

Faculty of Science – BIOS2061 Course Outline

1. Information about the Course

NB: Some of this information is available on the [UNSW Handbook](#)¹

Year of Delivery	2022			
Course Code	BIOS2061			
Course Name	Vertebrate Zoology			
Academic Unit	School of Biological, Earth and Environmental Sciences			
Level of Course	2 nd UG			
Units of Credit	6UOC			
Term(s) Offered	T2			
Assumed Knowledge or Prerequisites	Assumed knowledge: BIOS1101 or equivalent			
Hours per Week	3h lectures, 2 x 2h lab			
Number of Weeks	10 weeks			
Commencement Date	Week beginning 30 May 2022			
Summary of Course Structure (for details see 'Course Schedule')				
Component	HPW	Time	Day	Location
Lectures	3			
Lecture 1		4 - 5 pm	Monday	On-line via Moodle
Lecture 2		3 - 4 pm	Tuesday	On-line via Moodle
Lecture 3		4 - 5 pm	Thursday	On-line via Moodle
Practicals	2 x 2hr			
Lab 1 (Tuesday)		9 - 11 am, or 1 - 3 pm	Tuesday	E26, Teaching lab 3
Lab 2 (Thursday)		9 - 11 am, or 1 - 3 pm	Thursday	E26, Teaching lab 3
TOTAL				
Special Details	No classes will be held in Week 6 of T2; this is the UNSW Sydney mid-Term break.			

2. Staff Involved in the Course

Staff	Role	Name	Contact Details – email
Course Convener		Prof Mike Archer	m.archer@unsw.edu.au
		Dr Troy Myers	t.myers@unsw.edu.au
Course Co-convener		Prof Iain Suthers	i.suthers@unsw.edu.au
Other Teaching Staff	Lecturers & Facilitators	Prof Richard Kingsford	richard.kingsford@unsw.edu.au
		Dr Jodi Rowley	jodi.rowley@austmus.gov.au
		Prof Sue Hand	s.hand@unsw.edu.au
		Dr Matthew McCurry	m.mccurry@unsw.edu.au
	Snr Technical Officer	Bernadette Phu	bernadette.phu@unsw.edu.au

¹ UNSW Online Handbook: <http://www.handbook.unsw.edu.au>

3. Course Details

Course Description² (Handbook Entry)	<p>In the Vertebrate Zoology (BIOS2061) course, you'll examine the evolution, diversity and natural history of animals with a special emphasis on how they cope with Australia's environment. Australia has a high diversity of vertebrate species including platypus, tree frogs, parrots and snakes. The course will take you on a detailed investigation into these vertebrate groups, with a focus on their anatomy, morphology, ecology, life history and emerging conservation issues.</p> <p>Students enrolled in this course will explore the evolutionary origins and relationships between the major groups of vertebrates, learning about their diversity of form, function and behaviour. Topics covered include the rise and diversification of hagfish and lamprey, sharks and rays, bony fish, frogs and salamanders, lizards, snakes, turtles, crocodiles, dinosaurs and birds, and mammals.</p>
Course Aims³	<ol style="list-style-type: none"> To impart a fundamental understanding of the evolution and diversity of organisms classified as vertebrates (Phylum Chordata) To teach students the origins of the major features of vertebrates. To introduce the principles of taxonomy in the classification of living organisms To demonstrate the major conservation issues facing vertebrate life with an emphasis on Australian fauna methods to synthesize biological and other information to produce adaptive action plans.
Student Learning Outcomes⁴	<p>At the end of this course, students should</p> <ol style="list-style-type: none"> Have an understanding of the evolutionary interrelationships between the major groups within the Phylum Chordata Be able to identify and distinguish among different vertebrate taxa Understand current thinking on the origins of the major features defining the major lineages Understand the major issues in the conservation of Australia's vertebrates

Graduate Attributes Developed in this Course⁵

Science Graduate Attributes ⁵	Select the level of FOCUS 0 = NO FOCUS 1 = MINIMAL 2 = MINOR 3 = MAJOR	Activities / Assessment
Research, inquiry and analytical thinking abilities	2	All activities and assessments require and enhance ability to synthesize and act on biological and other information
Capability and motivation for intellectual development	1	Presentation of conflicts between different biological information. Students have the opportunity to develop and express these skills through lab session discussion, reports, revision tasks, and in interpretation for final exam
Ethical, social and professional understanding	2	Issues relating to sustainability and conservation priorities and practices
Communication	1	Written reports from lab classes
Teamwork, collaborative and management skills	1	Students are encouraged to discuss what they encounter in lab classes, with time-management skills important in the on-line learning environment
Information literacy	1	Students will gain experience in finding and citing information from primary, secondary and web-based literature

² [UNSW Handbook](#)

³ [Learning and Teaching Unit: Course Outlines](#)

⁴ [Learning and Teaching Unit: Learning Outcomes](#)

⁵ [Contextualised Science Graduate Attributes](#)

Major Topics (Syllabus Outline)	<ul style="list-style-type: none"> • Introduction, taxonomy and the evolution of early vertebrates • Evolution of fish to amphibians • Evolution and origin of "reptiles" • The birds • Evolution and origins of mammals
Relationship to Other Courses within the Program	<p>In line with school policy, there are no formal pre-requisites. This course allows students to draw on material that they have learned in various 1st-year biological subjects and apply this to understanding Vertebrate Life. In 2nd year, useful companion subjects are BIOS 2011 (Evolutionary and Physiological Ecology), BIOS 2031 (Biology of Invertebrates) and BIOS 2051 (Plant Biology). This course is assumed knowledge for BIOS3601 (Advanced Field Biology).</p>

4. Rationale and Strategies Underpinning the Course

Teaching Strategies	<p>Teaching includes lectures and practicals, with continuous assessment. As well as being introduced to theories currently used in our understanding of the origin of vertebrates and their traits, students will be challenged to continually evaluate the basis and evidence for these theories.</p>
Rationale for learning and teaching in this course⁶,	<p><u>Suggested approaches to learning in the course, and resource materials</u></p> <p>Students should approach each component of the course with the aim of evaluating whether particular aspects of biology are relevant to management decisions in the context of the particular conservation issue presented. As this is a fundamental knowledge course, memory work will be a necessary component. There is also a large volume of material which student will encounter so students are strongly encouraged to study as they go. Relying solely upon last minute preparation for the final practical and theory exams is NOT advised.</p> <p>You are expected to attend all your scheduled practical class sessions and attendance will be monitored. After lectures and practicals, much of the material can be studied independently, with the aid of lecture outlines, revision exercises and references contained in lecture notes.</p> <p>Each assessment appears in the schedule with the code of the class to which it relates most strongly. However, this course aims to develop the ability to integrate different strands of information, so a student might use information from any of the classes in any of the assessments, especially in the theory exam.</p>

⁶ [Reflecting on your teaching](#)

5. Course Schedule

Some of this information is available on the [Online Handbook](#)⁷ and the [UNSW Timetable](#)⁸.

BIOS2061 Vertebrate Zoology 2022 Course Schedule

Week	Lecture 1 (1h) MONDAY 4-5pm	Lecture 2 (1h) TUESDAY 3-4pm	Lecture 3 (1h) THURSDAY 4-5pm	Practical Class 1 (2h) TUESDAY 9-11 am or 1-3 pm	Practical Class 2 (2h) THURSDAY 9-11 am or 1-3 pm	Assessment Task (60%)
Week 1	30 May Introduction to course & Chordates - MA	31 May Evolution - MA	2 June Classification & Cladistics - SH	31 May Chordates E-book – MA (Moodle Collaborate)	2 June Intro to Vertebrates – MA (E26, Teaching Lab 3)	Lab report chordates 5%
Week 2	6 June Fish1 - IS	7 June Fish2 - IS	9 June Fish3 - IS	7 June Sharks I – MA	9 June Sharks II – MA	Lab report sharks 5%
Week 3	13 June <i>Public Holiday</i>	14 June Fish4 - IS	<i>No lecture</i>	14 June Fish I - IS	16 June Fish II - IS	Lab report fish 5%
Week 4	20 June Frogs1 - JR	21 June Frogs2 - JR	23 June Reptiles1 - JR	21 June Tetrapods – MA	23 June Lab quiz - MA	Lab quiz 10%
Week 5	27 June Reptiles2 - JR	28 June Birds1 - RK	30 June Birds2 - RK	28 June Frogs & lizards - JR	30 June Turtles, crocs & snakes - JR	Lab report frogs & reptiles 5%
Week 6	<i>No classes UNIVERSITY BREAK (4 – 8 July)</i>					
Week 7	11 July Birds3 - RK	12 July Birds4 - RK	14 July Birds5 - RK	12 July Birds & dinosaurs - RK	14 July Birds in their habitat - RK	Lab report birds 5%
Week 8	18 July Mammals1 - MA	19 July Mammals2 - MA	21 July Mammals3 - MA	19 July Mammals I – MA	21 July Mammals II – MA	Lab report mammals 5%
Week 9	25 July Mammals4 - MA	26 July Mammals5 - SH	<i>No lecture</i>	26 July Mammals III – MA	28 July ZOOMOBILE – MA	
Week 10	1 August Marine Mammals - MM	2 August Conservation - MA	<i>No lecture</i>	2 August <i>No practical session</i>	4 August Practical Exam – MA	Practical exam 20%

MA – Mike Archer, SH – Sue Hand, IS – Iain Suthers, JR – Jodi Rowley, RK – Richard Kingsford, MM – Matt McCurry

⁷ UNSW Virtual Handbook: <http://www.handbook.unsw.edu.au>

⁸ UNSW Timetable: <http://www.timetable.unsw.edu.au/>

6. Assessment Tasks and Feedback

Task	% of total mark	Assessment Criteria	Date of		Feedback		
			Release	Submission	WHO	WHEN	HOW
Lab Reports x 6	30	Accuracy of answers based on lab materials and related materials from Weeks 1 to 8	Weeks 1-8	Immediately after practical, or week following practical	All lecturers	1-2 weeks following submission	Mark or written comments on report
Lab Quiz	10	Accuracy of answers based on lab materials from Weeks 1-3	Week 4	End of quiz	On-line	Week 4	Mark online
Practical Exam	20	Accuracy of answers based on lab materials from Weeks 1-9	Week 10	End of exam	All lecturers		With final results
Final Theory Exam	40	Accuracy of answers based on interpretation of lecture material and recommended readings	Exam period	End of exam	All lecturers		With final results

Lab quiz – Multiple choice test. Quiz will be held during practical session 2 in Week 4.

Practical exam – Multiple choice exam on the practical work. The practical exam will be held in Week 10 during the final practical session of the course.

The final theory exam – Theory exam on the lecture material. The exam will be held during the normal UNSW exam period at the end of Term 2 as scheduled by the registrar. Short answer/essay type exam.

Lab reports

There are six lab reports assessed in this course. These are based on material given in the practicals on:

- 1, chordates – lab material covered in Week 1
- 2, sharks – lab material covered in Week 2
- 3, fish – lab material covered in Week 3
- 4, frogs and reptiles (“herps”) – lab material covered in Week 5
- 5, birds – lab material covered in Week 7
- 6, mammals – lab material covered in Week 8

Unless otherwise notified, your lab reports must be submitted via Moodle and Turn-it-in, within one week of that practical session. Specific instructions will be provided during the individual practicals and also via the course announcements on Moodle.

Late submissions will have marks deducted (10% per day). If you have a problem that affects your work, you should immediately apply for special consideration and contact the appropriate lecturer if you need an extension.

Self-testing and revision – throughout the course, revision exercises and self-testing opportunities will be provided. We strongly advise you to complete these exercises as you move through the course in order to revise as you go.

7. Additional Resources and Support

Text Books	<p><u>Suggested Text</u>: Pough, F.H. and Janis, C.M. (2018). <i>Vertebrate Life</i>. 10th Edition. Oxford University Press, USA. The text book is an integral part of this course. Be sure to get the latest edition as it is completely revised from earlier editions (e.g. 5th).</p> <p><u>Recommended Reading</u>: Adams, B. J. (2018). <i>Van de Graaf's Photographic Atlas for the Biology Laboratory</i>. 8th Edition. Morton Publishing Company, Englewood, Colorado.</p> <p>Shubin, N. (2008). <i>Your Inner Fish: A Journey into the 3.5-Billion-Year History of the Human Body</i>. Vintage Books, New York.</p>
Required Readings	<p>Because this course is designed to develop and evaluate students' ability to select and criticize material, students make their own choices of reading matter from the material presented in classes and course manual.</p>
Additional Readings	<p>Other references will be given in individual lectures, using citations of electronically available material</p> <p>As the ultimate source of help, for each lecture or practical session, the lecturer responsible is indicated by their name in the schedule. Enquiries about the contents of this class, or requests for on-line appointments, should be directed to this lecturer's email address. It will be much easier for the lecturer to help you rapidly if you come with a written attempt at a problem, or a page of notes on which you have identified your FIRST point of difficulty.</p>
Recommended Internet Sites	<p><u>Online material</u> Lectures are available in Echo360 on Moodle Lecturers put notes for their lectures onto Moodle Practical session Blackboard Collaborate sessions, eBooks and notes are available on Moodle</p> <p><u>UNSW Library</u>. One starting point for assistance is: www.library.unsw.edu.au/students From the library website, the Sirius Database is useful for accessing scientific databases such as current contents and science citation index.</p>
Societies	<p>Royal Zoological Society of NSW: www.rzsnsw.org.au</p>

8. Course Evaluation and Development

Student feedback is gathered periodically by various means. Such feedback is considered carefully with a view to acting on it constructively wherever possible. This course outline conveys how feedback has helped to shape and develop this course.

Mechanisms of Review	Last Review Date	Comments or Changes Resulting from Reviews
Major Course Review	2019 and 2020	This course has been progressively modified over the years, and major reviews occurred during 2019 and in 2020 in preparation for on-line teaching and learning.

CATEI myExperience		<p>Student feedback on the course is gathered annually, using various means, including the Course and Teaching Evaluation and Improvement (CATEI) Process and myExperience.</p> <p>This feedback is generally positive, and written comments show that any aspect of the course which one student disliked was usually well-liked by another student. Nevertheless, all suggestions for improvement are considered carefully with a view to acting on them constructively where possible. We have reduced the scope of some exercises, and have added more direction to the lab notes where there are large numbers of specimens to examine.</p>
myExperience	2022	In 2022, myExperience will be open to students during term and close prior to the exam period.

9. Administration Matters

Expectations of Students	<p>You are expected to virtually attend all your scheduled classes. If you miss classes, your progress will be significantly hindered. Any alterations to the schedule will be announced on Moodle. If you miss a class, it is your responsibility to (i) catch up on the course material, and (ii) find out the details of any announcements. Students whose attendance at classes or assessment is affected by obligatory religious ceremonies should discuss ways of dealing with this clash via the official Special Consideration process prior to, or at the commencement of, the course; you may be required to show proof of the nature of the ceremony and your obligation to attend.</p> <p><u>Suggested approaches to learning in the course, and resource materials</u></p> <p>Students should approach each component of the course with the aim of evaluating whether particular aspects of biology are relevant to management decisions in the context of the particular conservation issue presented. Because this is a fundamental knowledge course, memory work will be a necessary component. There is also a large volume of material which students will encounter, so students are strongly encouraged to study as they go. Relying solely upon last minute preparation for the lab quiz and final prac exam is NOT advised.</p>
Assessment Procedures UNSW Assessment Policy⁹	<p>Assessment procedures are described above in "Assessment Tasks and Feedback" and "Expectations of Students". Further information about specific tasks will be available on Moodle throughout the course. If you have a problem that affects your work, you should immediately apply for special consideration for that particular assignment.</p> <p>The final examination will be scheduled by the examinations branch. Students should be available for examination throughout the entire UNSW mid-year examination period. Supplementary examinations will only be granted to students who miss the final examination due to illness or other unexpected reasons outside their control. A student who wishes to apply for a supplementary examination should apply for special consideration through the normal procedure.</p>
Equity and Diversity¹⁰	<p>Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with Equitable Learning Services: Equitable Learning Services UNSW Current Students</p> <p>Early notification is essential to enable any necessary adjustments to be made.</p>
Grievance Policy¹¹	<p>In all cases you should first try to resolve any issues with the course convener. If this is unsatisfactory, you should contact the School Student Ethics Officer (A/Prof Stephen Bonser, s.bonser@unsw.edu.au) or the School's Grievance Officer / Designated Officer under the UNSW Plagiarism Procedure. (A/Prof Scott Mooney s.mooney@unsw.edu.au).</p> <p>UNSW has formal policies about the resolution of grievances that can be reviewed in myUNSW A to Z Guide (see https://student.unsw.edu.au/complaints).</p>

⁹ [UNSW Assessment Policy](#)

¹⁰ [UNSW Equity & Diversity](#)

¹¹ [UNSW Student Complaint Procedure](#)

	Designated/Grievance Officer A/Prof Scott Mooney School of BEES s.mooney@unsw.edu.au Tel: 9385 8036	School Student Ethics Officer A/Prof Stephen Bonser School of BEES s.bonser@unsw.edu.au Tel: 9385 3863	University Contact Student Complaints Student complaints Equity Diversity & Inclusion - UNSW Sydney
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10. UNSW Academic Honesty and Plagiarism

What is Plagiarism?

Plagiarism is the presentation of the thoughts or work of another as one's own. *Examples include:

- direct duplication of the thoughts or work of another, including by copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism.

Knowingly permitting your work to be copied by another student may also be considered to be plagiarism.

Note that an assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

The UNSW Academic Skills website is main repository for resources for students on plagiarism and academic honesty. These resources can be located via:

<https://student.unsw.edu.au/plagiarism>

[UNSW Academic Skills](#) also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from UNSW Academic Skills: academicskills@unsw.edu.au

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle

† Adapted with kind permission from the University of Melbourne