



# BIOL3510

## Vertebrate Evolution

Session 1, Infrequent attendance, North Ryde 2020

*Department of Biological Sciences*

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## General Information

Unit convenor and teaching staff

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Kate Barry

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Credit points

10

Prerequisites

130cp at 1000 level or above including (BIOL2510 or BIOL262) or BIOL208 or (BIOL2310 or BIOL228) or (BIOL2210 or BIOL229)

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 phylogenies. 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 phylogenies, 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 <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

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

**ULO1:** Apply taxonomic nomenclature to vertebrate groups

**ULO3:** Associate the major steps in vertebrate evolution to body form and physiological

function

**ULO4:** Evaluate different methods for determining evolutionary relationships

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

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

## Assessment Tasks

### Coronavirus (COVID-19) Update

Assessment details are no longer provided here as a result of changes due to the Coronavirus (COVID-19) pandemic.

Students should consult [iLearn](#) for revised unit information.

[Find out more about the Coronavirus \(COVID-19\) and potential impacts on staff and students](#)

## General Assessment Information

In a bid to be “Environmentally Friendly” Biol369 will essentially be paperless in 2020. All assessments will be submitted on iLearn and you will get feedback electronically.

### 1) Weekly activities (10%). iLearn quizzes will open on Monday and remain open

These quizzes have been designed to expand your knowledge of current evolutionary concepts and test your understanding of lecture content. They will be made available from as soon as each lecture is complete. The quiz will remain open until the final exam to allow students to use them as a tool for revision. We suggest you complete them each week.

### 2) SciCom (10%). Your science communication project must be submitted by 11:55pm on Monday 30th March.

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 enable it to survive in the harsh Australian environment. Each group will present their findings to the class in the form of any form of scientific communication (eg 2-3min video, poster with embedded links, interactive website, animation, etc). The emphasis here is on communication. The projects will be assessed by your fellow class mates and each will score the fellow group members contribution.

### 3) Wildlife scientific paper (20%): Due Monday 25th May, 11:55pm via iLearn

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.

#### **4) Practical Lab notes (20%): Pracs 1-5 due Monday 13<sup>th</sup> April and pracs 6-10 due Monday 1st June**

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 conducting 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 by your tutors.

#### **5) Final Exam (40%)**

The format of the final exam has been consistent for the last few years. It will be 3 hours long and you can find example exam papers in the library.

If you receive special consideration for the final exam, a supplementary exam will be scheduled in the interval between the regular exam period and the start of the next session. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the policy prior to submitting an application. You can check the supplementary exam information page on FSE101 in iLearn ([bit.ly/FSESupp](https://bit.ly/FSESupp)) for dates, and approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

## **Delivery and Resources**

### **Coronavirus (COVID-19) Update**

Any references to on-campus delivery below may no longer be relevant due to COVID-19.

Please check here for updated delivery information: [https://ask.mq.edu.au/account/pub/display/unit\\_status](https://ask.mq.edu.au/account/pub/display/unit_status)

Pough, F.H., Janis, C.M. and Heiser, J.B. (2013) Vertebrate Life 9th Edition. Pearson International. Call Number: QL607.5 .E93 2006

Merrick, J.R., Archer, M., Hickey G.M. and Lee M.S.Y. (2006) Evolution and Biogeography of Australasian Vertebrates. Auscipub, Oatlands Australia. Call Number: QL607.5 .E93 2006

# Unit Schedule

## Coronavirus (COVID-19) Update

The unit schedule/topics and any references to on-campus delivery below may no longer be relevant due to COVID-19. Please consult [iLearn](#) for latest details, and check here for updated delivery information: [https://ask.mq.edu.au/account/pub/display/unit\\_status](https://ask.mq.edu.au/account/pub/display/unit_status)

Week	Date	Lecture	Lecture Topic	Internal Practicals:
1	25/02/2020	1	Introduction & Overview	NO PRAC
	26/02/2020	2	Australian Vertebrate Evolution	
2	03/03/2020	3	Vertebrate Classification	(1) Tree thinking
	04/03/2020	4	Vertebrate Origins	
3	10/03/2020	5	Vert Structure and Development	(2) Australian Verts
	11/03/2020	6	Jawless to jawed	
4	17/03/2020	7	Cartilaginous fish (Joni)	(3) Chordate origins, jawless fish
	18/03/2020	8	Teleosts: Bony fish	
5	24/03/2020	9	Transition to land I	(4) Bony fish
	25/03/2020	10	Transition to land ii	
6	31/03/2020	11	Amphibians	(5) Amphibians (toad)
	01/04/2020	12	Evolution and invasion (Rick)	
7	07/04/2020	13	Synapsids v Sauropsids	NO PRACTICAL
	08/04/2020	14	Ectothermy	
	<b>Sem Break</b> <b>April 10-26th</b>			
8	28/04/2020	15	Reptiles I (MW)	(6) Placentals (rat)

	29/04/2020	16	Reptiles ii (MW)	
9	05/05/2020	17	Birds and Dinosaurs (JA)	(7) Wildlife dissection (possum)
	06/05/2020	18	Birds (SG)	
10	12/05/2020	19	Synapsida and mammal evol (JA)	(8) Skeleton and teeth
	13/05/2020	20	Mammals I (JA)	
11	19/05/2020	21	Mammals II (JA)	(9) Cranial nerves
	20/05/2020	22	Endothermy	
12	26/05/2020	23	Brains and behaviour I	(10) Unit reflection
	27/05/2020	24	Brains and behaviour II	
13	02/06/2020		NO LECTURES	NO PRACTICAL
	03/06/2020			

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>). 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](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4 December 2017 and replaces the Disruption to Studies Policy.*)

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

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/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](http://ask.mq.edu.au) or if you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## 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](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to help you improve your marks and take control of your study.

- [Getting help with your assignment](#)
- [Workshops](#)
- [StudyWise](#)
- [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

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](http://ask.mq.edu.au)

If you are a Global MBA student contact [globalmba.support@mq.edu.au](mailto:globalmba.support@mq.edu.au)

## IT Help

For help with University computer systems and technology, visit [http://www.mq.edu.au/about\\_us/](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.

## Changes since First Published

Date	Description
09/02/2020	Staff updated