



# BIOL7770

## Topics in Australian Marine Science

Session 1, Online-scheduled-weekday 2023

*School of Natural Sciences*

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## General Information

Unit convenor and teaching staff

Jane Williamson

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Credit points

10

Prerequisites

Admission to MRes

Corequisites

Co-badged status

BIOL8770

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 will be taught by leading researchers in marine science. Topics cover physical and biological oceanography, climate change, molecular ecology, aquaculture, marine biology and marine geosciences. In practical classes, students will analyse and interpret remote-sensing data from the Integrated Marine Observing System (IMOS), which provides comprehensive information on the biological and physical processes of Australia's coastal and oceanic waters. This gives students hands-on experience in working with and analysing big data sets. Students can attend lessons either at SIMS or fully online.

## 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:

**ULO1:** Understand the diversity of open access data and instrumentation for data collection

**ULO2:** Formulate and test hypotheses within a scientific framework

**ULO3:** Access and managing data, including those from large datasets

**ULO4:** Produce and present data visually

**ULO5:** Evaluate and synthesise a variety of expert opinions within marine science

## General Assessment Information

### Written assignments on Practical Modules (60%)

You are required to hand in written assignments based on the results of exercises completed as part of the practical modules. These will be submitted as an electronic report before the beginning of the practical class the week following the module's conclusion, or as instructed by the lecturer. Reports will include graphs and figures as well as interpretation of your results in the broader context of the topic. Most practical modules are worth 10%. Note: some of the modules may be assessed over multiple weeks and will be worth 20% (Physical Oceanography module). The results of the IMOS practical (Week 1) are not assessed.

### Exam (40%)

The exam is worth 40% of your total mark. More details will be forthcoming closer to the date.

### General Faculty Policy on assessment submission deadlines and late submissions:

#### Late Assessment Submission Penalty

Late assessments are not accepted in this unit unless a [Special Consideration](#) has been submitted and approved.

#### Off-shore students

Off-shore students must email the convenor as soon as possible to discuss study options.

#### COVID Information and on-campus classes

On-campus teaching continues to be scheduled for Session 1, 2023. Masks are compulsory for all classes in indoor spaces and social distancing will be implemented wherever possible. Students will also be required to sanitise surfaces before and after use.

Students are requested to minimise the risk of spreading COVID to themselves and others in accordance with the university and NSW Health guidelines: <https://www.mq.edu.au/about/corona-virus-faqs> and <https://www.nsw.gov.au/covid-19/stay-safe>.

Any further requirements or changes to units in relation to COVID will be communicated to students via iLearn.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Written assignments</a>	60%	No	TBA
<a href="#">Test exam</a>	40%	No	18/05/2023

## Written assignments

Assessment Type <sup>1</sup>: Professional writing

Indicative Time on Task <sup>2</sup>: 60 hours

Due: **TBA**

Weighting: **60%**

You will submit 6 written assignments based on the results of exercises completed as part of the practical modules.

On successful completion you will be able to:

- Understand the diversity of open access data and instrumentation for data collection
- Formulate and test hypotheses within a scientific framework
- Access and managing data, including those from large datasets
- Produce and present data visually
- Evaluate and synthesise a variety of expert opinions within marine science

## Test exam

Assessment Type <sup>1</sup>: Quiz/Test

Indicative Time on Task <sup>2</sup>: 40 hours

Due: **18/05/2023**

Weighting: **40%**

You will sit a written test exam at the conclusion of the unit. The test format can include multiple-choice questions and short answers.

On successful completion you will be able to:

- Understand the diversity of open access data and instrumentation for data collection
- Formulate and test hypotheses within a scientific framework
- Access and managing data, including those from large datasets
- Produce and present data visually
- Evaluate and synthesise a variety of expert opinions within marine science

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<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

## Delivery and Resources

### Written assignments

Assessment Type <sup>1</sup>: Professional writing Indicative Time on Task <sup>2</sup>: 60 hours Due: **TBA**  
Weighting: **60%**

You will submit 6 written assignments based on the results of exercises completed as part of the practical modules.

On successful completion you will be able to:

- Understand the diversity of open access data and instrumentation for data collection
- Formulate and test hypotheses within a scientific framework
- Access and managing data, including those from large datasets
- Produce and present data visually
- Evaluate and synthesise a variety of expert opinions within marine science

### Final test

Assessment Type <sup>1</sup>: Quiz/Test Indicative Time on Task <sup>2</sup>: 40 hours Due: **18/05/2023**  
Weighting: **40%**

You will sit a written test at the conclusion of the unit. The test format can include multiple choice questions and short answers.

On successful completion you will be able to:

- Understand the diversity of open access data and instrumentation for data collection
- Formulate and test hypotheses within a scientific framework
- Access and managing data, including those from large datasets
- Produce and present data visually
- Evaluate and synthesise a variety of expert opinions within marine science

<sup>1</sup> If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

<sup>2</sup> Indicative time-on-task is an estimate of the time required for completion of the assessment

task and is subject to individual variation

### **Practical classes**

The practical classes will introduce you to the IMOS – Australia’s Integrated Marine Observing System, a national infrastructure facility that collects marine 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. In practical classes you will analyse and interpret remotely-sensed data from IMOS, which provides comprehensive information on the biological and physical processes of Australia’s coastal and oceanic waters. Practical classes are run at SIMS.

### **Seminars**

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 1 hour seminar. Seminar topics cover physical and biological oceanography, climate change, molecular ecology, aquaculture, marine biology and marine geosciences. Seminars are given at SIMS.

### **How to get to SIMS and where to park**

You can travel to SIMS by public transport or by car. For the most up to date information on public transport please check <http://www.transportnsw.info/>

If you decide to drive to SIMS please ensure you arrive at class on time. A map of how to get to SIMS is available on the SIMS website [www.sims.org.au](http://www.sims.org.au). Parking is available at an hourly rate or if you have a valid national parks sticker you can park for free in designated areas. Alternatively you can park up in Headland Park, Georges Heights and walk down through the bushtrack. See the course convenor if you need further information.

## **Unit Schedule**

The unit schedule is available on iLearn and through SIMS. Please check this regularly for updates and changes.

## **Policies and Procedures**

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)

- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

## Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) 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](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

## Student Support

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

## The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)

- [Ask a Librarian](#)

## Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

## Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](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.

## Assumed knowledge

This course is data-intensive. You will be downloading, manipulating, and analysing datasets with many thousands of observations. As a result, you need to be proficient in the use of software programs such as Microsoft Excel and basic statistics. We provide below a list of the minimum assumed knowledge to allow you to get the most out of the course. If you are not comfortable with these topics, please spend some time working through the online tutorials we have outlined below.

Sort and Filter Data: <https://support.office.microsoft.com/en-au/article/Watchonlineffb9fcb0-b9cb-48bf-a15c-8bec9fd3a472>

Doing Calculations and writing formulas in Excel: <https://support.office.microsoft.com/en-us/office/create-a-simple-formula-in-excel-11a5f0e5-38a3-4115-85bc-f4a465f64a8a>

Averaging Data: <https://support.office.microsoft.com/en-au/article/Watchonline-6cced0beca49-41c8-a3f2-cb89e566ab90>

Plotting in Excel: <https://support.office.microsoft.com/en-au/article/Watchonline-4d95c6a5-42d2-4cfc-aede-0ebf01d409a8>

Pivot Tables: <https://support.office.microsoft.com/en-au/article/>



Watchonline-7810597d-0837-41f7-9699-5911aa282760

Descriptive statistics - In particular, understanding the mean, standard deviation, standard error, and the normal distribution. Many videos can be found here: <https://www.khanacademy.org/math/probability/descriptive-statistics>