



UNSW

UNSW Course Outline

GEOS1701 Environmental Systems, Processes and Issues - 2024

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General Course Information

Course Code : GEOS1701

Year : 2024

Term : Term 2

Teaching Period : T2

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

Understanding how different environmental processes influence atmospheric and physical systems is crucial for understanding many environmental issues and is essential knowledge for careers in environmental science and related fields. This course covers a range of topics

including climate and weather, landscape and soil evolution, hydrology, and rivers and coasts – both from global and Australian perspectives. Key environmental issues discussed include climate change and storms, land degradation, water resources and pollution, flooding and coastal erosion and natural hazards. A major theme of the course is the interaction of humans with the environment and the causes of environmental problems and hazards. The course has a reputation for engaging lectures, uses innovative and interactive practical labs that are often held outdoors to enhance an appreciation of a range of environments and issues. This course is well suited to any student interested in the physical environment and/or who are studying Geography, Environmental Science and Environmental Management. No prior science knowledge is required.

Course Aims

The primary aim of this course is to provide students with an understanding of physical environments and the processes that form and modify them. This course also aims to introduce students to a range of environmental management issues by examining the nature of interactions between humans and physical environmental systems as well as some of the methods currently used in monitoring and mitigating environmental hazards and change. Laboratory classes are designed to reinforce lecture content with the use of practical tasks. This course provides a solid foundation from which to successfully undertake higher order courses in geoscience, geography and environmental science and management as well as providing knowledge and skills for future employment in these areas.

Relationship to Other Courses

Students who take this course may also be interested in taking GEOS1211 Earth and Environmental Sciences and BIOS1301 Ecology, Sustainability and Environmental Science. GEOS1701 also provides a good foundation for upper level courses such as GEOS2721 Australian Surface Environments and Landforms and GEOS2711 Australian Climate and Vegetation.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe and interpret fundamental processes that form past, present and future controls on physical environments.
CLO2 : Discuss complex human-physical environmental interactions causing environmental management issues both within Australia and globally, including identification of challenges and methods involved in solving these environmental problems.
CLO3 : Formulate and solve problems in relation to environmental data using basic statistical analysis and geo-spatial software.
CLO4 : Communicate written and analytical work in the format of a scientific report.
CLO5 : Describe and apply the appropriate methods, techniques, and approaches used to monitor and measure different physical environments.

Course Learning Outcomes	Assessment Item
CLO1 : Describe and interpret fundamental processes that form past, present and future controls on physical environments.	<ul style="list-style-type: none">• Lab Assessments• Mid-Term Test• Final Exam
CLO2 : Discuss complex human-physical environmental interactions causing environmental management issues both within Australia and globally, including identification of challenges and methods involved in solving these environmental problems.	<ul style="list-style-type: none">• Water Use Assignment• Lab Assessments• Mid-Term Test• Final Exam
CLO3 : Formulate and solve problems in relation to environmental data using basic statistical analysis and geo-spatial software.	<ul style="list-style-type: none">• Water Use Assignment• Lab Assessments• Final Exam
CLO4 : Communicate written and analytical work in the format of a scientific report.	<ul style="list-style-type: none">• Water Use Assignment
CLO5 : Describe and apply the appropriate methods, techniques, and approaches used to monitor and measure different physical environments.	<ul style="list-style-type: none">• Mid-Term Test• Water Use Assignment• Lab Assessments• Final Exam

Learning and Teaching Technologies

Moodle - Learning Management System | Blackboard Collaborate | Echo 360

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Water Use Assignment Assessment Format: Individual Short Extension: Yes (3 days)	30%	
Lab Assessments Assessment Format: Individual Short Extension: Yes (3 days)	40%	
Mid-Term Test Assessment Format: Individual Short Extension: Yes (3 days)	15%	
Final Exam Assessment Format: Individual Short Extension: Yes (3 days)	15%	

Assessment Details

Water Use Assignment

Assessment Overview

The Water Use Assignment is an independent assessment designed to help you understand and explain the volumes and patterns of water use in your place of residence. You will design and collect water use and environmental data over a minimum period of three weeks where you live and then write a report in scientific format (Introduction, Methods, Results, Discussion, Conclusions) addressing several key assignment objectives.

The assignment is given in Week 1, a data summary is due in Week 5 and the report is due in Week 7. Most of the tutorials in the course are devoted to helping you with aspects of the assignment, such as data analysis, creating Tables and Figures and how to present, structure, write and reference a scientific report.

The report has a suggested word limit of 1600 words. Extensive feedback is provided in the marking process using a rubric as well as general comments.

Course Learning Outcomes

- CLO2 : Discuss complex human-physical environmental interactions causing environmental management issues both within Australia and globally, including identification of challenges and methods involved in solving these environmental problems.
- CLO3 : Formulate and solve problems in relation to environmental data using basic statistical analysis and geo-spatial software.

- CLO4 : Communicate written and analytical work in the format of a scientific report.
- CLO5 : Describe and apply the appropriate methods, techniques, and approaches used to monitor and measure different physical environments.

Lab Assessments

Assessment Overview

There are four lab exercises that are each worth 10% of the course grade. These exercises assess your ability to take concepts introduced in lectures and apply them in practical tasks. Tasks involve geospatial data analysis, field data collection and sediment and soil analysis.

In general there are 2 to 3 lab sessions devoted to each lab exercise involving introduction to the exercise, methodological workshops and exercise feedback.

Each exercise is designed to be completed and submitted either at the end of the lab where they are presented, the end of the week they are presented, or the following week. Marking is done either by instructors, demonstrators or automatically and, depending on the nature of the lab exercise, feedback is provided either directly on the exercise, online, or in the labs.

Course Learning Outcomes

- CLO1 : Describe and interpret fundamental processes that form past, present and future controls on physical environments.
- CLO2 : Discuss complex human-physical environmental interactions causing environmental management issues both within Australia and globally, including identification of challenges and methods involved in solving these environmental problems.
- CLO3 : Formulate and solve problems in relation to environmental data using basic statistical analysis and geo-spatial software.
- CLO5 : Describe and apply the appropriate methods, techniques, and approaches used to monitor and measure different physical environments.

Mid-Term Test

Assessment Overview

The mid-term test is based solely on lecture content for the first half of the course and is designed to assess student understanding of the material presented in these lectures.

It is approximately 1 - 1.5 hours in duration and consists of multiple choice, short and long answer questions. Time and location are announced during the course.

The test is marked by the course lecturers who provide generalised and specific feedback in one of the lab classes.

Course Learning Outcomes

- CLO1 : Describe and interpret fundamental processes that form past, present and future controls on physical environments.
- CLO2 : Discuss complex human-physical environmental interactions causing environmental management issues both within Australia and globally, including identification of challenges and methods involved in solving these environmental problems.
- CLO5 : Describe and apply the appropriate methods, techniques, and approaches used to monitor and measure different physical environments.

Final Exam

Assessment Overview

The final exam is based solely on lecture content for the second half of the course and is designed to assess student understanding of the material presented in these lectures.

It is approximately 1 to 1.5 hours in duration and consists of multiple choice, short and long answer questions. The exam is not held during the formal exam period. Time and location are announced during the course.

The exam is marked by the course lecturers who provide generalised and specific feedback to students online.

Course Learning Outcomes

- CLO1 : Describe and interpret fundamental processes that form past, present and future controls on physical environments.
- CLO2 : Discuss complex human-physical environmental interactions causing environmental management issues both within Australia and globally, including identification of challenges and methods involved in solving these environmental problems.
- CLO3 : Formulate and solve problems in relation to environmental data using basic statistical analysis and geo-spatial software.
- CLO5 : Describe and apply the appropriate methods, techniques, and approaches used to monitor and measure different physical environments.

General Assessment Information

Grading Basis

Standard

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 27 May - 2 June	Lecture	Lecture 1 Life, The Earth and Everything
	Lecture	Lecture 2 Earth's Atmosphere and Energy Balance
	Laboratory	Laboratory 1: Lab Assessment 1 Part A: Introduction to Google Earth
	Tutorial	Tutorial 1 Introduction to Water Use Assignment
Week 2 : 3 June - 9 June	Lecture	Lecture 3 Global Energy Distribution and Atmospheric Circulation Systems
	Lecture	Lecture 4 Global Circulation Systems and Global Climate Part 1: Temperature
	Lecture	Lecture 5 Global Climate Part 2: Rainfall
	Laboratory	Laboratory 2 Lab Assessment 1 Part B: Further Applications of Google Earth
	Tutorial	Tutorial 2 Library Resources Tutorial and Water Use Q & A
Week 3 : 10 June - 16 June	Lecture	Lecture 6 Global and Australian Climates
	Lecture	Lecture 7 Climate Change Part 1: Ice Ages
	Laboratory	Laboratory : Lab Assessment 1 Part C - Nearmap and NSW Topographic Maps
	Tutorial	Tutorial 1 Introduction to Water Use Report
Week 4 : 17 June - 23 June	Lecture	Lecture 8 Climate Change Part 2: ENSO
	Lecture	Lecture 9 Climate Change Part 3: Human Induced Climate Change
	Lecture	Lecture 10 Landscape Evolution
	Laboratory	Laboratory 4: Lab Assessment 1 Part D - Using Maps and Earth Image Viewing
	Tutorial	Tutorial 4 Class Test 1 Preview
Week 5 : 24 June - 30 June	Lecture	Lecture 11 Landform Movement and Hazards
	Lecture	Lecture 12 Arid Environments
	Lecture	Lecture 13 Catchment Hydrology
	Laboratory	Laboratory 5: Class Test 1
	Tutorial	Tutorial 5 Water Use Report: Working with Data
Week 7 : 8 July - 14 July	Lecture	Lecture 14 River Systems
	Lecture	Lecture 15 River Processes and Management Issues
	Lecture	Lecture 16 Coastal Processes
	Laboratory	Laboratory 6: Lab Assessment 2 Fieldwork at Maroubra Beach
	Tutorial	Tutorial 6 Class Test 1 Review
Week 8 : 15 July - 21 July	Lecture	Lecture 17 Coastal Environments
	Lecture	Lecture 18 Coastal Hazards and Management Issues
	Lecture	Lecture 19 Coastal Hazards and Management Issues
	Laboratory	Laboratory 7: Lab Assessment 2 Maroubra Debrief and Sediment Analysis
Week 9 : 22 July - 28 July	Lecture	Lecture 20 Earth Observation: Satellites, Planes and Drones
	Lecture	Lecture 21 Monitoring Environmental Change with Remote Sensing
	Lecture	Lecture 22 Active Remote Sensing with LIDAR and RADAR
	Laboratory	Laboratory 8: Lab Assessment 3 Remote Sensing and Environmental Change
Week 10 : 29 July - 4 August	Lecture	Lecture 23 What is Biogeography?
	Lecture	Lecture 24 Is There a Limit to Human Population?
	Lecture	Lecture 25 Humans as Agents of Environmental Change
	Laboratory	Laboratory 1: Lab Assessment 1 Part A - Introduction to Google Earth

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
Convenor	David Edward s		Samuels	0402 114 501	By email	No	No
	David Edward s					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](#)