BIOL369
Vertebrate Evolution
S1 External 2015
Dept of Biological Sciences

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## General Information

**Unit convenor and teaching staff**

**Lecturer**
Culum Brown  
[culum.brown@mq.edu.au](mailto:culum.brown@mq.edu.au)

**Contact via email**
W21B  
Mon 2-5pm

**Katherine McClellan**  
[katherine.mcclellan@mq.edu.au](mailto:katherine.mcclellan@mq.edu.au)

**Credit points**
3

**Prerequisites**
39cp including BIOL208(P)

**Corequisites**

**Co-badged status**

**Unit description**
Evolution is a dynamic process that has occurred over many millions of years (deep evolution) or in recent times (contemporary evolution). This unit considers the major events in vertebrate evolution: invertebrate chordate to vertebrate; jawless to jawed; water to land; ectothermy to endothermy; and land to air. The newly emerging synthesis of evolutionary and developmental biology is having considerable impact on current vertebrate evolutionary theory, as are molecular techniques for constructing phylogenics. These topics are discussed in relation to deep and contemporary evolution of vertebrate groups. Lecture topics also include current aspects such developments in evolution of vertebrate behaviours, macro-evolution, and human evolution. The practical work focuses on phylogenics, and comparative anatomy and morphology of representative vertebrate groups, to reinforce lecture themes.

## 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/](http://students.mq.edu.au/student_admin/enrolmentguide/academicdates/)

## Learning Outcomes

1. Apply taxonomic nomenclature to vertebrate groups
2. Relate anatomical traits to the diversity of key vertebrate species
3. Associate the major steps in vertebrate evolution to body form and physiological function
4. Evaluate different methods for determining evolutionary relationships
5. Classify vertebrate behaviours to functional roles and interactions at community levels
6. Communicate scientific information relevant to vertebrate evolution in oral and in written format

**Assessment Tasks**

<table>
<thead>
<tr>
<th>Name</th>
<th>Weighting</th>
<th>Due</th>
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<tr>
<td>Weekly activities</td>
<td>15%</td>
<td>Each Monday</td>
</tr>
<tr>
<td>Animal Ethics</td>
<td>15%</td>
<td>27/03/2015</td>
</tr>
<tr>
<td>Prac Report</td>
<td>20%</td>
<td>29/05/15</td>
</tr>
<tr>
<td>Exam</td>
<td>50%</td>
<td>TBA</td>
</tr>
</tbody>
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**Weekly activities**

Due: **Each Monday**  
Weighting: **15%**

_You will demonstrate your understanding of important concepts and current themes in Vertebrate evolution_

This Assessment Task relates to the following Learning Outcomes:

- Apply taxonomic nomenclature to vertebrate groups
- Relate anatomical traits to the diversity of key vertebrate species
- Associate the major steps in vertebrate evolution to body form and physiological function
- Evaluate different methods for determining evolutionary relationships
- Classify vertebrate behaviours to functional roles and interactions at community levels

**Animal Ethics**

Due: **27/03/2015**  
Weighting: **15%**

_You will work within a team to develop a research program on vertebrate evolution and fill in an animal ethics form._

This Assessment Task relates to the following Learning Outcomes:

- Apply taxonomic nomenclature to vertebrate groups
- Relate anatomical traits to the diversity of key vertebrate species
• Associate the major steps in vertebrate evolution to body form and physiological function
• Communicate scientific information relevant to vertebrate evolution in oral and in written format

Prac Report
Due: 29/05/15
Weighting: 20%

Compare and contrast the morphology of a rat with a marsupial.

This Assessment Task relates to the following Learning Outcomes:
• Apply taxonomic nomenclature to vertebrate groups
• Relate anatomical traits to the diversity of key vertebrate species
• Associate the major steps in vertebrate evolution to body form and physiological function
• Evaluate different methods for determining evolutionary relationships
• Classify vertebrate behaviours to functional roles and interactions at community levels
• Communicate scientific information relevant to vertebrate evolution in oral and in written format

Exam
Due: TBA
Weighting: 50%

You will apply terminology and concepts learnt in the lecture and practical components of this unit to answer a variety of questions (short answer and essay).

This Assessment Task relates to the following Learning Outcomes:
• Apply taxonomic nomenclature to vertebrate groups
• Relate anatomical traits to the diversity of key vertebrate species
• Associate the major steps in vertebrate evolution to body form and physiological function
• Evaluate different methods for determining evolutionary relationships
• Classify vertebrate behaviours to functional roles and interactions at community levels
• Communicate scientific information relevant to vertebrate evolution in oral and in written format

Delivery and Resources
Lecture materials and iLectures will be available through iLearn

http://unitguides.mq.edu.au/unit_offerings/48708/unit_guide/print
iLearn is a web-based computer mediated communication package and can be accessed by most web browsers from inside or outside the University. iLearn and email will be the principle method of communication in this subject.

We expect you to use iLearn for:

- Regularly checking subject announcements
- Downloading lecture materials
- Downloading laboratory materials
- Downloading reference materials
- Checking your grades
- Conversing with your student community

How do you log in? The URL for the iLearn is: https://ilearn.mq.edu.au/. You will need to log in to iLearn each time you use it. Your user name is your student number and the password your oneID. For further details go to http://mq.edu.au/iLearn/student_info/index.htm. If you are having trouble accessing your online unit due to a disability or health condition, please go to the Student Services Website at http://sss.mq.edu.au/equity/about for information on how to get assistance. If you cannot log in after ensuring you have entered your username and password correctly, you should contact Student IT Help, Phone: (02) 9850 4357 (in Sydney) or 1 800 063 191 (outside Sydney).

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/](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 Enquiry Service

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

Equity Support

Students with a disability are encouraged to contact the [Disability Service](http://students.mq.edu.au/disability_service) who can provide appropriate help with any issues that arise during their studies.

IT Help


When using the University's IT, you must adhere to the [Acceptable Use Policy](http://informatics.mq.edu.au/help/acceptable_use_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**

- Relate anatomical traits to the diversity of key vertebrate species
- Associate the major steps in vertebrate evolution to body form and physiological function
- Evaluate different methods for determining evolutionary relationships

**Assessment tasks**

- Weekly activities
- Animal Ethics
- Prac Report
- Exam

**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 outcome**

- Classify vertebrate behaviours to functional roles and interactions at community levels

**Assessment tasks**

- Weekly activities
- Exam

**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**

- Apply taxonomic nomenclature to vertebrate groups
- Evaluate different methods for determining evolutionary relationships
Communicate scientific information relevant to vertebrate evolution in oral and in written format

**Assessment tasks**
- Animal Ethics
- Prac Report
- Exam

**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**
- Apply taxonomic nomenclature to vertebrate groups
- Relate anatomical traits to the diversity of key vertebrate species
- Associate the major steps in vertebrate evolution to body form and physiological function
- Evaluate different methods for determining evolutionary relationships
- Classify vertebrate behaviours to functional roles and interactions at community levels
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**Assessment tasks**
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**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**
- Evaluate different methods for determining evolutionary relationships
• Classify vertebrate behaviours to functional roles and interactions at community levels
• Communicate scientific information relevant to vertebrate evolution in oral and in written format

**Assessment tasks**

• Animal Ethics
• Prac Report
• Exam