



BIOL760

Biology in the 21st Century

S2 Day 2014

Dept of Biological Sciences

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General Information

Unit convenor and teaching staff

Other Staff

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Unit Convenor

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Credit points

4

Prerequisites

Admission to MRes

Corequisites

Co-badged status

Unit description

This unit is designed to provide students with hands-on experience in biological research. Students will do two six-week work experience placements with two different research groups in the Department of Biological Sciences (or elsewhere by negotiation). Work may be in laboratory and field environments or a combination. Students will learn methods used by the research group, assist in particular research projects, attend research group meetings, and, potentially, pursue their own small individual project.

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:

Develop practical skills in laboratory and/or field methods

Evaluate methods section in primary scientific literature

Communicate methods in written forms

Maintain a record of your laboratory activities

Interact with research group members and develop peer networking skills

Understand your roles relative to WHS and apply this to complete WHS requirements

Assessment Tasks

Name	Weighting	Due
Risk assessment	10%	August 8
Research methods compendium	25%	Sept 4; 24th Nov
Research methods section	15%	24 Nov
Supervisor report	50%	NA

Risk assessment

Due: **August 8**

Weighting: **10%**

Workplace health and safety (WHS) is an important aspect of working in a research environment. WHS includes many aspects such as safe handling of chemicals, safe and contained manipulation of biological material that may present hazards to humans or the environment, performance of research within confines of ethics (human and animal) and in accordance to laws and regulations of good workplace practice. Good WHS also includes your workstation and the facilities that you work in.

For this assessment we will look at chemical safety and biohazard safety and preparation of risk assessments. You will have already undertaken chemical training and perhaps biohazard training, however this tutorial will provide you with the opportunity to prepare a risk assessment and assess those of your peers. Instructions for the assessment will be provided in the tutorial.

On successful completion you will be able to:

- Develop practical skills in laboratory and/or field methods
- Evaluate methods section in primary scientific literature
- Communicate methods in written forms
- Understand your roles relative to WHS and apply this to complete WHS requirements

Research methods compendium

Due: **Sept 4; 24th Nov**

Weighting: **25%**

As part of performing research you will learn many techniques and methods. Keeping good records of methods and your experimental data is an important aspect of your

project. Researchers have many ways in which they record their experiments and you will establish a recording mechanism relative to your laboratory (see example below for keeping a laboratory book). One important aspect is the detail of how methods were performed, or a detailed protocol / recipe. Such a record of methods allows for consistency between experiments that you perform over the duration of your project and as a protocol for others to repeat your findings.

For this assessment you need to maintain a compendium of the methods you have learnt, examples of how you may have modified the protocol and any troubleshooting you may have performed to improve the approach. For each method you should have a short description of the principals of the method and its applications. You should also keep reflections on how you went in developing and acquiring the competency in performing methods. This assessment is submitted for feedback on 4th September and for final marking on 4th December 2014. The compendium will assist provide the protocols that you need for your year 2 project.

On successful completion you will be able to:

- Develop practical skills in laboratory and/or field methods
- Evaluate methods section in primary scientific literature
- Communicate methods in written forms
- Maintain a record of your laboratory activities

Research methods section

Due: **24 Nov**

Weighting: **15%**

Although detailed protocols are required for performing methods in a laboratory they need to be presented in a particular style for inclusion in a publication. For this assessment you will liaise with your supervisor and identify methods to be rewritten in the format for a paper. You then need to prepare the methods section accordingly. We will address writing methods for publication in the three hour tutorial session in week 1.

On successful completion you will be able to:

- Develop practical skills in laboratory and/or field methods
- Evaluate methods section in primary scientific literature
- Communicate methods in written forms
- Maintain a record of your laboratory activities
- Interact with research group members and develop peer networking skills

Supervisor report

Due: **NA**

Weighting: **50%**

Your placement supervisors will provide a report to the unit convenors. Supervisors will be evaluating your attendance; understanding of the research; attention to detail; ability to learn new techniques and efficiency in methods performance; participation and enthusiasm; and interactions with team members;

On successful completion you will be able to:

- Evaluate methods section in primary scientific literature
- Maintain a record of your laboratory activities
- Interact with research group members and develop peer networking skills

Delivery and Resources

Week 1 tutorial

Students will participate in a 3 hr introductory tutorial in week 1. Here we will address assessment 1 and look at differences in written format methods i.e. how to write methods for a research paper and develop / present protocols for daily use.

Weeks 2-12 Laboratory placement

We expect that you will spend 135 hours within the research laboratory and participating in research activities. Precise timing of when you work in labs is determined between you and the supervisor.

Unit Schedule

Unit description

This unit is designed to provide MRes students with hands-on experience in biological research, particularly in the area relative to your second year project. Students will do 12 weeks work experience in a research group in the Department of Biological Sciences. Students will learn methods used by the research group, assist in research relative to their project, attend research group meetings, and, potentially, pursue their own small individual project.

Unit Objective

This unit will expose you to research areas within the Department and allow you to develop skills in methodologies that will benefit your 2nd year project. The unit also aims to develop skills to enable you to communicate with different research personnel (research supervisors, postgraduate students and technical staff) and work within a research team.

Workload expectations

BIOL760 is a four credit point unit and requires a workload commitment of 150 hours. We expect that this time will be divided into 1) 3 hour tutorial week one 2) written methods assessment 12 hours and 3) 135 hours of laboratory experience.

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.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

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

Grievance Management Policy http://mq.edu.au/policy/docs/grievance_management/policy.html

Disruption to Studies Policy 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/

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://informatics.mq.edu.au/help/>.

When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

Graduate Capabilities

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

- Develop practical skills in laboratory and/or field methods
- Communicate methods in written forms
- Maintain a record of your laboratory activities
- Understand your roles relative to WHS and apply this to complete WHS requirements

Assessment tasks

- Risk assessment
- Research methods compendium
- Research methods section
- Supervisor report

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:

Learning outcomes

- Evaluate methods section in primary scientific literature

- Communicate methods in written forms
- Maintain a record of your laboratory activities

Assessment tasks

- Risk assessment
- Research methods compendium
- Research methods section
- Supervisor report

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.

This graduate capability is supported by:

Learning outcomes

- Develop practical skills in laboratory and/or field methods
- Communicate methods in written forms
- Interact with research group members and develop peer networking skills
- Understand your roles relative to WHS and apply this to complete WHS requirements

Assessment tasks

- Risk assessment
- Research methods compendium
- Research methods section
- Supervisor report

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

- Develop practical skills in laboratory and/or field methods
- Evaluate methods section in primary scientific literature
- Communicate methods in written forms

- Maintain a record of your laboratory activities
- Interact with research group members and develop peer networking skills
- Understand your roles relative to WHS and apply this to complete WHS requirements

Assessment tasks

- Risk assessment
- Research methods compendium
- Research methods section
- Supervisor report

Changes since First Published

Date	Description
25/06/2014	dates updated
19/06/2014	updated dates and learning outcomes