



UNSW Course Outline

GEOS3761 Environmental Change - 2024

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General Course Information

Course Code : GEOS3761

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

Due to increased greenhouse gas concentration in the atmosphere, the climate is changing: heatwaves, droughts, floods are becoming more frequent and more intense, ice-mass loss from Greenland and Antarctica is accelerating and sea-level is rising. Future climate projections are

derived from climate model simulations, but how are these models benchmarked? Past climate changes provide a unique opportunity to understand the climate system to better project its trajectory. This course provides an overview of past climate and environmental change and of the processes that were involved. The course is designed to be accessible to all upper level science students.

GEOS3761 is delivered as a blended course: online lectures are complemented by face-to-face practicals. The course has a Moodle Discussion Forum which provides an opportunity to engage with everyone. The students will get hands-on experience with techniques to reconstruct and understand past climate change.

Course Aims

The aim of this course is to provide students with a critical understanding of environmental and climate change and their impacts. During this course, Earth's climate variability of the Quaternary and Tertiary periods will be studied, thus introducing important drivers and feedbacks of climate and environmental change. Practical classes are designed to reinforce the core concepts presented in the lectures and introduce students to techniques used to reconstruct and study past climate change.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Critically evaluate the literature on environmental/climate change.
CLO2 : Analyze climate and paleo-proxy data to infer past climate change.
CLO3 : Communicate the causes and impacts of past environmental/climate change, and understand the implications for future climate.
CLO4 : Perform basic data analysis using MATLAB.

Course Learning Outcomes	Assessment Item
CLO1 : Critically evaluate the literature on environmental/climate change.	<ul style="list-style-type: none">• Science communication article• Tutorial reports• Study of a past climate change event• Online quizzes
CLO2 : Analyze climate and paleo-proxy data to infer past climate change.	<ul style="list-style-type: none">• Tutorial reports• Online quizzes
CLO3 : Communicate the causes and impacts of past environmental/climate change, and understand the implications for future climate.	<ul style="list-style-type: none">• Science communication article• Study of a past climate change event
CLO4 : Perform basic data analysis using MATLAB.	<ul style="list-style-type: none">• Tutorial reports

Learning and Teaching Technologies

Moodle - Learning Management System

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Science communication article Assessment Format: Individual Short Extension: Yes (3 days)	25%	Start Date: Not Applicable Due Date: 02/08/2024 12:00 AM
Tutorial reports Assessment Format: Individual Short Extension: Yes (3 days)	42%	Start Date: Not Applicable Due Date: Week 2: 03 June - 09 June, Week 3: 10 June - 16 June, Week 4: 17 June - 23 June, Week 5: 24 June - 30 June, Week 8: 15 July - 21 July, Week 9: 22 July - 28 July
Study of a past climate change event Assessment Format: Group Short Extension: Yes (3 days)	15%	Start Date: 28/06/2024 12:00 AM Due Date: 12/07/2024 12:00 AM
Online quizzes Assessment Format: Individual Short Extension: Yes (2 days)	18%	Due Date: Week 1: 27 May - 02 June, Week 2: 03 June - 09 June, Week 3: 10 June - 16 June, Week 4: 17 June - 23 June, Week 5: 24 June - 30 June, Week 7: 08 July - 14 July, Week 8: 15 July - 21 July, Week 9: 22 July - 28 July, Week 10: 29 July - 04 August

Assessment Details

Science communication article

Assessment Overview

You will write an article (~1000 words), summarizing the key methods and findings of a major research study. The article will communicate the study's importance for understanding contemporary and future environmental change. Submission due in Week 10.

Marks with feedback provided within a week of submission.

Course Learning Outcomes

- CL01 : Critically evaluate the literature on environmental/climate change.
- CL03 : Communicate the causes and impacts of past environmental/climate change, and understand the implications for future climate.

Detailed Assessment Description

You will write an article (~1000 words), summarizing the key methods and findings of a major research study. The article will communicate the study's importance for understanding contemporary and future environmental change. Submission due in Week 10.

Marks with feedback provided within a week of submission.

Assessment Length

1000 words

Submission notes

Submit using Turnitin on Moodle

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Tutorial reports

Assessment Overview

During 6 weekly tutorials, you will have to analyse data and interpret it based on the concepts developed during the lectures. You will have one week after the tutorial to submit a tutorial report that will include answers to the questions asked in the tutorial, graphs showing the data and an interpretation of the data.

It is expected that most of the analysis and generation of graphs will be done during the tutorial time. For the report, you will have to bring it all together and include a discussion of the data (<900 words).

Feedback will be provided within a week of submission.

There will be 6 tutorial reports, each weighted 8% (a total of 42% for the course).

Course Learning Outcomes

- CLO1 : Critically evaluate the literature on environmental/climate change.
- CLO2 : Analyze climate and paleo-proxy data to infer past climate change.
- CLO4 : Perform basic data analysis using MATLAB.

Detailed Assessment Description

During 6 weekly tutorials, you will have to analyse data and interpret it based on the concepts developed during the lectures. You will have one week after the tutorial to submit a tutorial report that will include answers to the questions asked in the tutorial, graphs showing the data and an interpretation of the data.

It is expected that most of the analysis and generation of graphs will be done during the tutorial time.

Feedback will be provided within a week of submission.

There will be 6 tutorial reports, each weighted 7% (a total of 42% for the course).

Submission notes

Tutorial reports are due one week after the tutorial

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Study of a past climate change event

Assessment Overview

Working in a group of 2-3 students, you will choose a topic of climate/environmental change, find a few scientific articles on that topic (1 to 2 articles/person), briefly present the topic (~500 words), the key research questions, and methods. You will then finish with a discussion on how the articles differ or concur on their conclusions (~500 words).

Reports are due at the end of week 7. Marks with feedback will be provided within 2 weeks.

Course Learning Outcomes

- CL01 : Critically evaluate the literature on environmental/climate change.
- CL03 : Communicate the causes and impacts of past environmental/climate change, and understand the implications for future climate.

Detailed Assessment Description

Working in a group of 2-3 students, you will choose a topic of climate/environmental change, find a few scientific articles on that topic (1 to 2 articles/person), briefly present the topic (~500 words), the key research questions, and methods. You will then finish with a discussion on how the articles differ or concur on their conclusions (~500 words).

Reports are due at the end of week 7. Marks with feedback will be provided within 2 weeks.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students do not see Turnitin similarity reports.

Online quizzes

Assessment Overview

Nine weekly online quizzes will test your knowledge on the lecture material provided that week. Each quiz will be worth 2% of the final grade. Quizzes will be marked at the completion of the quiz and you will be able to discuss your answers with the course academics.

Course Learning Outcomes

- CL01 : Critically evaluate the literature on environmental/climate change.
- CL02 : Analyze climate and paleo-proxy data to infer past climate change.

Assignment submission Turnitin type

This is not a Turnitin assignment

General Assessment Information

Grading Basis

Standard

Requirements to pass course

A 50% overall grade is necessary to pass course.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 27 May - 2 June	Blended	Introduction to Environmental Change Overview of Earth's Environmental Change, including the Anthropocene Techniques to reconstruct and understand past climate change *Unless stated all "blended" weeks below include online lectures and a tutorial on the topic displayed
Week 2 : 3 June - 9 June	Blended	Earth's energy balance Future climate projections
	Assessment	Tutorial report 1 due on June 9
Week 3 : 10 June - 16 June	Blended	Glacial / Interglacial cycles
	Assessment	Tutorial report 2 due on June 16
Week 4 : 17 June - 23 June	Blended	Oceanic circulation and abrupt climate change
	Assessment	Tutorial report 3 due to on June 23
Week 5 : 24 June - 30 June	Blended	Tipping points The Last Interglacial and the Holocene (The Green Sahara)
	Assessment	Tutorial report 4 due on June 30
Week 6 : 1 July - 7 July	Group Work	This is flexibility week. There are no lectures or tutorial but you should work on the group project that starts on June 30th and is due on July 14,
Week 7 : 8 July - 14 July	Blended	Past warm periods: the Eocene, Oligocene and Miocene
Week 8 : 15 July - 21 July	Blended	Past warm periods: the Pliocene
	Assessment	Tutorial report 5 due on July 21
Week 9 : 22 July - 28 July	Blended	C14 and dating methods This week, during the tutorial time you will visit the Chronos-14 laboratory.
	Assessment	Tutorial report 6 due on July 28
Week 10 : 29 July - 4 August	Blended	Nature-Based Solutions to Environmental Change

Attendance Requirements

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

Course Resources

Prescribed Resources

Required readings are included in Moodle each week

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Laurie Menviel		Climate Change Research Centre, Matthews bldg level 4			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](#)