BIOL877

Topics in Australian Marine Science

S1 Day 2017

Dept of Biological Sciences

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General Information

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Credit points 4
Prerequisites Admission to MMarScMgt or MConsBiol or GradDipConsBiol or MPlan or MSc
Corequisites
Co-badged status
Unit description This unit introduces students to current research undertaken in various disciplines of marine science in Australia. It is a multi-institutional unit taught at the Sydney Institute of Marine Science (SIMS) with contributions from the four university partners of SIMS. Lectures and tutorials are taught by leading marine science researchers. Topics cover physical and biological oceanography, climate change, molecular ecology, aquaculture, marine biology and marine geosciences. In practical classes, students analyse and interpret remote-sensing data from the Integrated Marine Observing System, which provides comprehensive information on the biological and physical processes of Australia's coastal and oceanic waters.

Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at https://www.mq.edu.au/study/calendar-of-dates

Learning Outcomes

On successful completion of this unit, you will be able to:

> After completion of this unit, you should be able to adopt a critical thinking, evidence--based approach to key research questions in marine science and management. The acquired knowledge and skills will be directly transferable to the workplace and professional practice. The case-based problems developed for this unit focus on the

following learning outcomes.

1. Understanding of the diversity of IMOS data and instrumentation for data collection: The Australian Integrated Marine Observing System (IMOS) national facility is collecting comprehensive biological data as well as complex physical and oceanographic data that give a real picture of the coast. By being exposed to the full range of IMOS data you will learn about the different instrumentation (remote sensing equipment, acoustic arrays, autonomous underwater vehicles, ocean gliders) that is used to measure marine systems.
2. Formulating and testing hypotheses: IMOS data is being used by researchers to answer important questions such as ocean and climate change and variability, major boundary currents, continental shelf processes and biological responses. You will be able to formulate your own hypotheses associated with these topics and decide on how much data is needed to test it.
3. Accessing and managing data: The internet has made it possible to access large amounts of data covering extensive spatial scales. New skills are needed to access and manage those large data sets. You will learn how to access and manage large datasets using online tools and other software.
4. Analysing large data sets You will develop skills to analyse large data sets that are specific for the marine environment using a variety of software programs and tools specifically developed for the unit.
5. Presenting and visualising data You will learn how to effectively communicate your results through writing a scientific report on your findings.

Assessment Tasks

Name	Weighting	Hurdle	Due
DRAFT ONLY Practical exercises	60%	No	as per SIMS schedule
DRAFT ONLY Writing assignment	10%	No	11 May 2017
DRAFT ONLY Examination	30%	No	8 June 2017

DRAFT ONLY Practical exercises

Due: **as per SIMS schedule**
Weighting: **60%**

Practical Exercises - you will be required to hand in the results of your practical class exercises at the beginning of the practical class the week following the module's completion. Each module is worth 5%, but some may be assessed over two weeks (and so will be worth 10%).

THIS IS A DRAFT ONLY - See the printed SIMS unit guide for TAMS for complete instructions.

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DRAFT ONLY Writing assignment

Due: **11 May 2017**
Weighting: **10%**

***Writing assignment* -** You will be provided with the outline of the writing assignment in week 3. See the SIMS unit guide for TAMS for full instructions.

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DRAFT ONLY Examination

Due: **8 June 2017**
Weighting: **30%**

Examination - see the SIMS printed unit guide for TAMS for instructions (note the duration of the final examination has not been finalised).

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Delivery and Resources

Study commitment

All classes in BIOL877 are held on Thursdays at the Sydney Institute of Marine Science.

Practical classes

The practical classes will introduce you to IMOS – Australia's Integrated Marine Observing System, a national infrastructure facility that collects oceanographic data from Australia's coasts and oceans. These data are made publicly available and used by scientists to explore and monitor biological and oceanographic processes in the coastal and marine environment.

During most weeks of the semester there is a weekly one-hour tutorial followed by a two-hour practical class. Attendance to the tutorials and practical classes is compulsory.

Students absent from more than one practical class without approval will be penalized 5% from

their final semester mark for every class missed.

Please inquire with your university about special consideration for longer absences.

Seminars/lectures

The seminar series is built around the most current research questions in Australian marine science. Scientists from a number of disciplines will present their research and the most important research questions in their field in a one-hour seminar.

Seminars take place weekly.

Unit Schedule

THIS IS A DRAFT TIMETABLE ONLY AND WILL BE UPDATED AT THE FIRST CLASS ON 2 MARCH 2017.

2017 Topics in Australian Marine Science (TAMS) Unit Schedule:

TAMS will be following the Universities Australia Academic dates. As such the first day of classes will be **Thursday 2nd March**. There will be no classes on Thursday 20th April (mid-semester break) and we will finish on 8th June with the exam and a BBQ.

Classes start 9:30AM in the SIMS admin building (Building 19, Chowder Bay Road, Mosman) and finish 2:15.

2017 Topics in Australian Marine Science (TAMS) Course Schedule			
Tutorials/Practical (9:30am – 12:30pm)		**Lunch**	**Seminars (1:15 – 2:15 pm)**
Week 1 (2 Mar)	PRAC 1: 1. Welcome (Peter); 2. Course Overview/Expectations/Computing (Jason & Jess); 3. Introduction to the IMOS Ocean Portal (IMOS; Xavier Hoenner)	Welcome lunch	Marine Microbes around Australia (Justin Seymour)
Week 2 (9 Mar)	PRAC 2: Satellite Remote Sensing (Martina Doblin)		Climate Change (Maria Byrne)
Week 3 (16 Mar)	PRAC 3: Satellite Remove Sensing (Jason Everett and Paulina Cetina-Heredia)	SIMS Lab Tour	Lagrangian Processes (Paulina Cetina-Heredia)
Week 4 (23 Mar)	PRAC 4: Physical Oceanography - Argos and Drifters (Paulina Cetina-Heredia)		Shark Ecology (Vic Peddemors)
Week 5 (30 Mar)	PRAC 5: Physical Oceanography - Gliders (Moninya Roughan)		Moorings (Moninya Roughan)

Week 6 (6 Apr)	PRAC 6: Physical Oceanography - Moorings (Matt Archer)	DPI Age and Growth	Fisheries Research and Management (John Stewart and Doug Ferrell)
Week 7 (13 April)	PRAC 7: Physical Oceanography - Radar (Matt Archer)		Biological Oceanography (Iain Suthers)
Mid-semester break : 25 Mar - 3 Apr			
Week 8 (27 Apr)	PRAC 8: Zooplankton Ecology (Anthony Richardson, Jason Everett & Iain Suthers)		Zooplankton Ecology (Anthony Richardson)
Week 9 (4 May)	PRAC 9: Zooplankton Ecology (Iain Suthers and Jason Everett)	SIMS Visitors Centre	Animal Tracking (Kate Lee)
Week 10 (11 May)	PRAC 10: Animal Tracking (Kate Lee)		Antarctic Marine Research (Graeme Clark)
Week 11 (18 May)	PRAC 11: Animal Tracking (Kate Lee)		Benthic Ecology (Ziggy Marzinelli)
Week 12 (25 May)	PRAC 12: Autonomous Underwater Vehicles (Ziggy Marzinelli)		Large Scale Restoration of Tidal Ecosystems (Will Glamore)
Week 13 (1 Jun)	PRAC 13: Autonomous Underwater Vehicles (Ziggy Marzinelli)		Geosciences (Eleanor Bruce)
Week 14 (8 Jun)	EXAM (Jessica Boomer)	Final BBQ	BBQ

This year it looks like Macquarie also has mid-semester breaks in week 8 of the TAMS program. Students will be expected to attend class in week 8 unless they have a university field trip.

Learning and Teaching Activities

Practical Classes

practical classes will start at 9.30 am in the Seminar Room of the main administration building (Building 19) at the Sydney Institute of Marine Science (SIMS). The practical will run for 3 hours (9.30-12.30) followed by a seminar from 1.15 pm-2.15 pm.

Seminars/lectures

Lectures and tutorials will be taught by leading marine science researchers. Topics will cover physical and biological oceanography, climate change, molecular ecology, aquaculture, marine biology and marine geosciences.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central. Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy http://mq.edu.au/policy/docs/academic_honesty/policy.html

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy_2016.html

Grade Appeal Policy http://mq.edu.au/policy/docs/gradeappeal/policy.html

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration

In addition, a number of other policies can be found in the Learning and Teaching Category of Policy Central.

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: https://students.mq.edu.au/support/student_conduct/

Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in eStudent. For more information visit ask.mq.edu.au.

Student Support

Macquarie University provides a range of support services for students. For details, visit http://students.mq.edu.au/support/

Learning Skills

Learning Skills (mq.edu.au/learningskills) provides academic writing resources and study strategies to improve your marks and take control of your study.

- Workshops
- StudyWise

- Academic Integrity Module for Students
- Ask a Learning Adviser

Student Services and Support

Students with a disability are encouraged to contact the Disability Service who can provide appropriate help with any issues that arise during their studies.

Student Enquiries

For all student enquiries, visit Student Connect at ask.mq.edu.au

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

When using the University's IT, you must adhere to the Acceptable Use of IT Resources Policy. The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

PG - Capable of Professional and Personal Judgment and Initiative

Our postgraduates will demonstrate a high standard of discernment and common sense in their professional and personal judgment. They will have the ability to make informed choices and decisions that reflect both the nature of their professional work and their personal perspectives.

This graduate capability is supported by:

Learning outcomes

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Assessment tasks

- DRAFT ONLY Practical exercises
- DRAFT ONLY Writing assignment

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- Lectures and tutorials will be taught by leading marine science researchers. Topics will cover physical and biological oceanography, climate change, molecular ecology, aquaculture, marine biology and marine geosciences.

PG - Discipline Knowledge and Skills

Our postgraduates will be able to demonstrate a significantly enhanced depth and breadth of knowledge, scholarly understanding, and specific subject content knowledge in their chosen fields.

This graduate capability is supported by:

Learning outcomes

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Assessment tasks

- DRAFT ONLY Practical exercises
- DRAFT ONLY Writing assignment
- DRAFT ONLY Examination

Learning and teaching activities

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PG - Critical, Analytical and Integrative Thinking

Our postgraduates will be capable of utilising and reflecting on prior knowledge and experience, of applying higher level critical thinking skills, and of integrating and synthesising learning and knowledge from a range of sources and environments. A characteristic of this form of thinking is the generation of new, professionally oriented knowledge through personal or group-based critique of practice and theory.

This graduate capability is supported by:

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PG - Research and Problem Solving Capability

Our postgraduates will be capable of systematic enquiry; able to use research skills to create new knowledge that can be applied to real world issues, or contribute to a field of study or practice to enhance society. They will be capable of creative questioning, problem finding and problem solving.

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PG - Effective Communication

Our postgraduates will be able to communicate effectively and convey their views to different social, cultural, and professional audiences. They will be able to use a variety of technologically supported media to communicate with empathy using a range of written, spoken or visual formats.

This graduate capability is supported by:

Learning outcomes

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PG - Engaged and Responsible, Active and Ethical Citizens

Our postgraduates will be ethically aware and capable of confident transformative action in relation to their professional responsibilities and the wider community. They will have a sense of connectedness with others and country and have a sense of mutual obligation. They will be able to appreciate the impact of their professional roles for social justice and inclusion related to national and global issues

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Learning outcomes

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