



# ZOOL19002 Australian Vertebrate Biology

## Term 2 - 2019

Profile information current as at 28/04/2024 08:05 pm

All details in this unit profile for ZOOL19002 have been officially approved by CQUUniversity and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

## General Information

### Overview

In this unit, you will trace the evolutionary development of that very diverse group: the chordates; from those early non-vertebrate "fish" to the most modern apes (humans) through both the study of theory and the examination of biological material. Emphasis will be placed on the interrelated aspects of structure and function, but their ecology and diverse behaviours also will be studied, and all in the context of an evolving Earth.

### Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

### Pre-requisites or Co-requisites

Prerequisites: ZOOL11005 Foundation Animal Biology OR (BIOL11099 Living Systems AND BIOL11100 Functional Biology)

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

### Offerings For Term 2 - 2019

- Mixed Mode
- Rockhampton

### Attendance Requirements

All on-campus students are expected to attend scheduled classes - in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

### Residential Schools

This unit has a Compulsory Residential School for distance mode students and the details are:

Click here to see your [Residential School Timetable](#).

### Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

## Class and Assessment Overview

### Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

### Class Timetable

#### [Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

#### [Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

### Assessment Overview

#### 1. **Written Assessment**

Weighting: 25%

#### 2. **Practical Assessment**

Weighting: 25%

#### 3. **Examination**

Weighting: 50%

### Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

## CQUniversity Policies

**All University policies are available on the [CQUniversity Policy site](#).**

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

## Previous Student Feedback

### Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

#### Feedback from Online unit evaluation.

##### **Feedback**

Students commended the residential school for being interesting, applied and hands-on, for its application of theory and for being a valuable learning opportunity. Students commended the in-class practical test for its structure and as an engaging assessment tool, and the comprehensive, detailed and considered content of the unit. Students also commended the support provided to students by the lecturer with expectations of students made clear through great guidance and support, including the weekly provision of possible exam questions. A clear majority of students agreed they were satisfied with the quality of the unit, navigation of the Moodle site, resources provided and assessment structure and instructions.

##### **Recommendation**

These aspects, and other features enjoyed previously by students, will be maintained and refined further where possible.

#### Feedback from Online unit evaluation.

##### **Feedback**

A student commented there were no PowerPoint slides to search for particular points of unit content, and another commented unit content should not be spread across various resources.

##### **Recommendation**

Students will be reminded more often of the supporting resources provided for each content module/topic and their purpose: short summary of module content, list of keywords and concepts, Prezi recorded lectures, module content summary animations, detailed lecture summaries/notes, supplementary diagrams, and possible exam questions published on Moodle. Additionally, students will be reminded the weekly tutorials (not just early in the term) and of the tutorial recordings published on Moodle. Students will be reminded more often the primary unit content sources are the recorded lectures, the detailed lecture notes provided, and the relevant parts of the prescribed textbook, with the remaining resources being supplementary should the student self-assess their need for them. This will be made clearer on the Moodle site.

#### Feedback from Online unit evaluation.

##### **Feedback**

A student commented answers to the possible exam questions were needed.

##### **Recommendation**

These will not be provided, however students will be reminded more often of the alignment between these possible exam questions and the unit module content observed in the recorded lectures and detailed lecture notes/summaries.

#### Feedback from Online unit evaluation.

##### **Feedback**

Some student perceptions were the assessment return and feedback could be improved.

##### **Recommendation**

Students will be reminded when assessment is returned, where to look for returned assessment, and the nature of feedback and where to find it.

## Unit Learning Outcomes

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

1. Comprehend the evolution of chordates
2. Comprehend the basic phylogenetic relationships of the major groups of vertebrates
3. Comprehend and analyse the adaptive changes that have occurred in aquatic vertebrates
4. Comprehend and analyse the changes in homologous structures which accompanied the invasion of terrestrial habitats by vertebrates
5. Recognise, describe, and point out the external and internal features that characterise the major groups of modern day vertebrates
6. Recognise and describe the basic microscopic anatomy of chordates
7. Relate and analyse a chordate's structural and functional features in relation to its habitat
8. Demonstrate the results of additional reading around the subject
9. Communicate knowledge and findings clearly both orally and in writing.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes								
	1	2	3	4	5	6	7	8	9
1 - Communication	•	•	•	•	•	•	•	•	•
2 - Problem Solving	•	•	•	•	•	•	•	•	•
3 - Critical Thinking	•	•	•	•	•	•	•	•	•
4 - Information Literacy	•	•	•	•	•	•	•	•	•
5 - Team Work					•				
6 - Information Technology Competence	•	•	•	•	•	•	•	•	•
7 - Cross Cultural Competence	•	•	•	•	•	•	•	•	•
8 - Ethical practice	•	•	•	•	•	•	•	•	•
9 - Social Innovation									
10 - Aboriginal and Torres Strait Islander Cultures									

### Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Written Assessment - 25%	•	•	•	•		•	•	•		
2 - Practical Assessment - 25%	•	•	•	•		•	•	•		
3 - Examination - 50%	•	•	•	•		•	•	•		

## Textbooks and Resources

### Textbooks

ZOOL19002

#### Prescribed

##### Vertebrate Life

latest edition (currently 9th?) (latest edition (currently 2013?))

Authors: Pough FH, Janis CM, & Heiser JB

Pearson Education Inc

San Francisco , CA , USA

ISBN: ISBN 10: 0-321-78235-6; ISBN13: 978-0-321-78235-9 (International edition)

Binding: Paperback

#### Additional Textbook Information

The paper text is now Out of Print. You can purchase an eBook directly from the Publisher's website here:

<https://pearson.com.au/9780321941077>

[View textbooks at the CQUniversity Bookshop](#)

### IT Resources

#### You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- A modern computer of adequate size and power, with sufficient hard drive, memory size and processing speed; large sound and video cards; plus adequate Internet access and connection reliability to facilitate significant uploads/downloads/video streaming and sustained lengthy connections (e.g., lecture video downloads, real time online Zoom tutorials) with microphone and speakers (built-in or external) OR microphone+speaker headset (cheap '\$20' set is adequate).
- Recent (not necessarily latest) computer software including Microsoft Word, Adobe Reader, and capability to enable Zoom tutorial sessions (available free via unit Moodle site).

## Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Bret Heath** Unit Coordinator

[b.heath@cqu.edu.au](mailto:b.heath@cqu.edu.au)

## Schedule

### Week 1 - 15 Jul 2019

Module/Topic	Chapter	Events and Submissions/Topic
How to be a chordate and a vertebrate, and why? (Foundations: brief review of evolutionary concepts as a basis for the unit. The origin of chordates, vertebrates and vertebrate organ systems.)	Textbook chaps 1, 2.	

**Week 2 - 22 Jul 2019**

Module/Topic	Chapter	Events and Submissions/Topic
How to be bigger than an early chordate - and a fish which gets more food! (The jawless fishes and the origin of jawed vertebrates. The evolution of jawed vertebrates, with some emphasis on the radiation of the Chondrichthyes.)	Textbook chaps 3, 4, 5.	

**Week 3 - 29 Jul 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Being the best fish you can be! (Other basic features of fishes and the radiation of the bony fishes.)	Textbook chap 6.	

**Week 4 - 05 Aug 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Getting out of the pool! (The origin of the tetrapods. Soft parts, environmental physiology, and behaviour of early 'primitive' tetrapods (using modern amphibians as a model).)	Textbook chaps 8, 9, 10.	

**Week 5 - 12 Aug 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Life on the land, but living in a box. (The origins and radiation of amniotes. Early reptiles: anapsids, diapsids, and synapsids, and the characteristics of turtles.)	Textbook chaps 9, 11, 12.	

**Vacation Week - 19 Aug 2019**

Module/Topic	Chapter	Events and Submissions/Topic

**Week 6 - 26 Aug 2019**

Module/Topic	Chapter	Events and Submissions/Topic
A great time to be a lizard! (Geography and ecology of the Mesozoic, and the radiation of diapsid reptiles.)	Textbook chaps 15, 16.	(Note residential school (combined block practicum) begins this coming Sunday 1 Sept 2019.)

**Week 7 - 02 Sep 2019**

Module/Topic	Chapter	Events and Submissions/Topic
A low cost life, and to have lizard legs, or not? (Living lepidosaurs: the tuatara and squamates, and non-passive ectothermy.)	Textbook chaps 13, 14.	ALL students: attend residential school (combined block practicum) Sunday 1 Sept - Wed 4 Sept 2019 inclusive, and including In-class Practical Test assessment task.  <b>In-class practical test</b> Due: Week 7 Wednesday (4 Sept 2019) 4:30 pm AEST

**Week 8 - 09 Sep 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Feathered lizards - to the trees! (The birds: origin, structure, and evolution.)	Textbook chaps 16, 17, 22.	<b>Scientific essay</b> Due: Week 8 Monday (9 Sept 2019) 11:45 pm AEST

**Week 9 - 16 Sep 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Early land-fish get hairy! (The evolution and basic features of mammals.)	Textbook chaps 18, 20-22.	

**Week 10 - 23 Sep 2019**

Module/Topic	Chapter	Events and Submissions/Topic
How to be a better mammal. (Modern mammals.)	Textbook chaps 20, 21.	

**Week 11 - 30 Sep 2019**

Module/Topic	Chapter	Events and Submissions/Topic
The synapsid in the mirror. (The evolution of <i>Homo sapiens</i> and its consequences.)	Textbook chap 24.	

**Week 12 - 07 Oct 2019**

Module/Topic	Chapter	Events and Submissions/Topic
No lectures - structured revision pulling major themes together.	Review textbook chaps listed above.	

**Review/Exam Week - 14 Oct 2019**

Module/Topic	Chapter	Events and Submissions/Topic

**Exam Week - 21 Oct 2019**

Module/Topic	Chapter	Events and Submissions/Topic

## Assessment Tasks

### 1 Scientific essay

**Assessment Type**

Written Assessment

**Task Description**

This assignment is a scientific essay (of ~2 500 - 3 500 words) on a topic of your choice that is relevant directly to vertebrate zoology, that is, a topic with the major theme of evolution of a taxonomic group, or of some functional anatomy. You are advised to discuss your chosen essay topic by email with the lecturer **prior** to beginning your research to ensure its appropriateness and to gauge the ease of its completion to help you achieve maximum marks for your effort. Topics must have a component of significant scientific controversy/uncertainty, that is, there is significant scientific doubt or conjecture over current knowledge, and not all is known of the topic. This allows you the opportunity to meet all marking criteria successfully (namely, those involving critical thought). Consequently, your submission should recount the evolution of a chosen taxonomic group (e.g., sharks) or a chosen anatomical feature (e.g, the ear) in a critical manner that evaluates scientifically any controversies or unknowns. Topics discussed comprehensively within our unit materials, and those factually well established, such as evolution of birds, will not be eligible. Access to scientific journal articles (primary sources) and relevant incorporation of their content are required for a successful assessment outcomes. Accepted essay format and clear concise scientific written expression is necessitated. Students are advised to work to the marking criteria.

**Assessment Due Date**

Week 8 Monday (9 Sept 2019) 11:45 pm AEST

This essay assignment should be submitted online electronically only as a Microsoft Word (doc, docx) file, by the due date (unless approval for later submission is received after application via the online 'Assignment extension' system).

**Return Date to Students**

Week 10 Friday (27 Sept 2019)

**Weighting**

25%



## Minimum mark or grade

45% of total marks available for this activity.

## Assessment Criteria

Each criterion in the table below (adapted from Angelo, 1998) is assessed equally.

Please note a minimum achievement level is set for this assessment activity (i.e., you must equal or exceed this set minimum achievement level for you to be considered for a passing grade for this unit overall, irrespective of your achievement in other assessment components in this unit).

Grade	Standard
<b>High Distinction (HD)</b>	(1) Responds fully to assignment. (2) Topic has a direct and obvious relationship to chordate zoology: major theme of evolution of a taxonomic group, or of some functional anatomy. (3) Presents own synthesis of ideas involving rigorous critique and analysis and including analysis of opposing points of view. (4) Expresses viewpoint clearly and persuasively. (5) Begins and ends effectively. (6) Provides adequate supporting arguments, evidence, examples, and details. (7) Is well organised, sequenced, integrated, and unified. (8) Considerable breadth of reading evident with proportionately high dependence on primary sources, and low dependence on secondary and tertiary sources and the Internet. (9) Adequately and correctly acknowledges and documents sources. (10) Original text with no instances of plagiarism or weak paraphrasing. (11) Is free of errors in spelling, word choice, punctuation, grammar, and format. (12) Otherwise clearly follows guidelines in essay writing as set out in *'A Student's Guide to Writing Assignments' or other published tertiary level guides to writing about biology. (13) Maintains a consistent level of excellence throughout, and shows appropriate originality and creativity in realising (1) through (12).
<b>Distinction (D)</b>	Realises (1) through (13) fully and completely, and demonstrates overall excellence, but shows little or no independent thought, incomplete critical analysis, or little originality or creativity.
<b>Credit (C)</b>	Realises (1) through (13) adequately, and demonstrates overall competence but contains a few, relatively minor errors or flaws. A Credit essay might show great independent thought, critical analysis, originality, and creativity, but these qualities do not make up for poor or careless writing, or lack of adequate attention to detail. A Credit essay typically looks and reads like a next-to-final draft.
<b>Pass (P)</b>	Fails to realise some elements of (1) through (13) adequately, and contains several, relatively serious, errors or flaws, or many minor ones. A Pass essay typically looks and reads like an early draft.
<b>Fail (F)</b>	Fails to realise several elements of (1) through (13) adequately, and contains many serious errors or flaws, and usually many minor ones too. A Fail essay typically looks and reads like a very rough first draft or even a zero draft.

\* A link to 'A Student's Guide to Writing Assignments' will be provided on the unit Moodle site.

## Referencing Style

- [Harvard \(author-date\)](#)

## Submission

Online

## Submission Instructions

This essay assignment should be submitted on-line electronically only as a Microsoft Word (doc, docx) file, by the due date (unless approval for later submission is received after application via the online 'Assignment extension' system).

## Learning Outcomes Assessed

- Comprehend the evolution of chordates
- Comprehend the basic phylogenetic relationships of the major groups of vertebrates
- Comprehend and analyse the adaptive changes that have occurred in aquatic vertebrates
- Comprehend and analyse the changes in homologous structures which accompanied the invasion of terrestrial habitats by vertebrates
- Recognise, describe, and point out the external and internal features that characterise the major groups of modern day vertebrates
- Recognise and describe the basic microscopic anatomy of chordates
- Relate and analyse a chordate's structural and functional features in relation to its habitat
- Demonstrate the results of additional reading around the subject
- Communicate knowledge and findings clearly both orally and in writing.

## Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy

- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

## 2 In-class practical test

### Assessment Type

Practical Assessment

### Task Description

A two-hour, closed book, written practical test will be held in the final practical laboratory session (final day) of our residential school (combined block practicum).

It will consist of short-answer questions, typically provided alongside a relevant specimen (microscopic slide of histological tissue, or skeletal, fixed, and dissected animal material) that was provided for examination during your combined block practicum.

Final test structure depends upon the specimens available for examination during your combined block practicum, and thus more information will be provided at that time.

The focus will be application of your knowledge to deduce features of specimens including, but not limited to, ancestral and derived characteristics, adaptations, anatomical structure and function, physiological function, diet, behaviours, and ecology.

### Assessment Due Date

Week 7 Wednesday (4 Sept 2019) 4:30 pm AEST

This in-class practical test will be held in the last practical session of the compulsory residential school (combined block practicum).

### Return Date to Students

Week 9 Friday (20 Sept 2019)

### Weighting

25%

### Minimum mark or grade

45% of total marks available for this activity.

### Assessment Criteria

Note attendance of all students is required for our residential school (combined block practicum) during which the In-class practical test will be undertaken.

This assessment activity will use criterion-based marking of factual accuracy of responses to test questions. Students will be awarded marks for the correct, well reasoned and factual answers to the questions.

Please note a minimum achievement level is set for this assessment activity (i.e., you must equal or exceed this set minimum achievement level for you to be considered for a passing grade for this unit overall, irrespective of your achievement in other assessment components in this unit).

### Referencing Style

- [Harvard \(author-date\)](#)

### Submission

Offline

### Submission Instructions

### Learning Outcomes Assessed

- Comprehend the evolution of chordates
- Comprehend the basic phylogenetic relationships of the major groups of vertebrates
- Comprehend and analyse the adaptive changes that have occurred in aquatic vertebrates
- Comprehend and analyse the changes in homologous structures which accompanied the invasion of terrestrial habitats by vertebrates
- Recognise, describe, and point out the external and internal features that characterise the major groups of modern day vertebrates
- Recognise and describe the basic microscopic anatomy of chordates
- Relate and analyse a chordate's structural and functional features in relation to its habitat
- Demonstrate the results of additional reading around the subject
- Communicate knowledge and findings clearly both orally and in writing.

### Graduate Attributes

- Communication

- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

## Examination

### **Outline**

Complete an invigilated examination.

### **Date**

During the examination period at a CQUniversity examination centre.

### **Weighting**

50%

### **Length**

120 minutes

### **Minimum mark or grade**

45% of total marks available for this activity.

### **Exam Conditions**

Closed Book.

### **Materials**

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

## Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

### What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

### Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

### Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

### What can you do to act with integrity?



#### Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



#### Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



#### Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem