



# BIOL326

## Biology Special Interest Project

S2 Day 2016

*Dept of Biological Sciences*

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## General Information

Unit convenor and teaching staff

Session 2 convenor

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Session1 convenor

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Credit points

3

Prerequisites

39cp and permission of Executive Dean of Faculty

Corequisites

Co-badged status

Unit description

In this unit, students undertake an independent research project under the supervision of one of Macquarie University's marine research staff. High achieving students (GPA >3.0) with a special interest in an area of biological research may be permitted to undertake an independent research project under the supervision of one of biology's research staff. Prior to admission it is necessary for the student to contact the unit coordinator and to have developed a suitable research project with a supervisor. Although there are no formal classes, students are expected to undertake 120 hours of research in the laboratory and/or field pending on the research project. Assessment is based on research performance, team participation, research paper preparation and a seminar.

## 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:

Read and evaluate contributions to biological research published in the peer-reviewed literature.

Understand workplace health and safety issues relating to biological research, and be able to assess risks under appropriate supervision.

Formulate an original research question and develop a suitable experimental design.

Competently use appropriate laboratory and/or field-based techniques to investigate a research question.

Communicate a research question and experimental approach in a short research seminar.

Analyse and interpret biological data.

Manage original research within a given timeframe.

Effectively communicate the research question, methods, results and implications of a short-term biological study, in a format suitable for scientific publication.

## Assessment Tasks

Name	Weighting	Due
<u>Risk Assessment</u>	5%	By arrangement with supervisor
<u>Research skills checklist</u>	5%	By arrangement with supervisor
<u>Research Proposal Seminar</u>	15%	Week 4
<u>Draft Introduction and method</u>	15%	Week 6
<u>Supervisor's Report</u>	30%	Week 13
<u>Scientific Report</u>	30%	Week 13

### Risk Assessment

Due: **By arrangement with supervisor**

Weighting: **5%**

Chemical safety induction and completion of a chemical safety risk assessment for at least one chemical used in the host laboratory. For research that does not involve use of chemicals, completion of a suitable alternative assessment (also safety-based), by arrangement with the Convenor and supervisor.

On successful completion you will be able to:

- Understand workplace health and safety issues relating to biological research, and be able to assess risks under appropriate supervision.

## Research skills checklist

Due: **By arrangement with supervisor**

Weighting: **5%**

Demonstration of competence in a 5-item laboratory/field skills checklist.

On successful completion you will be able to:

- Competently use appropriate laboratory and/or field-based techniques to investigate a research question.

## Research Proposal Seminar

Due: **Week 4**

Weighting: **15%**

A 10-minute seminar outlining the background to the project and the proposed experimental work.

On successful completion you will be able to:

- Read and evaluate contributions to biological research published in the peer-reviewed literature.
- Formulate an original research question and develop a suitable experimental design.
- Competently use appropriate laboratory and/or field-based techniques to investigate a research question.
- Communicate a research question and experimental approach in a short research seminar.
- Analyse and interpret biological data.

## Draft Introduction and method

Due: **Week 6**

Weighting: **15%**

Submit a draft of the Introduction and method sections of your scientific paper (final report).

On successful completion you will be able to:

- Read and evaluate contributions to biological research published in the peer-reviewed literature.

- Formulate an original research question and develop a suitable experimental design.
- Competently use appropriate laboratory and/or field-based techniques to investigate a research question.
- Analyse and interpret biological data.

## Supervisor's Report

Due: **Week 13**

Weighting: **30%**

Each supervisor will prepare a report evaluating the competency of the student during the research project.

On successful completion you will be able to:

- Competently use appropriate laboratory and/or field-based techniques to investigate a research question.
- Manage original research within a given timeframe.

## Scientific Report

Due: **Week 13**

Weighting: **30%**

Submission of a scientific paper based on the findings of the research project.

On successful completion you will be able to:

- Read and evaluate contributions to biological research published in the peer-reviewed literature.
- Formulate an original research question and develop a suitable experimental design.
- Competently use appropriate laboratory and/or field-based techniques to investigate a research question.
- Analyse and interpret biological data.
- Manage original research within a given timeframe.
- Effectively communicate the research question, methods, results and implications of a short-term biological study, in a format suitable for scientific publication.

## Delivery and Resources

### Enrolling in the unit

Students need to find a supervisor and agree on a potential project before you will be allowed to enrol. After you have a supervisor the student must submit a waver request via [ask.mq.edu.au](https://ask.mq.edu.au). Feel free to contact the convenor or an academic advisor if you would like help finding a

supervisor.

### **Delivery of the unit**

Apart from introductory and final classes/information sessions with the Unit Convenor, there are no formal classes for this unit. Students are to arrange their laboratory or fieldwork hours directly with their nominated academic supervisor.

### **Teaching and learning strategy**

Projects will be developed under the supervision of a nominated academic supervisor. The assessments in this unit are designed to provide you with skills that are applicable across broad scientific disciplines. The focus in the early part of semester will be on workplace safety, experimental skills and developing a research proposal. All of these are skills required for independent research. Throughout the semester you will also be expected to develop skills and gain knowledge specific to your project area.

### **Required readings**

There are no centrally allocated required readings for this unit. However, your supervisor will recommend journal articles pertinent to your research project. It is expected that you will read widely within your chosen research area, both for your own interest and in order to prepare your scientific paper.

### **Unit web page**

Information and updates regarding the unit will be placed on the unit iLearn page. Please 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/](http://www.mq.edu.au/iLearn/student_info/)

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

### **Unit communications**

**Announcements:** General announcements from the Convenor or other teaching staff will be communicated using iLearn.

**Discussion board:** In order to discuss issues of relevance to all students with the teaching staff, please use the Discussion Board feature of iLearn. The chances are that if you are confused about something in the unit, so are your peers, so it will be useful to share your questions with all.

**Email:** For matters of a more personal nature, and that do not concern other students, you should contact the Unit Convener by email. Contact details are provided at the start of this document.

### **Extensions and penalties**

5% of the mark allocated for the assignment will be deducted per day that any work is submitted late. If you have a serious and unavoidable disruption to your studies and require an extension

please submit a Disruptions to Studies notification via [Ask.mq.edu.au](http://ask.mq.edu.au) with supporting documentation, and a Professional Authority Form completed by your health care professional. Every effort should be made to seek an extension before the due date unless this is absolutely impossible. If you anticipate any potential problems speak to the unit convenor early

The penalties imposed by the University for plagiarism are serious and may include expulsion from the University. ANY evidence of plagiarism WILL be dealt with following University policy.

## 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](http://mq.edu.au/policy/docs/academic_honesty/policy.html)

**New Assessment Policy in effect from Session 2 2016** [http://mq.edu.au/policy/docs/assessment/policy\\_2016.html](http://mq.edu.au/policy/docs/assessment/policy_2016.html). For more information visit [http://students.mq.edu.au/events/2016/07/19/new\\_assessment\\_policy\\_in\\_place\\_from\\_session\\_2/](http://students.mq.edu.au/events/2016/07/19/new_assessment_policy_in_place_from_session_2/)

Assessment Policy prior to Session 2 2016 <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy prior to Session 2 2016 <http://mq.edu.au/policy/docs/grading/policy.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](http://www.mq.edu.au/policy/docs/complaint_management/procedure.html)

Disruption to Studies Policy [http://www.mq.edu.au/policy/docs/disruption\\_studies/policy.html](http://www.mq.edu.au/policy/docs/disruption_studies/policy.html) *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

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/](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](http://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](http://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](http://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/](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

- Formulate an original research question and develop a suitable experimental design.
- Communicate a research question and experimental approach in a short research seminar.
- Effectively communicate the research question, methods, results and implications of a short-term biological study, in a format suitable for scientific publication.

### Assessment tasks

- Research Proposal Seminar
- Draft Introduction and method



- Scientific Report

## 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 outcomes

- Understand workplace health and safety issues relating to biological research, and be able to assess risks under appropriate supervision.
- Formulate an original research question and develop a suitable experimental design.
- Competently use appropriate laboratory and/or field-based techniques to investigate a research question.
- Analyse and interpret biological data.
- Manage original research within a given timeframe.

### Assessment tasks

- Risk Assessment
- Research skills checklist
- Research Proposal Seminar
- Draft Introduction and method
- Supervisor's Report
- Scientific Report

## 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

- Read and evaluate contributions to biological research published in the peer-reviewed literature.

- Understand workplace health and safety issues relating to biological research, and be able to assess risks under appropriate supervision.
- Formulate an original research question and develop a suitable experimental design.
- Competently use appropriate laboratory and/or field-based techniques to investigate a research question.
- Communicate a research question and experimental approach in a short research seminar.
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## **Assessment tasks**

- Risk Assessment
- Research skills checklist
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- Draft Introduction and method
- Supervisor's Report
- Scientific Report

## **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**

- Read and evaluate contributions to biological research published in the peer-reviewed literature.
- Understand workplace health and safety issues relating to biological research, and be able to assess risks under appropriate supervision.
- Formulate an original research question and develop a suitable experimental design.
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## **Assessment tasks**

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## **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 outcomes**

- Read and evaluate contributions to biological research published in the peer-reviewed literature.
- Understand workplace health and safety issues relating to biological research, and be able to assess risks under appropriate supervision.
- Formulate an original research question and develop a suitable experimental design.
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## **Assessment tasks**

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- Research skills checklist

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- Supervisor's Report
- Scientific Report

## 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

- Read and evaluate contributions to biological research published in the peer-reviewed literature.
- Understand workplace health and safety issues relating to biological research, and be able to assess risks under appropriate supervision.
- Communicate a research question and experimental approach in a short research seminar.
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