UNSW Course Outline

GEOS2711 Australian Climate and Vegetation - 2024

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General Course Information

Course Code : GEOS2711
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

Australian Climate and Vegetation is a course that focuses on the unique and diverse climatic regions and vegetation types found in Australia. The course particularly focuses on contemporary climatic patterns and controls in Australia and elements of the Australian

vegetation and their distribution. Topics covered include the development of the Australian vegetation through time, field surveying, classification and mapping of vegetation, with an emphasis on the Sydney region, fire, and climatic variability and extreme events. The course is a second-year science course, and is particularly relevant to geography, ecology and environmental science students. It is a blended course: lectures (and learning resources) are online, a weekly tutorial-laboratory is delivered face-to-face and there are 2 half-day field classes.

Course Aims

The aim of this course is to present contemporary climatic and vegetation patterns, to consider their inter-relationships and explain what controls these in Australia. We also introduce simple methods for the field description of vegetation and consider climatic variability and extreme events in a series of workshops. We also aim to describe the physical environment around us, with a particular focus on the Sydney Basin Bioregion. Overall, our aims are for students to have a better appreciation of the links between climate, vegetation and introductory material associated with climatology, biogeography, ecology and environmental science.

Relationship to Other Courses

GEOS2711 *Australian Climate and Vegetation* is distinct from, but complementary to the Stage 2 course GEOS2721 *Australian Physical Environments*. Together with GEOS2821 *Introduction to GIS and Remote Sensing*, these courses make up Stage 2 of Physical Geography at UNSW and provide the background for more advanced Physical Geography courses.

GEOS2711 is also a component of the Ecology Major (in Life Science, Environmental Management, Science and Advanced Science). The course has synergies with other geoscience and environmental science courses at UNSW and thereby provides an important element of geo- and environmental science programs. The course also has synergies with the Stage II Biology course BIOS2051 *Flowering Plants*, which introduces the discipline of botany at UNSW, and some of the themes of GEOS2711 continue in BIOS3061 *Plant Ecology* and GEOS3761 *Environmental Change*.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Describe the controls that shape the Australian climatic environment, and their applicability to other locations on the Earth.
CLO2 : Explain the nature of the Australian vegetation and the factors associated with the distribution of various communities, with a special emphasis on the vegetation of the Sydney Basin.
CLO3 : Demonstrate skills in vegetation sampling and description, and generic skills in scientific and environmental observation.
CLO4 : Evaluate and integrate a diverse range of information and scientific literature to describe climate and vegetation.
CLO5 : Use appropriate communication skills to describe scientific information.

Course Learning Outcomes	Assessment Item
CLO1 : Describe the controls that shape the Australian climatic environment, and their applicability to other locations on the Earth.	• Short-written assignment - climate • Exam
CLO2 : Explain the nature of the Australian vegetation and the factors associated with the distribution of various communities, with a special emphasis on the vegetation of the Sydney Basin.	• Short-written assignment - vegetation • Major Report • Exam
CLO3 : Demonstrate skills in vegetation sampling and description, and generic skills in scientific and environmental observation.	• Major Report
CLO4 : Evaluate and integrate a diverse range of information and scientific literature to describe climate and vegetation.	• Short-written assignment - climate • Short-written assignment - vegetation • Major Report • Exam
CLO5 : Use appropriate communication skills to describe scientific information.	• Short-written assignment - climate • Short-written assignment - vegetation • Major Report • Exam

Learning and Teaching Technologies

Moodle - Learning Management System

Learning and Teaching in this course

The learning and teaching rationale underpinning the course draws on of the following concepts:

- Learning is best achieved where students undertake a variety of tasks (reading, writing, discussing) and particularly those that stimulate higher order thinking such as analysis, synthesis and evaluation. This is achieved through lectures and interactive discussion classes and exercises (workshops), where questions and critical thinking are encouraged;
- The learning experience is also enhanced using activities that are interesting and challenging. Students are more engaged in the learning process when the relevance of the material to professional, disciplinary and/or personal contexts is obvious. A variety of teaching methods and modes of instruction are employed in GEOS2711;
- In GEOS2711 dialogue is encouraged between the students and teachers and among students, using the online learning space Moodle and via in-class discussion. The course aims for an inclusive learning and teaching experience, creating a community of learners. In many cases the class considers ambiguity/uncertainty, and how we can deal with this as scientists.

Additional Course Information

Additional information regarding GEOS2711 is managed via Moodle.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Short-written assignment - climate Assessment Format: Individual Short Extension: Yes (3 days)	15%	Start Date: Not Applicable Due Date: 21/06/2024 05:00 PM Post Date: 08/07/2024 05:00 PM
Short-written assignment - vegetation Assessment Format: Individual Short Extension: Yes (3 days)	15%	Start Date: Not Applicable Due Date: 05/07/2024 05:00 PM Post Date: 22/07/2024 05:00 PM
Major Report Assessment Format: Individual Short Extension: Yes (3 days)	20%	Start Date: Not Applicable Due Date: 19/07/2024 05:00 PM Post Date: 05/08/2024 05:00 PM
Exam Assessment Format: Individual	50%	

Assessment Details

Short-written assignment - climate

Assessment Overview

For this assignment, you will select sites and download climatic data representing a transect across Sydney, summarise trends and then answer a series of short questions to consider the controls of climatic environment in Sydney.

This is a short written assignment submitted at the end of week 3, which follows on from

workshop activities in the weeks prior. The assessment is primarily based on the correct description of the trends in the data and offering satisfactory explanations. Students have the option of using graphs or tables to illustrate trends. Very good students also use quantitative descriptions of trends. Use of scientific literature is also assessed.

Feedback on this task is provided two weeks after submission in written form.

Course Learning Outcomes

- CLO1 : Describe the controls that shape the Australian climatic environment, and their applicability to other locations on the Earth.
- CLO4 : Evaluate and integrate a diverse range of information and scientific literature to describe climate and vegetation.
- CLO5 : Use appropriate communication skills to describe scientific information.

Detailed Assessment Description

This is provided on Moodle

Assessment Length

1000

Submission notes

provided on Moodle

Assessment information

This is provided in person and on Moodle.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Short-written assignment - vegetation

Assessment Overview

For this assignment, you will respond to a series of questions to describe the Australian Sydney Basin Bioregion vegetation. Further questions require you to describe the reasons (the 'controls') of these patterns, and in doing so consider controls at different spatial scales (broad, regional and local).

The assignment consists of a series of short, written pieces but creative approaches to answering the questions and presenting the information are highly encouraged (e.g., using tables and illustrations). The final submitted assignment **is <6 pages** and feedback is provided online two weeks after submission.

Course Learning Outcomes

- CLO2 : Explain the nature of the Australian vegetation and the factors associated with the distribution of various communities, with a special emphasis on the vegetation of the Sydney Basin.
- CLO4 : Evaluate and integrate a diverse range of information and scientific literature to describe climate and vegetation.
- CLO5 : Use appropriate communication skills to describe scientific information.

Detailed Assessment Description

this is provided on Moodle

Assessment Length

1000

Submission notes

Provided on Moodle.

Assessment information

added directly in Moodle

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Major Report

Assessment Overview

For the Major Report, you will be expected to use data gathered in the field, plus interpretation of data analyses (completed in workshops) to describe sampled plant communities in the Sydney Basin and the factors that influence their distribution, properties, the changes associated with post-Contact development and their conservation status. The written report is generally < 8 pages long but includes scientific illustrations (tables, figures) and references. The details of this assignment are discussed in several workshops leading up to the submission which is due in Week 8. Feedback is provided via Moodle two weeks after submission.

Course Learning Outcomes

- CLO2 : Explain the nature of the Australian vegetation and the factors associated with the distribution of various communities, with a special emphasis on the vegetation of the Sydney Basin.
- CLO3 : Demonstrate skills in vegetation sampling and description, and generic skills in scientific and environmental observation.
- CLO4 : Evaluate and integrate a diverse range of information and scientific literature to describe climate and vegetation.

- CLO5 : Use appropriate communication skills to describe scientific information.

Detailed Assessment Description

This is provided in person and on Moodle.

Assessment Length

1500

Submission notes

Information provided on Moodle.

Assessment information

This is provided in person and on Moodle.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Exam

Assessment Overview

The final exam covers all topics delivered across the term, including material from lectures, tutorial-workshops and field classes. The exam is typically 2hrs 10 minutes and consists of multiple choice questions and written answer responses - details will be confirmed during the course. The examination will occur during the official university examination period, in person. **Hurdle requirement**: you must achieve >50% to receive a passing grade in the course.

Feedback is available through inquiry with the course convenor.

Course Learning Outcomes

- CLO1 : Describe the controls that shape the Australian climatic environment, and their applicability to other locations on the Earth.
- CLO2 : Explain the nature of the Australian vegetation and the factors associated with the distribution of various communities, with a special emphasis on the vegetation of the Sydney Basin.
- CLO4 : Evaluate and integrate a diverse range of information and scientific literature to describe climate and vegetation.
- CLO5 : Use appropriate communication skills to describe scientific information.

Assessment Length

MCQ

Assessment information

The final exam is held online during the examination period. It is not compulsory if a student has completed all 4 quizes during the term... although a student can elect to do the final exam even if they have done the quizes (in which case the highest of the 2 marks will be used in the final aseessment).

Assignment submission Turnitin type

Not Applicable

General Assessment Information

There is an alternative to the Final Exam (which will be explained in the Monday classes). This alternative has important conditions: if you are unclear about these once they are explained please seek advice from the Course Convener.

Grading Basis

Standard

Requirements to pass course

You must achieve >50% in an agregate of the assignments and exams to pass GEOS2711.

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 27 May - 2 June	Tut-Lab	Please NB that there is no workshop in week 1.
	Lecture	The first lecture in GEOS2711 is "General features of Australia" presented by A/Prof Scott Mooney. It is held in Pioneer Theatre on Wed 29/5 at 11am. This is the only face-to-face class for GEOS2711 in week 1... the other lectures are pre-recorded and available via Moodle.
	Lecture	There are 2 other lectures in week 1, which are recorded and available on Moodle. They are "Climatic patterns in Australia global context and continental patterns" (2 lectures) presented by Prof Lisa Alexander.
Week 2 : 3 June - 9 June	Tut-Lab	The week 2 workshop (Monday 3 June) consist of several 'activities'. (Give this is the first workshop for GEOS2711 this will be described in detail in the class.) 10 am Assumed knowledge; Aims and learning outcomes (Scott) 11am The synoptic-scale controls on the Australian climate (Scott/Lisa) 12 noon Introduction to field methods: describing vegetation (David/Scott)
	Lecture	The Wedneday 5th June face-to-face lecture (11am in Pioneeer Theatre 4) is by Prof Lisa Alexander and is titled "Synoptic processes and rainfall in Australia".
	Lecture	The online lectures in week 3 continue with the topic "Synoptic processes and rainfall in Australia" (2 lectures by Prof Lisa Alexander).
Week 3 : 10 June - 16 June	Tut-Lab	Please NB that there is no Monday Workshop in Week 3 due to the Kings Birthday long weekend
	Lecture	The week 3 face-to-face lecture is by Prof David Keith and it is "The Australian vegetation: continental patterns and controls". The lecture is Wednesday 11 am in Pioneer Theatre 4.
	Lecture	The pre-recorded lectures in week 3 are "Biogeography of Australian vegetation" (2 lectures by Prof David Keith).
	Assessment	In week 3 Quiz 1 will be available online (the exact start and close of this will be announced in class and on Moodle). This quiz covers material presented in GEOS2711 in weeks 1 and 2.
	Fieldwork	Field work (to Royal National Park) is scheduled for Sat 15th June. Details will be descirbed in person and on Moodle. The field class is not compulsory but it provides a chance to consolidate material from the week 2 workshop, and if you attend you can use the data generated for the 3rd and final assignment in GEOS2711. As described in class and on Moodle numbers are limited and places are allocated on the basis of payment and completeion of the FieldWork Medical Questionnaire.
Week 4 : 17 June - 23 June	Tut-Lab	The week 4 Monday (17 June) workshop is divided into a number of activities. 10 am Controls on climate at different spatial scales: the Australian continent v regional Sydney (Lisa/Scott) 12 noon Online investigation of a field site (Scott/Ruby) 1.30pm Discuss issues with assignment 1 (Scott/Ruby)
	Lecture	The week 4 face-to-face lecture (Wed 19 June) is "Twentieth Century climatic variability in Australia" by Prof Lisa Alexander.
	Lecture	The recorded lectures in GEOS2711 in week 4 continue the material in the Wed face-to-face lecture by Prof Lisa Alexander, continuing discussion of "Twentieth Century climatic variability in Australia".
	Assessment	Please Note that Assignment 1 is due before 5pm Friday 21st June... that is the end of week 4.
Week 5 : 24 June - 30 June	Assessment	Quiz 2 is held in person at the start of the Monday workshop. It covers material in GEOS2711 from weeks 3 and 4. You must attend this class in person to attempt this quiz.
	Tut-Lab	The Week 5 workshop (Monday 24 June) starts with Quiz 2 at 10.10 am. You must attend this in person if you wish to undertake Quiz 2, which covers material in GEOS2711 over weeks 3+4. At 12 noon Prof Lisa Alexander will start the workshop "Scenarios for predicting climate change".

		At 1.30pm A/Prof Scott Mooney will start a discussion regarding issues with Assignment 2.
	Lecture	The week 5 face-to-face lecture (Wednesday 11 am in Pioneer Theatre 4) “Extreme climatic events in Australia” will be presented by Prof Lisa Alexander.
	Lecture	The recorded lecture in week 5 continues the lecture “Extreme climatic events in Australia” (and is presented by Prof Lisa Alexander).
Week 7 : 8 July - 14 July	Tut-Lab	The week 7 workshop (Monday 8th July) consist of two parts: 10 am Analysing climate data: identifying variability and extremes (Prof Lisa Alexander) 12 noon Vegetation mapping (using REMAP).
	Lecture	The week 6 face-to-face lecture (Wednesday 11 am in Pioneer Theatre 4) “Fire, pyrogeography and plants” will be presented by Prof David Keith.
	Lecture	The recorded material continues on from the face-to-face lecture (Fire, pyrogeography and plants) and is presented by Prof David Keith.
Week 8 : 15 July - 21 July	Tut-Lab	The week 8 workshop (Monday 15 July) has threee components: 10 am Quiz 3 is held in person at the start of the workshop: you must attend this if you wish to use the quizes for your (exam) assessment. The Quiz covers material in GEOS2711 from weeks 5 and 7. 12 noon The distribution of Australia’s alpine flora under climate change scenarios (Prof David Keith). At 1.30pm A/Prof Scott Mooney will start a discssion on issues with Assignment 3.
	Lecture	The week 8 face-to-face lecture (Wednesday 11 am in Pioneer Theatre 4) “Cenozoic climate change and vegetation in Australia” will be presented by A/Prof Scott Mooney.
	Lecture	The recorded lectures in week 8 are by A/Prof Scott Mooney and cover "Quaternary vegetation in Australia" (2 lectures).
	Assessment	Assignment 3 is due before 5pm Friday 19th July.
Week 9 : 22 July - 28 July	Tut-Lab	The workshop on Monday 22nd July consists of two activities: 10 am Drivers of long-term trends in Australian vegetation (A/Prof Scott Mooney) 12 noon Controls on the vegetation of the Sydney Basin (David/Scott)
	Lecture	The week 9 face-to-face lecture (Wednesday 11 am in Pioneer Theatre 4) “Geophysical Sydney” will be presented by A/Prof Scott Mooney.
	Lecture	There are 2x online lectures in week 9, both by Prof David Keith. There are: 1. Mapping of native vegetation; 2. The vegetation of the Sydney Basin.
Week 10 : 29 July - 4 August	Tut-Lab	The week 10 workshop is a discussion lead by A/Prof Scott Mooney "Revisiting course learning outcomes, skills and employment". It will start at 11am in the usual lab.
	Lecture	The week 10 face-to-face lecture (Wednesday 11 am in Pioneer Theatre 4) “Recent vegetation change in Australia” will be presented by A/Prof Scott Mooney.
	Lecture	The recorded lecture in week 10 will present a course summary and review.
	Assessment	Quiz 4 will be held online in week 10 (with opening and closing times announced on Moodle and in person). This quiz covers material from weeks 8, 9 and 10 in GEOS2711.

Attendance Requirements

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

General Schedule Information

The course schedule is repeated in the GEOS2711 Moodle page. any changes will be communicated via Moodle.

Course Resources

Prescribed Resources

There is one key resource provided in Moodle in each week (except in the Flexibility week, week 6). This material forms part of the assessible information in GEOS2711.

Recommended Resources

Apart from the compulsory resources mentioned above, there is no compulsory text set for this course however it is highly recommended that students have access to a general text. Bridgman *et al.* (2008 *The Australian Physical Environment, OUP)* is extremely useful as an overview of climate and biogeography in Australia. In addition, some older texts are still relevant and cover the climate of Australia well (e.g. Sturman & Tapper 1996 *The Weather & Climate of Australia and New Zealand*, OUP). For vegetation *Australian Vegetation (*2017 edited by David Keith, Cambridge University Press) or *Ocean Shores to Desert Dunes* (2004 also by David Keith) are excellent choices.

Students should note that this course covers a wide range of material: you will be expected to read the weekly reading and you should supplement this with additional key references for each topic (references are provided at the end of each lecture/section and many of these are posted onto Moodle).

As a guide, the UNSW Academic Board suggests that a normal workload for a 6 UOC course is 12.5 hours per week (including class contact hours, time spent on assessable tasks and preparation/reading). (You can see this information at https://www.student.unsw.edu.au/uoc which indicates "*approximately 25 hours per term for each UOC*"… if you do 3x courses per term (18 UOC) and use 12 weeks to include the final assessment weeks with exams that is 25 hrs x 18 UOC /12 weeks = *37.5 hours per week for a full-time study load*.)

Additional Costs

If students elect to attend the field class in GEOS2711 they will incur costs associated with bus hire and (Royal National Park) entry.

Course Evaluation and Development

Please see the section in Moodle "how we listened to feedback" for GEOS2711.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Scott Mooney		Room 108 Samuels Building		Please discuss issues with me in the Monday class or email me (we can make an appointment outside class if necessary).	No	Yes
	Prof. David Keith				Please discuss issues with me in the Monday class or email me (we can make an appointment outside class if necessary).	No	No
	Prof Lisa Alexander				Please discuss issues with me in the Monday class or email me (we can make an appointment outside class if necessary).	No	No
Demonstrator	Ruby Paroissien				Please discuss issues with me in the Monday class.	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 Plagarism

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