



UNSW Course Outline

BIOS1301 Ecology, Sustainability and Environmental Science - 2024

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General Course Information

Course Code : BIOS1301

Year : 2024

Term : Term 1

Teaching Period : T1

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 : Postgraduate, Undergraduate

Units of Credit : 6

Useful Links

[Handbook Class Timetable](#)

Course Details & Outcomes

Course Description

This course provides an introduction to ecology, sustainability and environmental science, introducing a range of biological topics and how scientists approach these topics to solve problems. The course develops student skills in critically assessing scientific information,

routinely debated by the public and decision-makers. A range of teaching strategies are used including lectures, practicals, tutorials and short field trips (within the scheduled practical times). This course provides a strong grounding in today's and tomorrow's environmental problems and the role of science in providing solutions.

Course Aims

The aim of this course is to provide students with a background in environmental issues and their effects on biodiversity and sustainability. Our society is being increasingly challenged by changing climates, environmental degradation, land clearing, non-sustainable resource use and pollution. This course introduces how these problems can be addressed by providing management solutions and informing government policy.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Identify important environmental problems and explain how implementing appropriate management techniques can address these problems.
CLO2 : Conduct basic scientific field observations and monitoring techniques including species identification and counts, water quality testing, consideration of inputs and outputs, and mark recapture techniques.
CLO3 : Collect, analyse (spatially and statistically), and interpret results from field and laboratory data.
CLO4 : Produce a written report appropriate for academic publication.
CLO5 : Collaborate with others to creatively solve problems.
CLO6 : Use science communication techniques to deliver an oral presentation.

Course Learning Outcomes	Assessment Item
CLO1 : Identify important environmental problems and explain how implementing appropriate management techniques can address these problems.	<ul style="list-style-type: none">• Threats to Biodiversity Presentation• Mid-Term Test• Biodiversity Report• Final Test
CLO2 : Conduct basic scientific field observations and monitoring techniques including species identification and counts, water quality testing, consideration of inputs and outputs, and mark recapture techniques.	<ul style="list-style-type: none">• Biodiversity Report
CLO3 : Collect, analyse (spatially and statistically), and interpret results from field and laboratory data.	<ul style="list-style-type: none">• Biodiversity Report
CLO4 : Produce a written report appropriate for academic publication.	<ul style="list-style-type: none">• Biodiversity Report
CLO5 : Collaborate with others to creatively solve problems.	<ul style="list-style-type: none">• Threats to Biodiversity Presentation
CLO6 : Use science communication techniques to deliver an oral presentation.	<ul style="list-style-type: none">• Threats to Biodiversity Presentation

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

There are five major components to this course. The various streams re-enforce but to do duplicate

each other:

1) Lectures which outline the main elements of the environment, problems of sustainability and ways of addressing these problems with environmental science. Lectures are primarily given by academics from the School of Biological, Earth and Environmental Sciences. However, to expand students understanding and provide real world examples, guest lecturers (specialist scientists) from Government agencies and outside organization's are invited to join the course discussions via podcasts, to give advice in their areas of expertise. Sometimes lectures will not be sequential as consideration has to be made for some of the guest lecturers who have busy schedules.

Always refer to the module to see where lectures fit.

2) Practical classes which provide "hands on" experience teaching the basic skills of environmental monitoring and data collection. There are 8 set practical classes.

3) Assessments which are designed to enhance skills such as data collection, analysis, report writing, problem solving and scientific communication.

4) Assessments which are designed to assess students undersanding of the theory content provided in the lectures, case studies and podcasts. This is examined by mid-term and final tests.

Additional Course Information

Each week, a lecture, podcast, and case study will be released online via the course BIOS1301 T1 Moodle page. Students can access this content via the interactive timetable. It is up to the student to make time to watch and listen to the weekly content provided, as well as prepare their own study notes. Staying on top of this content will help students in their understanding of assessment material and will

also help students stay engaged with the course. The content from lectures, podcasts and case studies is examined via a mid-term test and final test (as well as overlapping with assessment material).

The practical aspect of ecology is so important that participation in practical classes is a fundamental requirement for the award of a pass. During each practical class, time is spent working on assignments for the course. If you miss a practical class, you may miss out on valuable information (data collection, analysis, groupwork) required for the completion of your assignments. Any student who misses more than one practical class and does not provide a medical certificate to cover any such absence may be awarded an unsatisfactory failure (UF)

grade for having failed to complete essential elements of their assignments for the subject.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Threats to Biodiversity Presentation Assessment Format: Group	15%	
Mid-Term Test Assessment Format: Individual	15%	
Biodiversity Report Assessment Format: Individual	45%	
Final Test Assessment Format: Individual	25%	

Assessment Details

Threats to Biodiversity Presentation

Assessment Overview

Rationale:

This assignment is designed to teach students skills in creative problem solving, science communication and teamwork. This assignment mimics industry-based group work.

Description:

You will select an Australian Ecosystem (this selection assigns each student to a group).

Each group must identify a key threatening process currently impacting their chosen ecosystem.

Each week, groups meet with their assigned mentor (demonstrator) to discuss key threatening processes and brainstorm creative solutions to save their ecosystem for future generations.

In week 9, each group gives a presentation to their class. The presentation covers:

1. A description of the ecosystem (outlining why it is important)
2. A description of a key threatening process impacting the ecosystem.
3. A description of their creative group solution, which is designed to save the ecosystem for future generations.

Part of your mark will be based on your individual performance in the final presentation, your contributions to the group discussions in the planning phase, and in your response to a brief

reflection exercise.

Weighting:

Group work 7.5%

Individual 7.5%

Course Learning Outcomes

- CLO1 : Identify important environmental problems and explain how implementing appropriate management techniques can address these problems.
- CLO5 : Collaborate with others to creatively solve problems.
- CLO6 : Use science communication techniques to deliver an oral presentation.

Mid-Term Test

Assessment Overview

Description:

A mid-term test covering the lecture content from weeks 1 to 4.

All questions are multiple choice and are arranged by lecture.

The test takes at the end of week 4.

Rationale:

The test is designed to keep students up to date with the lecture content.

Course Learning Outcomes

- CLO1 : Identify important environmental problems and explain how implementing appropriate management techniques can address these problems.

Biodiversity Report

Assessment Overview

You will be required to produce a written scientific report in the style of the journal *Austral Ecology*.

Data for this report will be collected and analysed during the BIOS1301 field trips and practical classes.

The Biodiversity Report consists of four submissions:

1. Introduction 15% (typically due week 3)

2. Methods and Results 10% (typically due week 5)
3. Discussion, abstract and References 20% (typically due week 7)

Each section is submitted separately. Students are provided with active feedback as they progress.

Students are given the opportunity to learn from their active feedback.

Course Learning Outcomes

- CLO1 : Identify important environmental problems and explain how implementing appropriate management techniques can address these problems.
- CLO2 : Conduct basic scientific field observations and monitoring techniques including species identification and counts, water quality testing, consideration of inputs and outputs, and mark recapture techniques.
- CLO3 : Collect, analyse (spatially and statistically), and interpret results from field and laboratory data.
- CLO4 : Produce a written report appropriate for academic publication.

Final Test

Assessment Overview

In the final test you will be assessed on your understanding of the theory covered during the lectures and revision sessions.

You will be required to outline how the real-world case studies (presented during the lectures) provide examples of how environmental science is used to identify, assess, monitor and manage ecological threats.

The test is composed of small quizzes with multiple choice and short answer response and covers lecture content from weeks 5 to 9. Final test quizzes must be completed by week 10.

Course Learning Outcomes

- CLO1 : Identify important environmental problems and explain how implementing appropriate management techniques can address these problems.

General Assessment Information

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 12 February - 18 February	Lecture	Introduction to Ecology & Sustainability (Online Traditional Lecture) No Podcast Case Study 1 (Online)
	Tut-Lab	Introduction to Practicals Groups assigned for Group Presentations Assessment Identify ecological threat for Group Presentation Assessment
Week 2 : 19 February - 25 February	Lecture	Environmental Science (Online Traditional Lecture) Definitions of Sustainability (Podcast) Case Study 2 (Online)
	Tut-Lab	Field trip to Centennial Park
	Assessment	Content Test 1, testing weeks 1-2
Week 3 : 26 February - 3 March	Lecture	Distribution & Abundance of Organisms (Traditional Online Lecture) Waters, Rivers, River Regulation (Podcast) Case Study 3 (Online)
	Tut-Lab	Field trip to Randwick Environmental Park
	Assessment	Report Part 1: Introduction
Week 4 : 4 March - 10 March	Lecture	Biodiversity in Australia (Traditional Online Lecture) Bio-signals (Podcast) Case Study 4 (Online)
	Tut-Lab	Leaf litter-data collection
	Assessment	Content Test 2, testing weeks 3-4
Week 5 : 11 March - 17 March	Lecture	Disturbance Ecology (Online Traditional Lecture) Trade in Biodiversity (Podcast) Case Study 5 (Online)
	Tut-Lab	Data Analysis
Week 6 : 18 March - 24 March	Assessment	Report Part 2: Results & Methods
Week 7 : 25 March - 31 March	Lecture	Exotic Animal Species (Online Traditional Lecture) Fire & Ecosystems (Podcast) Case Study 6 (Online)
	Tut-Lab	Measurement Techniques
	Assessment	Report Part 3: Discussion & Abstract
Week 8 : 1 April - 7 April	Lecture	Climate Change in Australia (Online Traditional Lecture) Invasive Plant Species (Podcast) Case Study 7 (Online)
	Tut-Lab	Practice Group Presentations
	Assessment	Content Test 3, testing weeks 5,7
Week 9 : 8 April - 14 April	Lecture	Protected Area Management (Online Traditional Lecture) Future of Australian Terrestrial Ecosystems (Podcast) Case Study 8 (Online)
	Tut-Lab	In-class Group Presentations
Week 10 : 15 April - 21 April	Lecture	Fisheries Management (Podcast) Case Study 9 (Online)
	Assessment	Content Test 4, testing weeks 8-9

Attendance Requirements

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

General Schedule Information

In general, there are weekly online lectures in forms of traditional lecture, a podcast, and a case

study. Additionally, there are weekly in-person practicals. Please see moodle for a detailed course schedule.

Course Resources

Prescribed Resources

Course manual

BIOS 1301 Ecology and Sustainability. Available on the Moodle course page.

Textbooks

There are no textbooks for this course.

Recommended Resources

Attiwill, P. & Wilson, B. (2003). Ecology: an Australian perspective. Oxford University Press, Melbourne.

Botkin, D.B. & Keller, E.A. (2011). Environmental Science: Earth as a Living Planet (8th Edition). John Wiley and Sons

Campbell, N. A. & Reece, J. A. (2011). Biology, 9th Edition. Benjamin/Cummings, San Francisco.

Augee, M.L. & Fox, M. (1999). Biology of Australia and New Zealand. Benjamin Cummings, Redwood City (a supplement to Campbell et al.)

Keith, D. (2004). Ocean shores to desert dunes. The native vegetation of NSW and the ACT. NSW Department of Environment and Conservation, Sydney.

As well, you will have access to particular scientific papers suggested by individual lecturers.

A biological dictionary can be very useful. The campus book shop usually has several different dictionaries. Highly recommended is "Henderson's Dictionary of Biology 14th edition (2008) Pearson:

Benjamin Cummings".

Other useful materials, including additional readings, recommended internet sites, and societies, will be provided via the Moodle page

Course Evaluation and Development

Tests:

Testing understanding of lectures, case studies and podcast material. Test marks will be provided on moodle.

Report:

Assessing Research skills, group work, data collection, data analysis, report writing skills. Written feedback & marks will be provided on turn-it-in. The student will be able to improve on parts of the report given the feedback from the previous parts.

Group Presentation:

Assessing knowledge of research topic. Creativity, science communication skills, research skills, ability to work as a member of a group, presentations, and communications skills. The groups will be given feedback during their practical practice group presentations before their final presentation. After the final presentation written feedback and marks will be posted on moodle.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Anastasia Shavrova					No	Yes
	Richard Kingsford					No	No

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](#)