



UNSW Course Outline

BIOS3221 Assembling the Tree of Life - 2024

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General Course Information

Course Code : BIOS3221

Year : 2024

Term : Term 3

Teaching Period : T3

Is a multi-term course? : No

Faculty : Faculty of Science

Academic Unit : School of Biological, Earth and Environmental Sciences

Delivery Mode : In Person

Delivery Format : Standard

Delivery Location : Kensington

Campus : Sydney

Study Level : Undergraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

Systematics investigates historical aspects of evolution and establishes evidence-based classifications and genealogical relationships between organisms. Phylogenetic systematics, also known as cladistics, provides a basis for hierarchical classification and a framework for

examining other evolutionary and biological events. These include historical biogeography, sexual coevolution, host-parasite coevolution, as well as applied research in conservation biology and biodiversity. This course is designed to introduce the principles and application of phylogenetic systematics using a variety of organisms. The laboratories will place emphasis on the use of computer software and examples from major clades of the Tree of Life. Students should note that a compulsory five-day field trip will occur in the flexibility week (typically week 6).

Course Aims

This course is designed to train undergraduate students in the principles and application of phylogenetic systematics. Students will learn about the conceptual basis of comparative biology and classification, using morphological and molecular data. Coupled with this conceptual framework students will learn how to determine character homologies, construct and interpret phylogenies by hand and using phylogenetic software programs.

Course Learning Outcomes

Course Learning Outcomes
CL01 : Describe the core concepts in phylogenetic systematics, including characters, taxa, and phylogeny.
CL02 : Calculate and interpret phylogenetic analyses using phylogenetic software.
CL03 : Discuss and evaluate the roles of morphological and molecular data for use in phylogenetic analyses.
CL04 : Identify taxa using diagnostic tools such as taxonomic keys.
CL05 : Deliver an effective oral presentation to a non-expert audience using visual, verbal and written information.

Course Learning Outcomes	Assessment Item
CL01 : Describe the core concepts in phylogenetic systematics, including characters, taxa, and phylogeny.	<ul style="list-style-type: none">• Practical exercises• Presentation• Smths Lake field trip assignment
CL02 : Calculate and interpret phylogenetic analyses using phylogenetic software.	<ul style="list-style-type: none">• Practical exercises• Presentation• Smths Lake field trip assignment
CL03 : Discuss and evaluate the roles of morphological and molecular data for use in phylogenetic analyses.	<ul style="list-style-type: none">• Practical exercises• Presentation• Smths Lake field trip assignment
CL04 : Identify taxa using diagnostic tools such as taxonomic keys.	<ul style="list-style-type: none">• Smths Lake field trip assignment
CL05 : Deliver an effective oral presentation to a non-expert audience using visual, verbal and written information.	<ul style="list-style-type: none">• Presentation• Smths Lake field trip assignment

Learning and Teaching Technologies

Moodle - Learning Management System

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Practical exercises Assessment Format: Individual	45%	
Presentation Assessment Format: Individual	20%	
Smths Lake field trip assignment Assessment Format: Individual	35%	

Assessment Details

Practical exercises

Assessment Overview

You will be required to provide written responses related to laboratory exercises that are designed to assess your understanding of phylogenetics. The laboratory sessions are conducted in Weeks 1-5 and Week 7 with the report due one week after each practical. Marks and feedback will be provided in Moodle to you one week after submission (except in week 5, where there is a two-week deadline).

Course Learning Outcomes

- CL01 : Describe the core concepts in phylogenetic systematics, including characters, taxa, and phylogeny.
- CL02 : Calculate and interpret phylogenetic analyses using phylogenetic software.
- CL03 : Discuss and evaluate the roles of morphological and molecular data for use in phylogenetic analyses.

Generative AI Permission Level

No Assistance

This assessment is designed for you to complete without the use of any generative AI. You are not permitted to use any generative AI tools, software or service to search for or generate information or answers.

For more information on Generative AI and permitted use please see [here](#).

Presentation

Assessment Overview

You will deliver a 6 minute oral presentation on phylogenetic theory or on a phylogenetic analysis

of a taxonomic group of organisms from the literature.

The presentations include providing answers to two questions.

Presentation to be given near the end of the course to peers during class.

Grades and feedback will be given In Moodle two weeks after the presentations.

Course Learning Outcomes

- CL01 : Describe the core concepts in phylogenetic systematics, including characters, taxa, and phylogeny.
- CL02 : Calculate and interpret phylogenetic analyses using phylogenetic software.
- CL03 : Discuss and evaluate the roles of morphological and molecular data for use in phylogenetic analyses.
- CL05 : Deliver an effective oral presentation to a non-expert audience using visual, verbal and written information.

Generative AI Permission Level

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Smths Lake field trip assignment

Assessment Overview

Practical work during the field trip is designed to give you experience in collecting and identifying insect taxa. You will be assessed on collecting and curating insects that you have caught, and successfully identifying them to order. You will conduct a phylogenetic analysis of species collected in the field and present the results to your peers. The tasks and grade totals per task are as follows:

- 1) 30 curated insects identified to order (20% of total course grade)
- 2) Phylogenetics of insects (10% of total course grade)
- 3) Presentation of phylogenetic results (5% of total course grade)

The tasks will be assessed during the field trip (typically week 6) with feedback provided at the field trip.

Course Learning Outcomes

- CL01 : Describe the core concepts in phylogenetic systematics, including characters, taxa, and phylogeny.

- CLO2 : Calculate and interpret phylogenetic analyses using phylogenetic software.
- CLO3 : Discuss and evaluate the roles of morphological and molecular data for use in phylogenetic analyses.
- CLO4 : Identify taxa using diagnostic tools such as taxonomic keys.
- CLO5 : Deliver an effective oral presentation to a non-expert audience using visual, verbal and written information.

Generative AI Permission Level

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General Assessment Information

Grading Basis

Standard

Course Schedule

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
	Gerry Cassis					No	Yes

Other Useful Information

Academic Information

Upon your enrolment at UNSW, you share responsibility with us for maintaining a safe, harmonious and tolerant University environment.

You are required to:

- Comply with the University's conditions of enrolment.

- Act responsibly, ethically, safely and with integrity.
- Observe standards of equity and respect in dealing with every member of the UNSW community.
- Engage in lawful behaviour.
- Use and care for University resources in a responsible and appropriate manner.
- Maintain the University's reputation and good standing.

For more information, visit the [UNSW Student Code of Conduct Website](#).

Academic Honesty and Plagiarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at <https://student.unsw.edu.au/referencing>

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility and courage. At UNSW, this means that your work must be your own, and others' ideas should be appropriately acknowledged. If you don't follow these rules, plagiarism may be detected in your work.

Further information about academic integrity, plagiarism and the use of AI in assessments can be located at:

- The [Current Students site](#),
- The [ELISE training site](#), and
- The [Use of AI for assessments](#) site.

The Student Conduct and Integrity Unit provides further resources to assist you to understand your conduct obligations as a student: <https://student.unsw.edu.au/conduct>

Submission of Assessment Tasks

Penalty for Late Submissions

UNSW has a standard late submission penalty of:

- 5% per day,
- for all assessments where a penalty applies,
- capped at five days (120 hours) from the assessment deadline, after which a student cannot submit an assessment, and

- no permitted variation.

Any variations to the above will be explicitly stated in the Course Outline for a given course or assessment task.

Students are expected to manage their time to meet deadlines and to request extensions as early as possible before the deadline.

Special Consideration

If circumstances prevent you from attending/completing an assessment task, you must officially apply for special consideration, usually within 3 days of the sitting date/due date. You can apply by logging onto myUNSW and following the link in the My Student Profile Tab. Medical documentation or other documentation explaining your absence must be submitted with your application. Once your application has been assessed, you will be contacted via your student email address to be advised of the official outcome and any actions that need to be taken from there. For more information about special consideration, please visit: <https://student.unsw.edu.au/special-consideration>

Important note: UNSW has a “fit to sit/submit” rule, which means that if you sit an exam or submit a piece of assessment, you are declaring yourself fit to do so and cannot later apply for Special Consideration. This is to ensure that if you feel unwell or are faced with significant circumstances beyond your control that affect your ability to study, you do not sit an examination or submit an assessment that does not reflect your best performance. Instead, you should apply for Special Consideration as soon as you realise you are not well enough or are otherwise unable to sit or submit an assessment.

Faculty-specific Information

Additional support for students

- [The Current Students Gateway](#)
- [Student Support](#)
- [Academic Skills and Support](#)
- [Student Wellbeing, Health and Safety](#)
- [Equitable Learning Services](#)
- [UNSW IT Service Centre](#)
- Science EDI Student [Initiatives](#), [Offerings](#) and [Guidelines](#)