



BIOL3510

Vertebrate Biology and Behaviour

Session 1, In person-scheduled-infrequent, North Ryde 2024

School of Natural Sciences

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General Information

Unit convenor and teaching staff

Culum Brown

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Credit points

10

Prerequisites

130cp at 1000 level or above including BIOL262 or BIOL208 or (BIOL2310 or BIOL228) or (BIOL2210 or BIOL229)

Corequisites

Co-badged status

BIOL3501X

Unit description

Evolution is a dynamic process that has occurred over many millions of years (deep evolution) and continues to this day (contemporary evolution) shaping all aspects of vertebrate biology. 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 phylogenies. These topics are discussed in relation to deep and contemporary evolution of vertebrate groups. Lecture topics also discuss the main traits associated with each group of vertebrates including anatomy, physiology, brains and behaviour. The practical work reinforces the lectures by focussing on the comparative anatomy, morphology and behaviour of representative vertebrate groups.

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:

ULO1: Apply taxonomic nomenclature to vertebrate groups

ULO2: Relate anatomical and behavioural traits to the diversity of key vertebrate species

ULO3: Associate the major steps in vertebrate evolution to behaviour, body form and

physiological function

ULO4: Evaluate different methods for determining evolutionary relationships

ULO5: Classify vertebrate behaviour to functional roles and interactions at community levels

ULO6: Communicate scientific information relevant to vertebrate biology in oral and in written format

Assessment Tasks

Name	Weighting	Hurdle	Due
Weekly activities	10%	No	Weekly
Science Communication	10%	No	24/03/2024
Prac Report	20%	No	26/05/2024
Prac Notes	20%	No	02/06/2024
Exam	40%	No	To be announced

Weekly activities

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 6 hours

Due: **Weekly**

Weighting: **10%**

You will demonstrate your understanding of important concepts and current themes in Vertebrate evolution

On successful completion you will be able to:

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

Science Communication

Assessment Type ¹: Media presentation

Indicative Time on Task ²: 10 hours

Due: **24/03/2024**

Weighting: **10%**

Australia is a country of extremes and many of our animals are superbly adapted to cope. Working in small groups, students will pick an Australian native animal to study and highlight the key adaptations that have enabled that animal to live in the harsh Australian environment. The group will put together a science communication project to present their findings to the class.

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- Communicate scientific information relevant to vertebrate biology in oral and in written format

Prac Report

Assessment Type ¹: Report

Indicative Time on Task ²: 30 hours

Due: **26/05/2024**

Weighting: **20%**

The practical report requires your utmost attention during both the 'rat dissection' and 'wildlife dissection' practicals. As a class, we will be examining the relationship between an organism's internal morphology and its ecology. The work will culminate in you producing a scientific paper that places these findings in an evolutionary context. Finer details on the details of the practical exercises and the report to be submitted will be provided on iLearn.

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- Classify vertebrate behaviour to functional roles and interactions at community levels
- Communicate scientific information relevant to vertebrate biology in oral and in written format

Prac Notes

Assessment Type ¹: Lab book

Indicative Time on Task ²: 30 hours

Due: **02/06/2024**

Weighting: **20%**

As a good scientist it is paramount that you learn to keep an accurate record of your experiments and activities. This usually takes the form of a lab book. Throughout this course you will be exposed to a series of lab exercises which involves examination of a LOT of different material. These lab notes should not only consolidate your understanding of each prac but also provide a good resource for review. (I still have my lab notes from my Vertebrate Evolution course from 1993!) It is expected that you will create a word document in which you will paste pictures, diagrams and notes that you take during the practical sessions. The lab “book” will be submitted via iLearn for review after prac 5 and prac 10, but will be reviewed during each prac session.

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- Evaluate different methods for determining evolutionary relationships
- Classify vertebrate behaviour to functional roles and interactions at community levels

Exam

Assessment Type ¹: Examination

Indicative Time on Task ²: 2 hours

Due: **To be announced**

Weighting: **40%**

The final exam will cover both lecture and practical material

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- Evaluate different methods for determining evolutionary relationships
- Classify vertebrate behaviour to functional roles and interactions at community levels

¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

We recommend that students read the text book (Pough et al Vertebrate Life) for this unit in association with the lectures. In addition, completing the weekly quizzes each week will ensure that you stay up to date with the lecture content.

All lectures will be recorded and available on iLearn but students must come in to complete the practicals.

Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au). Students should be aware of the following policies in particular with regard to Learning and Teaching:

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies](https://students.mq.edu.au/support/study/policies) (<https://students.mq.edu.au/support/study/policies>). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central](https://policies.mq.edu.au) (<https://policies.mq.edu.au>) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit ask.mq.edu.au or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)
- [Student Advocacy](#) provides independent advice on MQ policies, procedures, and processes

Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

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.

Unit information based on version 2024.01R of the [Handbook](#)