



M.Sc. in Applied Oceanography



Master of Science in Applied Oceanography

Operational Oceanography and Marine Studies

Commences in October 2013 - University of Malta

Course Introduction

The Physical Oceanography Unit of the IOI-Malta Operational Centre at the University of Malta is offering a new Master course in Applied Oceanography. It will be held at the University of Malta, as from October 2013 and is open to both local and foreign students.

The course builds on the core principles of oceanography in coastal and open sea domains, with a focus on operational oceanography and the versatile and broad spectrum of disciplines and offshoot applications related to it. The main target of the course is to match the human resource needs in the evolving marine sector at local, European and global scales, providing professionals with wide ranging skills to exploit the outcomes of marine research and technology in favour of the competitiveness of the industry and service sectors. It is also set against a background of the rising industrialisation of seas and oceans with increasing human impact (such as from renewable energy provision, aggregate extraction, fishing and leisure industries) and the extended quest for achieving sustainable development by protecting the marine ecosystem, minimising the impacts of climate change, natural hazards and anthropogenic influences, whilst maximising benefits to society.

This is naturally also fitting to maritime Malta with its 266Km long shoreline, a marine territory up to the 25 nautical mile limit amounting to 20 times the extent of the land area, and the economic, social and scientific dimensions of human activity that are inextricably linked to the sea.

Course Objectives

The course is intended to train post-graduate students and professionals on state-of-the-art methodologies and tools to measure, understand and predict the marine environment, and derive sustained benefits from the sea, to accomplish the human resource backbone to sustain a range of marine-related activities and economic endeavours. It empowers students to comprehend the methods and tools of operational oceanography, and provide a wide view on how this relays into services relying on marine data acquisition and forecasting systems, on applications to sustain the management of marine space, and to improve marine-related activities of economic, social and scientific value in general.

This course is tailor-made for participants aspiring to join several streams of expertise and jobs, amongst others: Management of coastal/marine resources; Policy-making and governance; Marine impact assessment and specialized analysis of environmental scenarios; Marine-related industries, services and economic activities; Marine-related operational activities such as in surveying, surveillance, search & rescue, marine transportation, etc.; Environmental monitoring; Research fields in oceanography; Numerical modelling of the marine environment; Data mining, management, quality control and archival; Marine observations and forecasting.

Course Content

The course programme features the following key elements articulated over seven study units:

- (i) an overview of supporting sciences covering the essentials in physical, chemical, biological and geological oceanography, as well as other baseline topics such as satellite oceanography, marine GIS and spatial planning, etc.;
- (ii) the adoption of specialized methods and tools used in marine studies and assessments; and
- (iii) a focus on dedicated applications and services deriving from operational oceanography such as in relation to marine environmental management and monitoring, policy development and decision making, planning, marine research, marine security, and a range of other marine-related services.

The course is the culmination of several years of endeavour by Prof. Aldo Drago at the helm of several international endeavours in operational oceanography. The course is delivered by an international faculty of high repute and professional academic staff at the University of Malta.

This specialized course spans and merges the legal, socio-economic, scientific and environmental elements into one whole to offer students a wide-ranging vision to marine affairs, linking science to management, putting technology at the service of users and stakeholders, and providing tools for more efficient service oriented applications. Targeted areas of such applications include environmental monitoring and surveillance, assessment and mitigation of risks, marine science-based policy development and strategic planning, climate change, sustainable resource exploitation, ocean governance, marine industries and service provision and the overall empowerment of human resources to face current and emerging challenges in the marine domain. While retaining the necessary elements related to the acquisition of knowledge, the course targets to put an emphasis on achievement of skills, and empower students to excel in performance on applications and operational practices.

Delivery and Duration

The Master in Applied Oceanography is delivered over 3 semesters as a full-time day course with the first run spanning from October 2013 to the end of December 2014. It comprises two taught semesters covering seven study units in the first year. Students have up to end of 1st semester of the successive year to prepare and submit their dissertation. The course also includes an Oceanography Boot Camp involving field work and data analysis.

The course is expected to be offered every year, and the second run of the course would be expected to commence October 2014.

Admissions requirements

The entry requirements for this MSc are a first cycle Honours degree in Science, Engineering, Architecture or Information Technology, or any other subject deemed relevant by the Board of Studies. The course is also open to mid-career professionals aiming to supplement their background with a grounding in marine and maritime studies and willing to augment their academic portfolio. Applicants not in possession of a Bachelor degree may be considered eligible provided that they are in possession of other academic qualifications and experience that together are deemed to be comparable to the admission qualifications and subject to an interview conducted by a board appointed for the purpose. Certified proficiency in Computer Programming and Mathematics is considered to be an essential requisite.

COURSE HIGHLIGHTS: Scientific Baseline of Oceanography • Practical Baseline of Oceanography • Essentials of Operational Oceanography • Data Resources in Operational Oceanography • Oceanography Boot Camp - Field survey and hands-on marine data analysis • Ocean Governance • Applications and Services deriving from Operational Oceanography

Register online at: www.um.edu.mt/apply • Course Coordinator: Prof. Aldo Drago (Head and Director, Physical Oceanography Unit, IOI-MOC)

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