# BIOL388

**Advanced Science (Biology) 3**

FY1 Day 2016

*Dept of Biological Sciences*

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## Disclaimer

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General Information

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Senior Lecturer, director of Advanced Biology Program
Michelle Power
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by appointment

Credit points
3

Prerequisites
39cp including BIOL188 and admission to BAdvSc

Corequisites

Co-badged status

Unit description
This tutorial unit meets for one hour weekly to discuss hot topics and recent research advances in biology with a variety of scientists from a diverse background. Students undertake a research internship in biology and produce a report (in scientific format) on their findings at the annual conference.

Important Academic Dates
Information about important academic dates including deadlines for withdrawing from units are available at http://students.mq.edu.au/student_admin/enrolmentguide/academicdates/

Learning Outcomes

1. Write a short review paper on a hot topic in biology for a non-specialist audience, demonstrating that you can explain and critically evaluate specific advances and also the broad context of the research
2. Contribute constructively and creatively to an outreach program
3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader
4. Synthesize results from your research project, interpret positively but critically what they mean, communicate this to your peers

General Assessment Information

Unit completion requirements

Students must complete all the assessment tasks. A Satisfactory (or Participated) grade is required in each assessment task in order to pass this subject.

Student learning in this unit is evaluated using two different systems:

Participation tasks (graded as Participated or Did not participate) indicate your level of engagement with learning opportunities. The weekly discussion groups and the weekly online question assessment track active participation rather than performance level.

Feedback assessment tasks allow evaluations of capability. Two of these assessments (one written and one oral) are used in the unit, and high standards are expected. You will be provided with written feedback regarding your performance in these assessments, and the assessment tasks will be graded as Satisfactory or Unsatisfactory.

Assignment submission

All assessments are to be submitted via iLearn. Your work may be submitted to the anti-plagiarism detection software (Turnitin) via iLearn. Your work will be automatically compared to work of your classmates, previous students from Macquarie and other universities, with material available on the Internet, both freely available and subscription-based electronic journals and book chapters. The results will be sent only to the unit convenor, who will analyse them with reference to the University’s Policy on Academic Honesty.

Extensions and penalties

The deadlines for assignments are not negotiable. Late assignments will be penalised. Extensions are granted only on grounds of illness or misadventure, and appropriate supporting documentation must be submitted. All applications for special consideration or extension must be sought before the due date.

Work submitted after 3 weeks beyond the due date, or the date for which an extension has been given, will not be accepted. If you are having problems completing an assignment, please contact the Convenor as soon as possible.

Assessment Tasks

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>weekly discussions</td>
<td>30%</td>
<td>Weekly, 9 am each Wednesday</td>
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# Unit Guide

**BIOL388 Advanced Science (Biology) 3**

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Due</th>
</tr>
</thead>
<tbody>
<tr>
<td>written paper on hot topic</td>
<td>15%</td>
<td>11 Nov 2016</td>
</tr>
<tr>
<td>group project, scoping phase</td>
<td>10%</td>
<td>early May</td>
</tr>
<tr>
<td>internship research project</td>
<td>30%</td>
<td>3 Oct 2016</td>
</tr>
<tr>
<td>presentation about internship</td>
<td>15%</td>
<td>26 Oct 2016</td>
</tr>
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**Weekly Discussions**

**Due:** Weekly, 9 am each Wednesday  
**Weighting:** 30%

Each week, read the required articles and provide a written response to a discussion question relating to the week’s topic (set by the week’s presenter). Blog entries should be no more than 500 words. Participate intelligently and constructively in discussion at the meetings.

This Assessment Task relates to the following Learning Outcomes:
- 1. Write a short review paper on a hot topic in biology for a non-specialist audience, demonstrating that you can explain and critically evaluate specific advances and also the broad context of the research.
- 3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader.

**Written Paper on Hot Topic**

**Due:** 11 Nov 2016  
**Weighting:** 15%

A review-and-communication paper based on your favourite hot topic of the year -- two alternative formats and target audiences. Maximum 1500 words.

This Assessment Task relates to the following Learning Outcomes:
- 1. Write a short review paper on a hot topic in biology for a non-specialist audience, demonstrating that you can explain and critically evaluate specific advances and also the broad context of the research.

**Group Project, Scoping Phase**

**Due:** early May  
**Weighting:** 10%

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http://unitguides.mq.edu.au/unit_offerings/56995/unit_guide/print
assessed via (a) contributions to the blog where ideas are developed (b) observations of your contribution by staff during the project

This Assessment Task relates to the following Learning Outcomes:

• 2. Contribute constructively and creatively to an outreach program
• 3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader

internship research project
Due: 3 Oct 2016
Weighting: 30%

Experience in the conduct of a research project and in working within a collaborative group. Assessed via report from lab supervisor, due 17th Oct 2016

This Assessment Task relates to the following Learning Outcomes:

• 3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader
• 4. Synthesize results from your research project, interpret positively but critically what they mean, communicate this to your peers

presentation about internship
Due: 26 Oct 2016
Weighting: 15%

12 min exposition of the research topic and appraisal of what was learned

This Assessment Task relates to the following Learning Outcomes:

• 4. Synthesize results from your research project, interpret positively but critically what they mean, communicate this to your peers

Delivery and Resources
This unit is for students enrolled in the Advanced Science (Biology) Program. The Advanced Biology Program offers enrichment for students who are achieving strong grades in their regular units and who have energy and curiosity to spare. Some students may go on to become career researchers, but we are enthusiastic also for Adv Biol students to enter media or politics or government or business.

The unit meets for one hour weekly, jointly with Biol388. Most weeks are discussions about hot topics and recent research advances in Biology with a variety of people as discussion-leaders. Topic areas include medical science, molecular biology, ecology, evolution,
palaeontology and biology in the media, to name a few. New for 2016, students will participate in a group project to develop research-based material for a Science Week exercise at Taronga Zoo. Some weeks, discussion will revolve around this project.

A research internship in biology is a component of this unit. BIOL388 is a PACE (Professional and Community Engagement) unit, and a series of support services are offered through the PACE office including opportunities, support and funds for overseas internships. PACE units provide an academic framework through which students can engage with the community, learn through participation, develop their capabilities and build on the skills that employers value. Enquiries about PACE can be directed to pace.science@mq.edu.au.

- Successful completion of this unit will earn you 3 credit points.
- The unit is offered internally for a full year (FY1)

Unit web page

The format of this unit requires that you complete blog entries and download readings from 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/


Unit Schedule

The schedule of presenters and topics for each semester will be listed on iLearn progressively as presenters are confirmed.

SESSION 1

week 1 (Wed 2 March) no meeting

week 2 (Wed 9 March)
Introductory meeting; aims of the Advanced Biology Program; organisation of the year; the group project at Taronga Zoo; internships and PACE; iLearn and blogs

week 3 Wed 16 March
Mark Westoby leading discussion

week 4 Wed 23 March
Michelle Power leading: discussion of group project at Taronga Zoo

week 5 Wed 30 March
guest discussion leader
week 6 Wed 6 April
11-25 April recess
week 7 Wed 27 April
week 8 Wed 4 May
week 9 Wed 11 May
meeting to discuss progress in group project -- wind-up of scoping phase, beginning of detailed planning and implementation
week 10 Wed 18 May
week 11 Wed 25 May
week 12 Wed 1 June
week 13 Wed 8 June

SESSION 2
week 1 Wed 3 August
week 2 Wed 10 August
week 3 Wed 17 August (National Science Week 13-21 Aug)
culmination of group project at Taronga Zoo
Learning and Teaching Activities

preparation for and participation in weekly discussion groups

Readings for each week’s tutorial will be posted on the Advanced Biology iLearn space for download. It is expected that you will read the articles with a critical eye and be prepared for an in-depth discussion. You will be required to demonstrate that you have prepared for the discussion groups by reading the required articles. Each week, you must provide a written response to a discussion question relating to the week’s topic (set by the week’s presenter). The question will be posted on iLearn and answer can be submitted through the iLearn blog space. You can submit your answer to the discussion question anytime until 9 am on Friday. It is extremely important to prepare for each week’s discussion group. Students who have not read the required reading may be asked to leave by the presenter, in which case they will be marked as absent. Attendance at discussion groups is compulsory and a roll will be marked. All students are expected to take part in the discussion.

written paper on selected hot topic

A review-and-communication paper based on your favourite hot topic of the year -- two alternative formats and target audiences. The topic covered may also include subjects not specifically covered during the discussion groups, but you must check the suitability of the topic with the Convenor. The paper is due by midnight on Friday 13th November. (Word limit: 1500 words, excluding references; no more than 2 Figures may be included).

week 4 Wed 24 August
week 5 Wed 31 August
week 6 Wed 7 Sept
week 7 Wed 14 Sept
session 2 recess 19 Sept - 3 Oct
week 8 Wed 5 Oct
week 9 Wed 12 Oct
week 10 Wed 19 Oct
week 11 Wed 26 Oct

Advanced Biology Conference, running 12-2 pm. Will include presentations from Biol3888 students about their internships, plus reporting and appraisal of group project at Taronga Zoo.

week 12 Wed 2 Nov
group project scoping phase
A group project at Taronga Zoo to develop outreach materials. Biol388 will participate in the scoping phase, developing ideas. Assessed via (a) contributions to the blog where ideas are developed (b) observations of your contribution by staff during the project

Seminar at the Advanced Biology Conference
You are to present a seminar of 12 minutes duration on your internship with a research group. You should assume that your audience has a basic understanding of biology, but are not specialists in the topic area. The talks will be presented at the Advanced Biology Conference on Wednesday 26th October from 12-2 pm. The conference will be organized and run by the students. Students will also judge the quality of the presentations using a standardized marking sheet.

internship with research group
Experience in the conduct of a research project and in working within a collaborative group. Assessed via report from lab supervisor, due 17th Oct 2016

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


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 Enquiry Service

For all student enquiries, visit Student Connect at ask.mq.edu.au

Equity 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.

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

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**

- 1. Write a short review paper on a hot topic in biology for a non-specialist audience, demonstrating that you can explain and critically evaluate specific advances and also the broad context of the research
- 2. Contribute constructively and comparatively to a research project
- 4. Synthesize results from your research project, interpret positively but critically what they mean, communicate this to your peers

**Assessment tasks**

- weekly discussions
- written paper on hot topic
- group project, scoping phase
- internship research project
- presentation about internship

**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**

- 1. Write a short review paper on a hot topic in biology for a non-specialist audience, demonstrating that you can explain and critically evaluate specific advances and also the broad context of the research
- 3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader
- 4. Synthesize results from your research project, interpret positively but critically what they mean, communicate this to your peers

**Assessment tasks**

- weekly discussions
- written paper on hot topic
- group project, scoping phase
- internship research project
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

- 1. Write a short review paper on a hot topic in biology for a non-specialist audience, demonstrating that you can explain and critically evaluate specific advances and also the broad context of the research
- 2. Contribute constructively and creatively to an outreach program
- 3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader
- 4. Synthesize results from your research project, interpret positively but critically what they mean, communicate this to your peers

Assessment tasks

- weekly discussions
- written paper on hot topic
- group project, scoping phase
- internship research project
- presentation about internship

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

- 1. Write a short review paper on a hot topic in biology for a non-specialist audience, demonstrating that you can explain and critically evaluate specific advances and also the broad context of the research
2. Contribute constructively and creatively to an outreach program
3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader

Assessment tasks
- weekly discussions
- written paper on hot topic
- group project, scoping phase
- internship research project

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
- 1. Write a short review paper on a hot topic in biology for a non-specialist audience, demonstrating that you can explain and critically evaluate specific advances and also the broad context of the research
- 3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader
- 4. Synthesize results from your research project, interpret positively but critically what they mean, communicate this to your peers

Assessment tasks
- weekly discussions
- written paper on hot topic
- group project, scoping phase
- internship research project

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

• 2. Contribute constructively and creatively to an outreach program
• 3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader
• 4. Synthesize results from your research project, interpret positively but critically what they mean, communicate this to your peers

Assessment tasks

• weekly discussions
• group project, scoping phase
• internship research project
• presentation about internship

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

• 2. Contribute constructively and creatively to an outreach program
• 3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader

Assessment tasks

• weekly discussions
• group project, scoping phase
• internship research project

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

• 2. Contribute constructively and creatively to an outreach program
• 3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader

Assessment tasks

• weekly discussions
• group project, scoping phase
• internship research project

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:

Learning outcomes

• 1. Write a short review paper on a hot topic in biology for a non-specialist audience, demonstrating that you can explain and critically evaluate specific advances and also the broad context of the research
• 2. Contribute constructively and creatively to an outreach program
• 3. Demonstrate skills in teamwork and collegial discussion within a research group, assessed by your own reflection and also by report from the group leader
• 4. Synthesize results from your research project, interpret positively but critically what they mean, communicate this to your peers

Assessment tasks

• weekly discussions
• written paper on hot topic
• group project, scoping phase
• internship research project
• presentation about internship
Changes from Previous Offering

- a group project (but with scope for individual contributions) to communicate biology to school students via a Science Week activity at Taronga Zoo. Biol388 students will participate in the first scoping phase of this project.