BIOL3510

Vertebrate Biology and Behaviour

Session 1, In person-scheduled-weekday, North Ryde 2023

School of Natural Sciences

Contents

General Information

Unit convenor and teaching staff
Culum Brown
culum.brown@mq.edu.au

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
Open University

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

General Assessment Information

Requirements to Pass this Unit To pass this unit you must: - Achieve a total mark equal to or greater than 50%

Late Assessment Submission Penalty Unless a Special Consideration request has been submitted and approved, a 5% penalty (of the total possible mark of the task) will be applied for each day a written report or presentation assessment is not submitted, up until the 7 th day (including weekends). After the 7 th day, a grade of '0' will be awarded even if the assessment is submitted. The submission time for all uploaded assessments is 11:55 pm. A 1-hour grace period will be provided to students who experience a technical concern. For any late submission of time-sensitive tasks, such as scheduled tests/exams, performance assessments/ presentations, and/or scheduled practical assessments/labs, please apply for Special Consideration.

Special Consideration The Special Consideration Policy aims to support students who have been impacted by short- term circumstances or events that are serious, unavoidable and significantly disruptive, and which may affect their performance in assessment. If you experience circumstances or events that affect your ability to complete the assessments in this unit on time, please inform the convenor and submit a Special Consideration request through ask.mq.edu.au.

Assessment Tasks

Name	Weighting	Hurdle	Due
Prac Notes	20%	No	29/05/23
Prac Report	20%	No	22/05/23
Science Communication	10%	No	27/03/23
Weekly activities	10%	No	1 per week
Exam	40%	No	TBA

Prac Notes

Assessment Type [1]: Lab book

Indicative Time on Task [2]: 30 hours
Due: **29/05/23**
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.

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

Prac Report

Assessment Type [1]: Report
Indicative Time on Task [2]: 30 hours
Due: **22/05/23**
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.

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

Science Communication

Assessment Type [1]: Media presentation
Indicative Time on Task [2]: 10 hours
Due: **27/03/23**
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.

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

Weekly activities

Assessment Type [1]: Quiz/Test
Indicative Time on Task [2]: 6 hours
Due: **1 per week**
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

Exam

Assessment Type [1]: Examination
Indicative Time on Task [2]: 2 hours
Due: **TBA**
Weighting: **40%**

The final exam will cover both lecture and practical material

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

---

[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

Covid information

For the latest information on the University's response to COVID-19, please refer to the

Coronavirus infection page on the Macquarie website: https://www.mq.edu.au/about/coronavirus-faqs. Remember to check this page regularly in case the information and requirements change during semester. If there are any changes to this unit in relation to COVID, these will be communicated via iLearn.

Policies and Procedures

Macquarie University policies and procedures are accessible from Policy Central (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). 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) 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.