



BIOL766

Advanced Studies in Palaeobiology

S1 Day 2014

Dept of Biological Sciences

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General Information

Unit convenor and teaching staff

Unit Convenor

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Other Staff

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Credit points

4

Prerequisites

Admission to MRes

Corequisites

Co-badged status

Unit description

This is an advanced unit that exposes students to the best examples of recent (and classic) primary literature across a broad range of fields including palaeobiology, evolutionary biology, ecology and geobiology. In particular, this unit focusses on exciting interdisciplinary research streams where the work of geneticists and embryologists is combined fruitfully with the investigations of palaeobiologists and evolutionary biologists in order to decipher important evolutionary questions. The unit also focusses on the enormous interest in reconstructing past environments through studies of community palaeoecology, taphonomy and ecosystem evolution. Students will participate in and contribute to weekly group based discussions, debates and seminars that aim to probe, critically evaluate and assess topical questions and test prevailing models and/or hypotheses across a wide range of interdisciplinary research themes. The curriculum will include written and oral essay style assessments as well as planning and presentation of a novel research project focused on an important aspect of evolutionary biology and/or palaeobiology. This unit provides students an opportunity to directly interact with research active academic staff, postdoctoral researchers and PhD students from many disciplines including evolutionary biology, palaeobiology, ecology and geoscience.

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:

Undertake high level evaluation, interpretation and synthesis of current topics associated with large spatial, temporal and intellectual scales in evolutionary biology, palaeobiology and ecology.

Design, construct and present innovative written and oral evaluations and interpretations of relevant primary literature at an advanced level.

Organise, lead and convene a group discussion/debate focussed on current or controversial topics in evolutionary biology based on recently published relevant primary sources

Plan and devise a novel research project focussed on an important aspect of evolutionary biology and/or palaeobiology.

Justify and defend your research proposal during group discussion and debate.

Assessment Tasks

Name	Weighting	Due
Early Semester Task	5%	Week 3
Essays	80%	Weeks 8 & 12
Project presentation	15%	Week 11

Early Semester Task

Due: **Week 3**

Weighting: **5%**

All students will be presented with an early assessment task in the unit, the main aim of which is to lay the foundation for good practice in data mining primary scientific literature, evaluating data sources and formatting written work. The exact nature of the task will be designed in consultation with your supervisor. It may take the form of a short 800 word discussion and reply based on one of the papers presented at the weekly Journal Club or a library resource exercise (e.g. production of an annotated bibliography) or a review of a new and pertinent scientific paper or book. The task will be designed as a relevant prelude to the larger essay topics to be completed later in the unit. Feedback and

assessment will be completed in a timely manner to ensure the student has time to correct mistakes and to incorporate feedback into the essay topics.

On successful completion you will be able to:

- Undertake high level evaluation, interpretation and synthesis of current topics associated with large spatial, temporal and intellectual scales in evolutionary biology, palaeobiology and ecology.
- Design, construct and present innovative written and oral evaluations and interpretations of relevant primary literature at an advanced level.
- Organise, lead and convene a group discussion/debate focussed on current or controversial topics in evolutionary biology based on recently published relevant primary sources

Essays

Due: **Weeks 8 & 12**

Weighting: **80%**

Two essays (maximum 2,500 words each) will be produced. These will be based on topics presented during one of the Journal club sessions. The essays will provide you with an opportunity to delve more deeply into the literature and present a more comprehensive analysis of the topic. Essay 1 will be based on a Topic of your choice that is presented in Weeks 1-6 of Semester, whilst Essay 2 will be based on a Topic of your choice that is presented during Weeks 7-12 of semester. Details on submission dates, specific marking criteria and format for each stream will be provided separately.

Students will be assessed on coverage and comprehension of the literature relevant to the chosen topic/s, critical evaluation of the material, and style and writing of the essay.

The essays will be independently assessed by the supervisor and at least one other member of staff with relevant expertise. More staff may be co-opted to act as independent assessors if required.

The due dates will be agreed in discussions between the student and supervisor. Normally essay 1 is handed in by the end of week 8, and essay 2 at the end of Week 12.

On successful completion you will be able to:

- Undertake high level evaluation, interpretation and synthesis of current topics associated with large spatial, temporal and intellectual scales in evolutionary biology, palaeobiology and ecology.
- Design, construct and present innovative written and oral evaluations and interpretations of relevant primary literature at an advanced level.
- Organise, lead and convene a group discussion/debate focussed on current or controversial topics in evolutionary biology based on recently published relevant primary sources

Project presentation

Due: **Week 11**

Weighting: **15%**

Each student will be expected to present a seminar of 20 minutes duration + 10 mins for questions and discussion). This aim of this seminar will be for you to outline the scientific rationale, logistics, materials and methods and funding for a potential Research project that you might like to undertake in Year 2 of your MRES. This will be your chance to outline your potential research questions and discuss the logistical support, methodologies required (field and statistical) as well as funding sources for the project.

You will have a maximum of 20 minutes for your seminar, it is important that your talk is well structured. Remember to keep the structure of your talk simple, but logical. The 20 min seminar will be followed by 10 mins of questions and discussion from the audience.

You will need to carefully evaluate and **present only essential, important and relevant material (especially illustrations) in an organised and logical sequence.** The best seminars are those that are relatively simple, logically organised, clearly illustrated, informative and entertaining!!! Remember that the seminar is worth 15% of your final mark and so we expect high quality work (especially in terms of scientific evaluation, presentation of factually correct info and relevance). Your presentation will be presented during the Week 11 Lab meeting (see Schedule) and the audience will consist of at least 2 staff members, relevant postdocs, PhD and other MRes students will potentially attend. Other students completing BIOL766 will also be present.

Marks will be allocated for:

(a) the scientific content, innovation of the scientific question(s), factual correctness, relevance and feasibility— how well data has been evaluated, synthesised and presented. adequate acknowledgement of relevant sources (40%)

(b) organisation and logistics – the materials and methods to be used in the field and for data analysis are clearly and logically outline. You should provide a timetable for the project. (20%)

(c) funding for the project is clearly provided. If fieldwork is required then cost of all support should be included. All Lab consumables need to be costed. (20%)

(d) clarity of presentation (oral and visual); quality of the visuals presented (20%)

On successful completion you will be able to:

- Plan and devise a novel research project focussed on an important aspect of evolutionary biology and/or palaeobiology.

Delivery and Resources

iLearn

BIOL766 has an online presence on iLearn. To access this site go to <https://ilearn.mq.edu.au/login/MQ/>. You will need your OneID and password to log in. This site reproduces the BIOL766 Unit Outline and other information including assignment dates.

Unit Schedule

Unit description

This is an advanced postgraduate unit that exposes students to the best examples of recent (and classic) primary scientific literature across a broad range of fields including palaeobiology, evolutionary biology, ecology and geobiology. In particular, this unit focusses on exciting interdisciplinary research streams where, for instance, the work of geneticists and embryologists is combined fruitfully with the investigations of palaeobiologists and evolutionary biologists in order to decipher important evolutionary questions. The unit also focusses on frontier techniques in palaeobiology and using fossils to reconstruct past environments through studies of community palaeoecology, taphonomy and ecosystem evolution.

Students will participate in and contribute to weekly group based discussions, debates and seminars that aim to probe, critically evaluate and assess topical questions and test prevailing models and/or hypotheses across a wide range of interdisciplinary research themes. The curriculum will include written and oral essay style assessments as well as planning and presentation of a novel research project focussed on an important aspect of evolutionary biology and/or palaeobiology. This unit provides students with an opportunity to directly interact with research active academic staff, postdoctoral researchers and PhD students from many disciplines including evolutionary biology, palaeobiology, ecology and geoscience.

BIOL766 Advanced Studies in Palaeobiology is designed for postgraduate students in that it will:

Engage students in weekly group discussions, debates and seminars with postgrads, post-docs and active researchers to probe important topics in palaeobiology and evolutionary biology at an advanced level, well beyond expectations of undergraduate students.

1. Provide a collegiate forum for students to present potential future research project(s) where

they will have the opportunity to explain the scientific rationale, choice of methodology and justify expenditure to a group of active researchers. This will provide comprehensive feedback that will allow students to sharpen their research proposal.

2. Provide intellectually challenging and progressive learning experiences by getting students to engage directly with emerging research streams from a variety of inter-related disciplines.
3. Challenge students to undertake high level critical analyses and evaluations of evolutionary and palaeobiological data and concepts presented in the primary scientific literature.
4. Students will be mentored and confronted with current, often controversial, research from high profile MQU academics and challenged to evaluate and develop their own opinions and interpretations of this research.
5. Deliver a relevant, future-focussed and advanced program of distinct interdisciplinary nature.
6. Showcase current and relevant MQU research in the postgraduate curriculum.
7. Focus on inquiry and scholarship, critical thinking and analysis through ongoing review, mentorship, intellectual integrity, academic freedom and collegiality.

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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/p

[olicy.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.