BIOL3440

Aquatic Ecosystems

Session 1, Special circumstances, Other 2021

Archive (Pre-2022) - Department of Biological Sciences

Contents

Notice

As part of Phase 3 of our return to campus plan, most units will now run tutorials, seminars and other small group activities on campus, and most will keep an online version available to those students unable to return or those who choose to continue their studies online.

To check the availability of face-to-face activities for your unit, please go to timetable viewer. To check detailed information on unit assessments visit your unit's iLearn space or consult your unit convenor.

General Information

Unit convenor and teaching staff
Anthony Chariton
anthony.chariton@mq.edu.au

Credit points
10

Prerequisites
130cp at 1000 level or above including (BIOL2410 or BIOL227) or (BIOL2310 or BIOL228) or (ENVS3239 or ENVS339)

Corequisites

Co-badged status

Unit description
This unit introduces the diverse nature of aquatic ecosystems, from catchment to coast, their biota, and the physical and chemical factors that have shaped their structure and function. The unit provides a holistic catchment perspective, covering lakes, rivers and estuaries communities, fish, invertebrates and ecosystem processes, with a focus on Australian systems. Students will come to understand the key ecological components and processes in aquatic systems, and how ecological knowledge can be applied to management issues. The unit will provide students with experience in environmental monitoring and manipulative experiments, including formulating hypotheses, designing experiments, data collection, analyses, and communication of results. Students will also gain fundamental field-based skills which underpin the monitoring and assessment of aquatic systems. A basic knowledge of statistics is assumed. This unit has a strong emphasis on fieldwork, with essential supporting and contextual knowledge provided by laboratory classes and lectures. This unit helps prepare individuals for employment in aquatic sciences and is beneficial for those continuing to postgraduate studies in aquatic ecology and management.

This unit also requires ALL students to attend a multi-day fieldtrip in the greater Sydney area.

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: Describe the characteristics and ecological roles of the major biotic groups in aquatic ecosystems. This includes the identification of invertebrates commonly used for monitoring aquatic systems.
ULO2: Comprehensively understand the physical, chemical, and biotic factors in oceans, estuaries, rivers, streams, lakes, and aquifers that influence biota, and ecosystem functions and services.
ULO3: Apply various field and experimental methods for sampling aquatic ecosystems. This includes familarization with the collection of data and the health and safety requirements associated with both lab and field work.
ULO4: Prepare, edit and analyse scientific data and reports to a professional standard. This includes developing aims and hypotheses, the statistical analysis and presentation of data.

General Assessment Information

Academic Honesty – please read, as this is very important

Presenting the work of another person as one's own is a serious breach of the University's rules and carries significant penalties. The University's Academic Honesty Policy can be found at http://www.mq.edu.au/policy/docs/academic_honesty/policy.html

In this unit, we will be checking written work for plagiarism using TURNITIN. Penalties for plagiarism may include a zero mark for the assignment or in more extreme cases, failure of the unit. Plagiarism WILL be noted on your academic record. Full details of penalties can be found at http://www.mq.edu.au/policy/docs/academic_honesty/schedule_penalties.htm

Extensions, penalties and disruptions to studies

Late assignments will attract a penalty of **10%** of the total marks allocated to the exercise per day. You may hand in your work after the due date and escape penalty only if you have an acceptable reason (usually a medical certificate). Discuss your problem with the Lecturer as early as possible before the due date, however note that all requests for extensions MUST be submitted using the online form: ask.mq.edu.au.

Information about the Disruptions to Studies policy and procedure is online at Policy Central: http://www.mq.edu.au/policy/docs/disruption_studies/procedure.html.

Information on managing your Disruptions to Studies: http://students.mq.edu.au/student_admin/manage_your_study_program/disruption_to_studies/

Assessment Tasks

Name	Weighting	Hurdle	Due
Marine Microcosm experiment	35%	No	26th March, 19th May and 26th May

Name	Weighting	Hurdle	Due
Aquatic Environmental Assessment Report	45%	No	4th June
Class quiz	20%	No	29th April
Field work attendance and participation	0%	Yes	7-8 March or 14-15 March and 2/3 May or 9/10 May

Marine Microcosm experiment

Assessment Type [1]: Practice-based task
Indicative Time on Task [2]: 25 hours
Due: **26th March, 19th May and 26th May**
Weighting: **35%**

The marine microcosms will be used in a BACI experimental setup that will be designed by the students. Student groups will be responsible for monitoring the microcosms for the duration of the session. Three assessment tasks will be based on this semester long project. 1. Hypotheses and methods: where students propose their experimental design / manipulation and suggest what outcomes are expected. 2. Data collection over the course of the session. 3. A short report on the results of the experiment.

On successful completion you will be able to:

- Describe the characteristics and ecological roles of the major biotic groups in aquatic ecosystems. This includes the identification of invertebrates commonly used for monitoring aquatic systems.
- Comprehensively understand the physical, chemical, and biotic factors in oceans, estuaries, rivers, streams, lakes, and aquifers that influence biota, and ecosystem functions and services.
- Apply various field and experimental methods for sampling aquatic ecosystems. This includes familarization with the collection of data and the health and safety requirements associated with both lab and field work.
- Prepare, edit and analyse scientific data and reports to a professional standard. This includes developing aims and hypotheses, the statistical analysis and presentation of data.

Aquatic Environmental Assessment Report

Assessment Type [1]: Report
Indicative Time on Task [2]: 33 hours
Due: **4th June**
Weighting: **45%**

As a practicing ecologist or environmental manager, you will be expected to prepare or review documents that describe or predict the likely effects of developments on aquatic ecosystems. The objectives of this assessment task is for you to develop skills in preparing such a report.

Students will complete an environmental assessment report based on a provided scenario. . The report will follow the standard format for a professional scientific report, i.e., it will have an abstract/summary, introduction, materials and methods, results and discussion sections and appendices. It will be appropriately referenced. Further details of the assignment requirements will be provided during the semester.

On successful completion you will be able to:

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- Prepare, edit and analyse scientific data and reports to a professional standard. This includes developing aims and hypotheses, the statistical analysis and presentation of data.

Class quiz

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 10 hours
Due: **29th April**
Weighting: **20%**

The quiz will cover all unit material, including additional reading material prior to the quiz date.

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- Apply various field and experimental methods for sampling aquatic ecosystems. This includes familarization with the collection of data and the health and safety requirements associated with both lab and field work.

Field work attendance and participation

Assessment Type [1]: Field work task
Indicative Time on Task [2]: 0 hours
Due: **7-8 March or 14-15 March and 2/3 May or 9/10 May**
Weighting: **0%**
This is a hurdle assessment task (see assessment policy for more information on hurdle assessment tasks)

All students must attend and participate in two field sessions. The sessions will be held on a weekend and the adjacent following Monday. The field sessions will be in the Greater Sydney region and students will be required to arrange their own travel arrangements. Attendance and participation is compulsory for both internal and external students.

On successful completion you will be able to:

- Describe the characteristics and ecological roles of the major biotic groups in aquatic ecosystems. This includes the identification of invertebrates commonly used for monitoring aquatic systems.
- Comprehensively understand the physical, chemical, and biotic factors in oceans, estuaries, rivers, streams, lakes, and aquifers that influence biota, and ecosystem functions and services.
- Apply various field and experimental methods for sampling aquatic ecosystems. This includes familarization with the collection of data and the health and safety requirements

associated with both lab and field work.

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[1] 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.

[2] 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

All lectures will be delivered online.

All students must attend one Freshwater field day (Sunday) and the following Monday practical and one Marine field day (**Sunday**) and the following practical (**Monday**). You only attend **one** Freshwater and **one** Marine field day and subsequent practical day. Transport will not be provided due to covid. The Freshwater field class will be in Western Sydney and the Marine field class will be with Sydney Harbour. Details will provided in Lecture 1.

Freshwater field and practical days (2021):

Group 1: 7th March (field) and 8th March practical (on campus) **or**

Group 2: 14th March (field) and 15th March practical (on campus).

Marine field and practical days (2021):

Group 1: 2nd May (field) and 3rd May practical (on campus) **or**

Group 2: 9th May (field) and 10th May practical (on campus).

You can be in Group1 on the Freshwater trip/prac and Group 2 in the Marine trip/prac (and vice versa)

There is microcosm experiment component. All students are required to collect data on two occasions for this. Collections will be on campus. A roster will be arranged early in the semester. External students can do this on the days they are doing the freshwater and marine practicals on campus.

No textbook is required for the unit.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (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
- Grade Appeal Policy
- Complaint Management 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). 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) 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 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 help you improve your marks and take control of your study.

- Getting help with your assignment
- Workshops

- StudyWise
- 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

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.