



BIOL242

Marine Environmental Issues

S2 Day 2019

Dept of Biological Sciences

Contents

| | |
|---------------------------------------|----|
| <u>General Information</u> | 2 |
| <u>Learning Outcomes</u> | 3 |
| <u>General Assessment Information</u> | 3 |
| <u>Assessment Tasks</u> | 4 |
| <u>Delivery and Resources</u> | 7 |
| <u>Unit Schedule</u> | 7 |
| <u>Policies and Procedures</u> | 9 |
| <u>Graduate Capabilities</u> | 10 |

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General Information

Unit convenor and teaching staff

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Credit points

3

Prerequisites

(3cp from MATH or STAT units at 100 level) and (6cp from BIOL114 or BIOL115 or BIOL116 or BIOL121 or ENVE117 or ENVS117 or ENV118)

Corequisites

Co-badged status

Unit description

The marine environment is vitally important to humankind. It provides us with food and energy, it serves as a major transportation route, it performs critical roles in nutrient and carbon cycling and is of high recreational value. Overfishing, pollution, habitat damage, invasive species, and climate change are, however, increasingly eroding these important values of marine ecosystems. Because human communities are tightly coupled to coastal marine resources, understanding pathways to sustainability requires understanding as much about humans as about the ocean. In this unit, we will explore factors that contribute to the sustainability and resilience of marine ecosystems and the human communities that depend upon them. We will do so through a series of case studies on topics such as: deep ocean drilling; wind and wave power generation; shoreline engineering and beach management; restoration of coastal wetlands for habitat and carbon values; marine debris; and fisheries and aquaculture.

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:

Identify the key goods and services provided to humans by marine ecosystems, and explain how these are maintained by physical, chemical, geological and biological processes.

Compare and contrast how human activities have historically, are presently and are predicted to in the future modify marine ecosystems and their provision of goods and services.

Compare how different stakeholder groups value marine environments, and identify and explain scenarios under which conflict among these groups might arise.

Explain contemporary and historical approaches to managing marine ecosystems.

Present a clear and scientifically accurate argument to a general audience regarding the need for restoration and conservation of marine habitats.

Develop and test hypotheses regarding human impacts to marine ecosystems.

Critically evaluate peer-reviewed, grey and popular literature on marine ecosystems, their use and management, and integrate information from these sources in written form.

General Assessment Information

Attendance for the entirety of the field trip and each of the 5 practicals is compulsory.

Assessment submission

Submissions of all assessments for this unit will be electronic.

1. For the Journal of learning (x 10) posts:

- You will be required to publish your assessment on iLearn. You will be provided with instructions on publish these at the start of semester. For each of these assessments you will also be required to cut and paste your text into a Word document and submit this to turnitin via the unit's iLearn site for plagiarism detection. We will streamline plagiarism checks of the weekly Journal of Learning Posts by submitting these to turnitin in two batches: a single document, containing the text of posts from week 4-8 posts will be submitted in week 8; in week 13, a single document with text from the week 9-13 posts

will be submitted.

2. The practical report will be submitted to turnitin via the unit's iLearn site.
3. The graphs should be uploaded to the assessment folder, clearly marked 'graphs' in iLearn.

Turnitin is a powerful online tool for the detection of plagiarism. It works by comparing the text of a submitted document (i.e., your assignment) with the work of your current classmates, other courses at Macquarie, as well as published material in books, journals and on the web.

To submit your assignment via turnitin:

Visit the Assessments tab in iLearn, look for the turnitin header and select the relevant assessment item (Practical Report or Field Trip Report).

1. Click on the **Submit Paper** tab.
2. Select **Student Name** of the student who you are submitting on behalf of.
3. Enter a **Submission Title**.
4. Select **Submission Part** if there are multiple parts available.
5. Click **Browse** and select the file you would like to submit.
6. Click **Add Submission**.

Extensions, penalties and special consideration

The deadlines for assignments are not negotiable. If an assignment is submitted late a penalty of -10% of the mark allocated for the assignment will be deducted per day that any work is submitted late (i.e. 5 days late = -50% of marks available).

If you experience a serious and unavoidable disruption to your studies and require an extension for an assessment please submit a Disruptions to Studies notification via ask.mq.edu.au with supporting documentation, and a Professional Authority Form completed by your health care professional. If you anticipate a potentially serious and unavoidable disruption (e.g. upcoming surgery) speak to the unit convenor early and apply for an extension before the due date.

If you receive [special consideration](#) for the final exam, a supplementary exam will be scheduled in the week of December 17-21 2018. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. Approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

Assessment Tasks

| Name | Weighting | Hurdle | Due |
|------------------------|-----------|--------|------------------------|
| Graphs | 15% | No | 1 week after each prac |

| Name | Weighting | Hurdle | Due |
|----------------------------|-----------|--------|-------------|
| <u>Journal of Learning</u> | 30% | No | weeks 4-13 |
| <u>Field Trip Report</u> | 25% | No | 1/11/2019 |
| <u>Final exam</u> | 30% | No | Exam period |

Graphs

Due: **1 week after each prac**

Weighting: **15%**

During the semester, you will complete five practicals. Following each, you will be required to produce a single graph (the format and subject of which will be explained in the practical class), to be submitted by **midnight the Friday following each practical class**:

- Introduction / WHS brief – **due 16 August**
- Using Google Earth to explore patterns of seagrass loss – **due 30 August**
- Snorkelling practical in MQ pool – **due 13 September**
- Mangrove fieldwork – **due 4 October**
- Exploring the deep sea using photo and video analysis – **due 1 November**

Each graph is worth 3% of your final mark

On successful completion you will be able to:

- Develop and test hypotheses regarding human impacts to marine ecosystems.

Journal of Learning

Due: **weeks 4-13**

Weighting: **30%**

Each week, you will work through on-line activities prior to your tutorial. Activities in weeks 4-13 will require that you document learning activities in a weekly blog that is submitted as a single post, by 12 noon the day of your tutorial (i.e. Thursday or Friday). Each post will be worth 3% of your final grade.

On successful completion you will be able to:

- Identify the key goods and services provided to humans by marine ecosystems, and explain how these are maintained by physical, chemical, geological and biological processes.
- Compare and contrast how human activities have historically, are presently and are predicted to in the future modify marine ecosystems and their provision of goods and

services.

- Compare how different stakeholder groups value marine environments, and identify and explain scenarios under which conflict among these groups might arise.
- Explain contemporary and historical approaches to managing marine ecosystems.
- Present a clear and scientifically accurate argument to a general audience regarding the need for restoration and conservation of marine habitats.
- Critically evaluate peer-reviewed, grey and popular literature on marine ecosystems, their use and management, and integrate information from these sources in written form.

Field Trip Report

Due: **1/11/2019**

Weighting: **25%**

On the field trip we will test hypotheses about how groynes directly and indirectly modify marine ecosystems. You will write a report on data acquired during the field-trip, in the style of an article for the journal, Marine and Freshwater Research.

This report is due **midnight on the 1st November**

On successful completion you will be able to:

- Compare and contrast how human activities have historically, are presently and are predicted to in the future modify marine ecosystems and their provision of goods and services.
- Develop and test hypotheses regarding human impacts to marine ecosystems.
- Critically evaluate peer-reviewed, grey and popular literature on marine ecosystems, their use and management, and integrate information from these sources in written form.

Final exam

Due: **Exam period**

Weighting: **30%**

You will apply concepts introduced during this course to solve a variety of problems. You will be asked to interpret data of the type collected during this course.

On successful completion you will be able to:

- Identify the key goods and services provided to humans by marine ecosystems, and explain how these are maintained by physical, chemical, geological and biological processes.
- Compare and contrast how human activities have historically, are presently and are predicted to in the future modify marine ecosystems and their provision of goods and

services.

- Compare how different stakeholder groups value marine environments, and identify and explain scenarios under which conflict among these groups might arise.
- Explain contemporary and historical approaches to managing marine ecosystems.
- Develop and test hypotheses regarding human impacts to marine ecosystems.

Delivery and Resources

In this unit we have replaced lectures with online activities and tutorials. Each week you will:

- Complete an on-line module in iLearn (with a blog documenting learning activities posted by 12 noon of your tutorial day, each week). **This should take you ~3 hrs to complete.**
- Attend a **compulsory** 3 hr tutorial where we will engage in various activities and discussion to further unpack some of the topics.

In addition, each student will complete five practicals during the semester (the dates for these are provided later in this document) and attend a compulsory fieldtrip to Silver Beach Kurnell on **Fri 4 and Sat 5 October**. (9-5pm each day)

- *Tutorials*: Thursday 1-4 pm (4 Western Rd - W5A- 334) OR Friday 2–5 pm (23 Wallys Walk – 202)
- *Practicals*: Fri 9-11 am OR 11 am – 1pm (4WW- room 105 weeks 2,4,11) and field as follows: weeks 6 (university pool) ,7 (buffalo creek). Total of 5 practicals in the session.
- *Field trip*: Fri 4 – Sat 5 October

Required and recommended texts and/or materials

There is no prescribed text book for this course. Instead, you will be directed to required and optional readings through the learning modules in iLearn. Throughout this unit, you are encouraged to keep track of contemporary issues in the marine environment by reading newspaper, listening to the radio and following expert tweets.

Unit web page

The format of this unit requires that you complete learning modules in iLearn. Hence, it is absolutely essential that you log in on a regular basis.

To access the online unit, go to <https://iLearn.mq.edu.au/login/MQ/> and type in your Macquarie OneID Username and password.

New to iLearn? You can find out more at: http://www.mq.edu.au/iLearn/student_info/

Experiencing difficulties? Visit: <http://informatics.mq.edu.au/help/>

Unit Schedule

MODULES

The topics we will cover, and the corresponding dates of tutorials, are listed below. It is absolutely essential that you turn up to tutorials having completed the online module first. The Journal of Learning is due by 12 noon on the day of your tutorial.

| | |
|--------|---|
| Week 1 | An introduction to BIOL242 |
| Week 2 | Marine environments and their ecosystem functions |
| Week 3 | Valuing marine ecosystem services |
| Week 4 | Marine conservation and management |
| Week 5 | Fossil fuel formation in the marine environment |
| Week 6 | Carbon cycling in coastal environments |
| Week 7 | Marine renewable energy |

MID SEMESTER RECESS

| | |
|---------|--|
| Week 8 | Kurnell fieldtrip |
| Week 9 | Aquaculture / lecture on report writing |
| Week 10 | Recreational and commercial fisheries |
| Week 11 | Oceans and estuaries as transport routes |
| Week 12 | Marine pollutants |
| Week 13 | Marine ecotourism |

PRACTICAL CLASSES

For all practical sessions in the 4WW-105 labs, you must be wearing covered shoes to be allowed entry and there is strictly no eating or drinking.

Timetable

| |
|--|
| Week 2 (9 August) - Introduction / WHS brief (4WW- 105) |
| Week 4 (23 August) - Using Google Earth to explore patterns of seagrass loss (4WW- 105) |
| Week 6 (6 September) - Snorkelling practical in MQ pool (MQ Sports and Aquatic Centre) |
| Week 7 (13 September) - Mangrove fieldwork (Buffalo Creek Park) |
| Week 8 (4-5 October) – Field trip (Silver Beach, Kurnell) |
| Week 11 (25 October) – Exploring the deep sea using photo and video analysis (4WW- 105) |

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>). 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](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

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

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/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 or if you are a Global MBA student contact globalmba.support@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

If you are a Global MBA student contact globalmba.support@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

Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

Learning outcomes

- Identify the key goods and services provided to humans by marine ecosystems, and explain how these are maintained by physical, chemical, geological and biological processes.
- Develop and test hypotheses regarding human impacts to marine ecosystems.

Assessment tasks

- Graphs
- Journal of Learning
- Final exam

Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to

demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

Learning outcome

- Critically evaluate peer-reviewed, grey and popular literature on marine ecosystems, their use and management, and integrate information from these sources in written form.

Assessment tasks

- Journal of Learning
- Field Trip Report
- Final exam

Commitment to Continuous Learning

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

Assessment task

- Journal of Learning

Discipline Specific Knowledge and Skills

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary solutions to problems.

This graduate capability is supported by:

Learning outcomes

- Identify the key goods and services provided to humans by marine ecosystems, and explain how these are maintained by physical, chemical, geological and biological processes.
- Compare and contrast how human activities have historically, are presently and are

predicted to in the future modify marine ecosystems and their provision of goods and services.

- Compare how different stakeholder groups value marine environments, and identify and explain scenarios under which conflict among these groups might arise.
- Explain contemporary and historical approaches to managing marine ecosystems.
- Present a clear and scientifically accurate argument to a general audience regarding the need for restoration and conservation of marine habitats.
- Develop and test hypotheses regarding human impacts to marine ecosystems.
- Critically evaluate peer-reviewed, grey and popular literature on marine ecosystems, their use and management, and integrate information from these sources in written form.

Assessment tasks

- Graphs
- Journal of Learning
- Field Trip Report
- Final exam

Critical, Analytical and Integrative Thinking

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

Learning outcomes

- Identify the key goods and services provided to humans by marine ecosystems, and explain how these are maintained by physical, chemical, geological and biological processes.
- Compare and contrast how human activities have historically, are presently and are predicted to in the future modify marine ecosystems and their provision of goods and services.
- Compare how different stakeholder groups value marine environments, and identify and explain scenarios under which conflict among these groups might arise.
- Develop and test hypotheses regarding human impacts to marine ecosystems.
- Critically evaluate peer-reviewed, grey and popular literature on marine ecosystems, their use and management, and integrate information from these sources in written form.

Assessment tasks

- Graphs
- Journal of Learning
- Field Trip Report
- Final exam

Problem Solving and Research Capability

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

Learning outcome

- Develop and test hypotheses regarding human impacts to marine ecosystems.

Assessment tasks

- Graphs
- Field Trip Report
- Final exam

Effective Communication

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication technologies as appropriate.

This graduate capability is supported by:

Learning outcomes

- Identify the key goods and services provided to humans by marine ecosystems, and explain how these are maintained by physical, chemical, geological and biological processes.
- Present a clear and scientifically accurate argument to a general audience regarding the need for restoration and conservation of marine habitats.
- Critically evaluate peer-reviewed, grey and popular literature on marine ecosystems, their use and management, and integrate information from these sources in written form.

Assessment tasks

- Journal of Learning
- Field Trip Report
- Final exam

Engaged and Ethical Local and Global citizens

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

Learning outcomes

- Compare and contrast how human activities have historically, are presently and are predicted to in the future modify marine ecosystems and their provision of goods and services.
- Compare how different stakeholder groups value marine environments, and identify and explain scenarios under which conflict among these groups might arise.
- Explain contemporary and historical approaches to managing marine ecosystems.
- Present a clear and scientifically accurate argument to a general audience regarding the need for restoration and conservation of marine habitats.

Assessment tasks

- Journal of Learning
- Final exam

Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

Learning outcomes

- Compare and contrast how human activities have historically, are presently and are predicted to in the future modify marine ecosystems and their provision of goods and services.

- Compare how different stakeholder groups value marine environments, and identify and explain scenarios under which conflict among these groups might arise.
- Explain contemporary and historical approaches to managing marine ecosystems.
- Present a clear and scientifically accurate argument to a general audience regarding the need for restoration and conservation of marine habitats.

Assessment tasks

- Journal of Learning
- Final exam