



BIOL711

Topics in Evolution

S1 Day 2014

Dept of Biological Sciences

Contents

<u>General Information</u>	2
<u>Learning Outcomes</u>	3
<u>Assessment Tasks</u>	3
<u>Unit Schedule</u>	6
<u>Policies and Procedures</u>	8

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General Information

Unit convenor and teaching staff

Unit Convenor

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Convener

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Credit points

4

Prerequisites

Admission to MRes

Corequisites

Co-badged status

Unit description

Students will formulate a novel research question within a well-defined topic area, conduct a comprehensive review of the primary literature, synthesise this material to address their research question, and present their findings in oral and written forms. The best reviews will unite evidence from disparate areas to generate novel ideas and hypotheses. This unit provides an opportunity for students to learn about an area of scientific research that they may be unfamiliar with at the outset. The intention is to give students an opportunity to gain exposure to a research area that is completely unrelated to their masters research project. It also provides an opportunity for students to learn about the latest work in a wide variety of research areas through discussions and oral presentations presented by their peers. In the past, some literature reviews by students have been published in refereed scientific journals.

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:

- Advance skills in oral presentation of a scientific argument
- Develop skills in scientific writing
- Synthesise primary scientific literature
- Construct a scientific argument

Assessment Tasks

Name	Weighting	Due
Oral presentation	25%	TBA
Discussion participation	5%	Throughout
Proposal	10%	Teusday 11th March 4pm
Essay	60%	Monday 9th June

Oral presentation

Due: **TBA**

Weighting: **25%**

Oral presentation (25%)

You should deliver a 10-minute presentation of your research topic structured as an academic conference presentation, followed by a 5-minute period for questions. Your oral presentation should be accompanied by slides prepared in Powerpoint. This will be an open presentation, meaning any member of the university community may attend, and you should anticipate presenting to the majority of the Biology academic and student community. This should also be seen as an opportunity to gain constructive comment and feedback from your examiners and peers, which may improve your thesis.

In preparing your talk, consult the marking rubric (attached) to understand what examiners looking for in your talk.

Use the following checklist when developing your presentation

qNumbers of slides or overheads is reasonable for length of talk (rule of thumb is one slide per minute)

qSlides are clear and uncluttered (no more than 6 lines of text, at least 20 point font)

qText is legible against the background

qSlides are interesting (text balanced with figures/illustrations)

qFigures / Tables etc are legible, and at an appropriate size and resolution

qSlides have been proofread and spell-checked

qGimmicks such as complicated backgrounds and animation are used sparingly, or preferably not at all

qTalk runs for the allotted time

qTalk is well organized to provide a linear and coherent story

qYou have checked that your talk will load up on the computer/projector beforehand

On successful completion you will be able to:

- Advance skills in oral presentation of a scientific argument
- Construct a scientific argument

Discussion participation

Due: **Throughout**

Weighting: **5%**

Participation in class discussion (5%).

Students are required to attend the meetings on the 25th Feb and 1st March and all seminars. Proactive participation in the discussions during these meetings is expected.

On successful completion you will be able to:

- Advance skills in oral presentation of a scientific argument
- Construct a scientific argument

Proposal

Due: **Teusday 11th March 4pm**

Weighting: **10%**

Proposal (10%)

Produce a brief outline of your research topic detailing the question to be addressed, the sub-questions you will consider, an outline of the structure of your review, and six key references you intend to use. Maximum 1 side of A4 paper. The intention of this assessment task is to give early feedback to students on their planned project.

Your research plan will be assessed on

a) Formulation of a clear question and hypothesis;

- b) Strength of supporting research;
- c) Clarity of structure to the review;
- d) Overall communication of your work.

On successful completion you will be able to:

- Synthesise primary scientific literature
- Construct a scientific argument

Essay

Due: **Monday 9th June**

Weighting: **60%**

Essay (60%)

The essay should be written and formatted as a submission-ready review paper in the style of an appropriate journal. Write your report for a scientifically literate but non-specialist audience. This must be fully referenced following the referencing style of the journal. The essay must not exceed 3,5000 words inclusive of references.

A good scientific review requires a clear definition of the problem and question, comprehensive coverage of relevant literature, a concise and unbiased summary of existing evidence, clear structure, precise spelling, grammar and use of written English and a conclusion that addresses the topic question.

You should cite at least 20 papers from the primary peer-reviewed literature in your review, but you may have to read considerably more than this to get a rounded idea of the topic. Emphasis should be placed on recent papers (last 5 years). In preparing your review, consult the standardised marking sheet (attached) to understand what features we are looking for and what mistakes you should avoid.

Use the following list when developing your essay

qAssignment is typewritten

qText is double spaced, 12 point font in Times New Roman or Arial

qText is printed on a single side of the paper

qText is the required length (references not included in word count)

qWord Count is given on the Title page

qText has been proofread and spell-checked

qReferences are reputable sources (not unrefereed web sites)

qReferences are cited at appropriate points within the text

qChosen journal format is given on title page

qFormatting of references in the text and in the reference list follows the journal format

qAssignment is your own work – not copied from reference sources or other students

Assignment submitted on time

On successful completion you will be able to:

- Develop skills in scientific writing
- Construct a scientific argument

Unit Schedule

Unit Objective

“Topics in Evolution” is about getting students to think critically about the role of evolutionary processes in diverse biological phenomena and integrating mechanisms across time and levels of biological organization to form a coherent argument. We will be testing various skills, including: formulation of a well-defined topic area; retrieval of refereed papers on the subject; comprehension and coverage of the published material; synthesis of the diverse papers into a concise and coherent review; and ability to communicate these ideas in oral and written forms. The best theme topic literature review will unite evidence from disparate areas to formulate new ideas or hypotheses. In the past, some theme topic reviews have been submitted as sole-author papers to refereed journals, so this is not just another assessment exercise, but marks your transition from summarizing the thoughts of others to thinking critically and originally about a topic. The theme topic is designed to push you out of your comfort zone into an area that is not the same as your research project. It is also an opportunity to learn about the latest research in a wide variety of areas through the discussions and seminars presented by your peers.

This year the theme is entitled “In the Light of Evolution”, Student will need to develop their own topic within this theme and identify a faculty mentor within the department who is willing to grade your essay and sit in on your oral presentation. After identifying your general subject area, you should refine your topic in consultation with your chosen mentor and other academic staff. The chosen topic must not be related to that chosen for BIOL799.

What kind of topics can be chosen?

Theodore Dobzhansky (1964) noted that “nothing makes sense in biology except in the light of evolution.” The key aspect of this theme is that it asks you to concentrate on the *evolutionary processes* that give rise to *contemporary phenomena*. In formulating a topic,

you are free to focus on any level of biological organization (genotype, phenotype, population, community, ecosystem).

Some examples are listed below. This list is by no means exhaustive.

Disease dynamics

- Role of evolutionary processes in disease dynamics
- Emergence of novel pathogens
- Red Queen Hypothesis
- Disease and the evolution of sex
- Co-evolution of hosts and disease agents
- Disease as a selective force in evolution

Mutualisms

- Origins and evolution of mutualisms
- Endosymbiosis in evolution
- Gene transfer during symbiosis

Community ecology

- Role of stabilizing selection in explaining species coexistence
- Role of contemporary and macroevolutionary processes in generating biodiversity gradients

Behavioral ecology

- Evolution of deception
- Coevolution of predators and prey

IMPORTANT DATES

IMPORTANT DATES			
Tues 25 th February	Initial meeting, explanation of theme topic & examples	10.00-12am	E8A280
Tues 4 th March	Follow up meeting to discuss choice of topic areas	10.00-12am	E8A280
Tues 11 th March	Proposal due [Hard copies submitted to Biology Department Office. Electronic copies submitted via Turnitin accessible through the ILearn website.]	4.00pm	

To be announced	Seminars, attendance at all seminars is compulsory!	9.30am	E8A280
Monday 9 th June	Literature review due [Hard copies submitted to Biology Department Office. Electronic copies submitted via Turnitin accessible through the ILearn website.]	4.00pm	

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.