also able to develop their own research project within one or more of the QMS research areas. Interested applicants should contact the QMS PhD Program Director prior to submitting their application to discuss the proposed PhD project, as the project will need QMS Steering Committee approval.

COURSEWORK

The coursework component of the program aims to expand the knowledge base of students and enhance their research experience. The program consists of six units: five compulsory core units and one elective unit. Most units are taught intensively over five days and include lectures, laboratory classes and assignments. Coursework is completed in the first two years, constituting a maximum of one-third of the PhD program. Units are run either in summer school (February) or winter school (June-July). A description of each unit can be found at www.utas.edu.au/cms/qms

CORE UNITS

- Introduction to quantitative marine science
- Physical oceanography
- Marine biogeochemistry
- Fisheries science
- Structure and function of marine ecosystems

ELECTIVE UNITS

- Techniques in remote sensing and GIS
- Management strategy evaluation and risk assessment
- Data analysis methods

FACILITIES

Facilities at both the University of Tasmania and CSIRO Marine & Atmospheric Research, including computer facilities, laboratory access, research vessel support and the use of specialised marine instrumentation and other equipment, will be available to PhD candidates.