

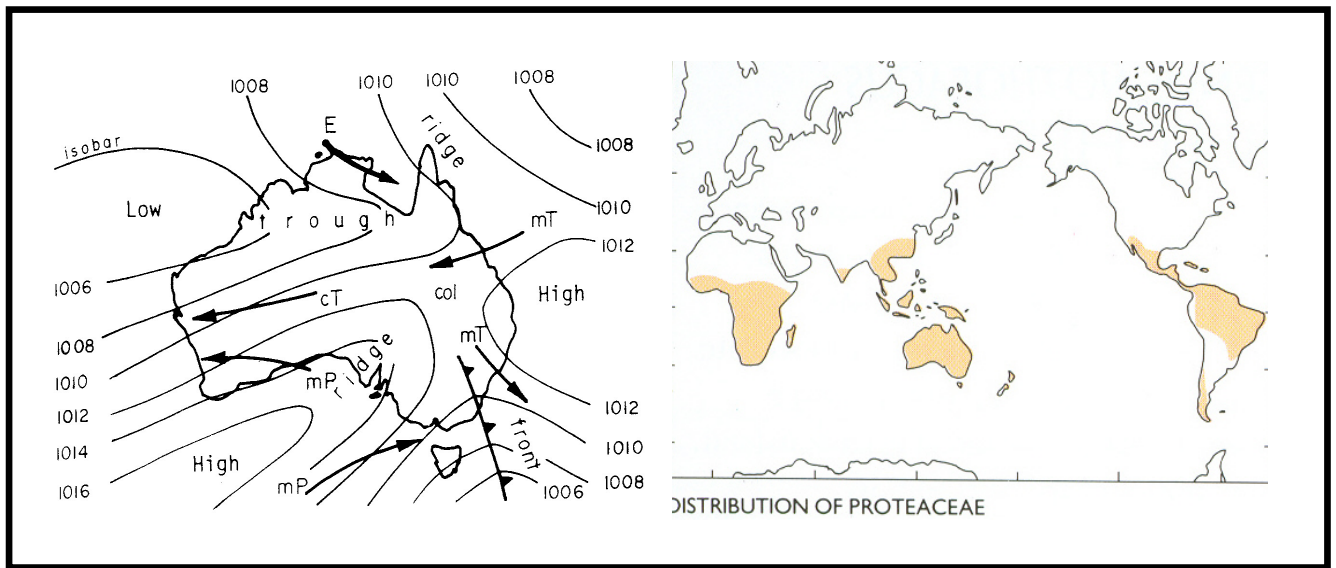


UNSW
SYDNEY

Australia's
Global
University

School of Biological, Earth and
Environmental Sciences

GEOS2711
AUSTRALIAN CLIMATE
AND VEGETATION



SESSION 2, 2018

Information about GEOS2711

A/Prof Scott Mooney is the Course Convener in GEOS2711 and should be the first point of contact for any problems. You can check out what A/Prof Mooney does at <http://www.bees.unsw.edu.au/scott-mooney>: in GEOS2711 he will convene the course, present lectures in four weeks and oversee the laboratory and field work. Please try to use the laboratory times to raise issues: for any other problems please make an appointment (s.mooney@unsw.edu.au). SM's office is Room 552b in the Biolink section of the Biological Sciences Building (this is above the 4th floor lab that some of you may have done classes in).

Professor Jason Evans belongs to the UNSW Climate Change Research Centre <http://www.crc.unsw.edu.au> and is a Chief Investigator at the ARC Centre of Excellence for Climate Extremes. You can check out what he does at <http://www.bees.unsw.edu.au/jason-evans>. Prof Evans will present the climate lectures in GEOS2711 and run a couple of labs, focusing on climate variability.

Professor David Keith works on vegetation dynamics, fire and population and ecosystem modeling. You can check out what Prof Keith works on here: <http://www.ecosystem.unsw.edu.au/people/david-keith>. In GEOS2711 he will present lectures in 4 weeks and he is leading the field components of the course.

Casey Gibson will demonstrate in the lab classes and in the field. Frank Hemmings (Curator of the John T Waterhouse Herbarium see <http://www.bees.unsw.edu.au/herbarium>) will also join us in the field.

Course Information

Summary of Course Structure (for details see 'Course Schedule')				
Component	HPW	Time	Day	Location
Lectures	2	10 am – 12 noon	Wednesday	CLB 5
Lab – Option 1	2	12 noon – 2 pm	Thursday	E26 Lab 3
Lab – Option 2	2	9 am – 11 am	Friday	E26 Lab 5
Important notes	<ul style="list-style-type: none">• The lecture classes start in week 2 and run until week 13;• The labs do not run every week due to the inclusion of field work. There are formal lab classes in weeks 2 - 9;• Fieldwork is an important component of the course and your participation is essential to meet the Learning Outcomes of GEOS2711. The field labs require an average level of fitness and mobility: please contact the course convener ASAP if you think this may be an issue. Travel to and from the field sites will result in some personal expense.			

Course Description

Course Description	GEOS2711 Australian Climate and Vegetation is a 6 unit of credit course. <i>Contemporary climatic patterns and controls in Australia. Development of the Australian vegetation. Elements of the Australian vegetation and their distribution. Climate change with particular emphasis on the Quaternary. ENSO phenomena and climatic variability in Australia. Fire and vegetation interactions. The impact of European occupation in Australia. Field-work is an important component of the course and will involve expense to individuals.</i>
Course Aims	The objective of <i>Australian Climate and Vegetation</i> is for students to reach an understanding of the topics summarised in the UNSW Handbook description. The course will present material relevant to the Australian climatic environment and vegetation of the continent. It covers introductory material associated with the academic disciplines of climatology, botany, biogeography and some elements of ecology and environmental science.
Student Learning Outcomes	By the end of this course, you will have an appreciation of the controls that shape the Australian climatic environment. These generic controls are also applicable to other locations on the Earth. Information regarding the nature of the Australian vegetation will lead to an understanding of the factors associated with the distribution of various communities, with a special emphasis on the vegetation of the Sydney Basin. Fieldwork provides generic skills in scientific observation and specific skills in vegetation sampling. The laboratory program is designed to consolidate many of these skills.

Relationship to Other Courses/Programs

Australian Climate and Vegetation is distinct from, but complementary to the Stage 2 course *Australian Surface Environments and Landforms* (GEOS2721). 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. The course also 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 session 2 course BIOS2051 *Flowering Plants*, which introduces the discipline of botany at UNSW. GEOS2711 also forms part of the Australian Studies group of courses at UNSW.

Graduate Attributes Developed in this Course		
Science Graduate Attributes	<i>0 = NO FOCUS 1 = MINIMAL 2 = MINOR 3 = MAJOR</i>	Activities/Assessment
1. Research, inquiry and analytical thinking abilities	3	Lectures Fieldwork Laboratory Exercises final exam written field report assessed lab exercises
2. Capability and motivation for intellectual development	2	The lectures in this course are introductory thereby motivating students towards further enquiry. The course is designed to provide relevant knowledge for various environmental science disciplines.
3. Ethical, social and professional understanding	2	Professional understanding developed through all components of the course. No focus on ethical or social issues beyond those relating to human impacts, vegetation and climate.
4. Communication	3	Skills in scientific communication developed though lab and field reports, and in particular though the research-based exercise. The presentation of scientific information is considered using a group presentation.
5. Teamwork, collaborative and management skills	2-3	Teamwork and collaboration are emphasized in the fieldwork activities and for the group presentation. The various assessment tasks provide time management skills.
6. Information literacy	2	The course is designed to provide skills in information retrieval and presentation, with an emphasis on scientific enquiry.

Rationale and Strategies Underpinning the 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 interactive lectures, where questions and critical thinking are encouraged, through discussion in the lab classes and via lab and field exercises;
- The learning experience is also enhanced through the use of 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, through the use of the online learning space Moodle and via discussion and group work. The course aims for an inclusive learning and teaching experience, creating a community of learners.

Recommended Text and Reading

Students should note that this course covers a wide range of material: you will be expected to read key references for each topic and to read around some of the topics. Some general references are listed below, and key references will be provided at the end of each lecture and generally available in Moodle. As a guide, the UNSW Academic Board suggests that a normal workload for a 6 UOC course is 9.4 hours per week (including class contact hours, time spent on assessable tasks and preparation/reading).

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 good and cover the climate of Australia well (e.g. Sturman & Tapper 1996 *The Weather & Climate of Australia and New Zealand*, OUP). For vegetation it is hard to go past *Australian Vegetation* (2017 edited by David Keith, Cambridge University Press) or *Ocean Shores to Desert Dunes* (2004 also by David Keith).

Other Resources and Support for Students

Students should note that dedicated pages for GEOS2711 exist on Moodle and all course hand-outs, lectures, labs and announcements will be managed using this resource. Additional electronic resources will also be provided via Moodle including links to PDF versions of important references. This means that students should check these pages regularly.

WHS in GEOS2711

There are relatively few WHS issues associated with this course. Nonetheless, students should be aware that the BEES WHS site (<http://www.bees.unsw.edu.au/health-and-safety>) contains important information relating to workplace safety. This information complements that which can be obtained from the UNSW Health & Safety website (<http://www.safety.unsw.edu.au>). Students should note that the labs are held in a designated 'laboratory' (E26 lab 3 or 5) meaning that you are required to wear lab coats and protective footwear in these classes (this includes most casual shoes but excludes sandals and thongs). The 'Risk Assessment' and measures to minimise risks associated with Fieldwork will be discussed at the relevant time.

Important Notes about Fieldwork in GEOS2711

Field-work is an important component of GEOS2711 and so participation in the field exercises is the default expectation. Nonetheless, as field-work is scheduled for times outside of usual classes it is possible that some students may find clashes with other activities. The 'Field Report' (assessment task) requires your participation in at least one of the field trips. Please look at the dates for the field trips and make appropriate arrangements asap. If, for any reason, you cannot attend these, please make an appointment with the Course Convener (SM) before the end of Week 3. Please note that there is no alternative assessment for the Field Report.

Field trips will incur a cost to all students for bus hire. This cost will be kept to the absolute minimum. The amount will be announced when the destinations for the field trips are finalised and quotes for bus hire are obtained.

Lecture Outline

- | Week no. | Lecture (lecturer) |
|----------|---|
| 1. | there are no lectures scheduled for week 1: GEOS2711 lectures run weeks 2-13. |
| 2. | Introduction to the course
General features of Australia (A/Prof Scott Mooney) |
| 3. | Contemporary climatic patterns in Australia (Prof Jason Evans) |
| 4. | The Australian vegetation: patterns and controls (Prof David Keith) |
| 5. | Field survey methods, classification and mapping for native vegetation
The vegetation of the Sydney Basin (Prof David Keith) |
| 6. | Fire and plant populations in Australia (Prof David Keith) |
| 7. | Quaternary environmental and vegetation change in Australia (A/Prof Scott Mooney) |
| 8. | Synoptic processes and rainfall in Australia (Prof Jason Evans) |
| 9. | Twentieth Century climatic variability in Australia (Prof Jason Evans) |

Session Break

- | | |
|-----|---|
| 10. | Extreme climatic events in Australia (Prof Jason Evans) |
| 11. | Biogeography of Australian vegetation (Prof David Keith) |
| 12. | Southern conifers in Australia: past and contemporary distributions (A/Prof Scott Mooney) |
| 13. | Climate and vegetation in Australia
Course review and exam discussion (A/Prof Scott Mooney). |

Laboratory Outline

Week	Topic
1.	there is no lab in week 1: labs start in week 2
2.	Aims of the labs and lab induction Assumed knowledge in GEOS2711 (on-line exercise Sydney) Sydney vegetation and potential field sites
3.	Atmospheric circulation and synoptic patterns in the Australasian region Group preparation
4.	Methods for the description of vegetation in the field
5.	Field data consolidation, species identification, supplementary/map resources
6.	Field data consolidation II Good presentations and group preparation
7.	Group presentations
8.	Climate variability across Sydney
9.	Species-climate modelling: the present and potential future distribution of endemic alpine flora

There are no labs after Week 9 due to the Field Trip component of the course.

Course Assessment

	%	Due date
1. Group Presentation	0	in lab weeks 7
2. Individual assignment based on group work	10	before Friday 14 th Sept.
2. Rainfall variability across Sydney	10	before Friday 5 th Oct.
3. Field Report	30	before Friday 19 th Oct.
4. Final Examination	50	normal exam period
Total:	100%	

Important Notes about Assessment

- The presentation will be held in normal lab times, and the specific time randomly allocated. The group will be given a group mark (reflecting the collective performance of the team members, according to criteria that will be given before time) however this task is worth no marks towards the final assessment of GEOS2711.
- In this course all written assignments must be submitted electronically via Moodle. Instructions will be provided in the lab classes.
- The assessment criteria for each of the assignments will be discussed in the labs preceding that task. Each assignment will be assessed and returned within two weeks of submission with written feedback. Students should be aware that the amount of feedback is normally positively correlated with their own efforts!
- Assignments submitted after the due date will be penalised at the rate of 10% per day unless accompanied by a medical certificate. All outstanding assignments must be handed in by the end of Week 13. Work will only be accepted after this date if accompanied by a medical certificate.
- Attendance will be monitored regularly, and students are expected to conform to University regulations which state that final assessment may be refused if you attend less than 80% of classes.
- References in assessed material must use the 'in-text' or Harvard system (see <https://student.unsw.edu.au/referencing> for information).
- Academic misconduct will not be tolerated in any form in this course and particular attention is drawn to the information about plagiarism included over.

Course Evaluation and Development

Student feedback is gathered regularly in GEOS2711 by various means, including "Course and Teaching Evaluation and Improvement (CATEI)", through discussion on Moodle (previously WebCT, Blackboard) and in classes via occasional end of session surveys. Such feedback is carefully considered with a view to acting on it constructively wherever possible. This feedback has helped to shape and develop this course resulting in continuous modifications to the lecture, lab and field content. Considerable 'tweaking' of the assessment schedule has occurred to better reflect the time that students have devoted to various tasks. In past evaluation students were concerned about plant identification during the fieldwork: this has been addressed with a lab devoted to field preparation and a focus on vegetation structure and dominant species only in the field. Since 2015 we have significantly enhanced the climate section of the course, with the addition of a specialist climatologist. It should be emphasized that in previous surveys a very high proportion of students described the course as "challenging and interesting". If you have any constructive criticism with a view to making this an even better course, please contact the course convener.

What is Plagiarism?

Plagiarism is the presentation of the thoughts or work of another as one's own. Examples include:

- direct duplication of the thoughts or work of another, including by copying material, ideas or concepts from a book, article, report or other written document (whether published or unpublished), composition, artwork, design, drawing, circuitry, computer program or software, web site, Internet, other electronic resource, or another person's assignment without appropriate acknowledgement;
- paraphrasing another person's work with very minor changes keeping the meaning, form and/or progression of ideas of the original;
- piecing together sections of the work of others into a new whole;
- presenting an assessment item as independent work when it has been produced in whole or part in collusion with other people, for example, another student or a tutor; and
- claiming credit for a proportion a work contributed to a group assessment item that is greater than that actually contributed.†

For the purposes of this policy, submitting an assessment item that has already been submitted for academic credit elsewhere may be considered plagiarism.

Knowingly permitting your work to be copied by another student may also be considered to be plagiarism.

Note that an assessment item produced in oral, not written, form, or involving live presentation, may similarly contain plagiarised material.

The inclusion of the thoughts or work of another with attribution appropriate to the academic discipline does *not* amount to plagiarism.

The Learning Centre website is main repository for resources for staff and students on plagiarism and academic honesty. These resources can be located via <https://student.unsw.edu.au/plagiarism>.

The Learning Centre also provides substantial educational written materials, workshops, and tutorials to aid students, for example, in:

- correct referencing practices;
- paraphrasing, summarising, essay writing, and time management;
- appropriate use of, and attribution for, a range of materials including text, images, formulae and concepts.

Individual assistance is available on request from The Learning Centre at <https://student.unsw.edu.au/individual-consultations-academic-support>.

Students are also reminded that careful time management is an important part of study and one of the identified causes of plagiarism is poor time management. Students should allow sufficient time for research, drafting, and the proper referencing of sources in preparing all assessment items.

* Based on that proposed to the University of Newcastle by the St James Ethics Centre. Used with kind permission from the University of Newcastle

† Adapted with kind permission from the University of Melbourne.

Equity and Diversity

Those students who have a disability that requires some adjustment in their teaching or learning environment are encouraged to discuss their study needs with the course convener or with UNSW Disability Support Services <https://student.unsw.edu.au/disability>. Issues to be discussed may include access to materials, signers or note-takers, the provision of services and additional exam and assessment arrangements. Early notification is essential to enable any necessary adjustments to be made.

Grievance Policy

In all cases you should first try to resolve any issues with the course convener (SM). If this is unsatisfactory, you should contact the Director of Teaching in BEES (A/Prof Stephen Bonser s.bonser@unsw.edu.au) or the Head of School, School of BEES (A/Prof Alistair Poore, a.poore@unsw.edu.au). UNSW has formal policies about the resolution of grievances that can be reviewed in MyUNSW A to Z Guide (see <https://student.unsw.edu.au/complaints>).

Summary timetable for GEOS2711 session 2, 2018

Week	Lecture Wednesday 10:00 - 12:00 in CLB 5	Lecturer	Lab (one of) Thursday 12:00 - 2:00 pm in E26 Lab 3 or Friday 9:00 - 11:00 am in E26 lab 5	Assignments due (and Field Trips)
1	25 th July No lecture: GEOS2711 lectures run week 2-13		26 th or 27 th July No lab: GEOS2711 labs start in week 2	
2	1 st Aug Introduction to the course General features of Australia	Scott Mooney	2 nd or 3 rd Aug (SM/Casey) Assumed knowledge (online) Aims of labs and lab induction Sydney: potential field sites	
3	8 th Aug Contemporary climatic patterns in Australia	Jason Evans	9 th or 10 th Aug (SM/JE/Casey) Atmospheric circulation and synoptic patterns in the Australasian region	
4	15 th Aug The Australian vegetation: patterns and controls	David Keith	16 th or 17 th Aug (SM/DK/Casey) Methods for the description of vegetation in the field	Saturday 18 th August Field Trip 1
5	22 nd Aug Field survey methods, classification and mapping for native vegetation The vegetation of the Sydney Basin	David Keith	23 rd or 24 th Aug (SM/DK/Casey) Field data, plant ID and resources	Friday 24 th OR Saturday 25 th August Field Trip 2
6	29 th Aug Fire and plant populations in Australia	David Keith	30 th or 31 st Aug (SM/DK/Casey) Field data, plant ID and resources Good presentations/Group preparation	
7	5 th Sept Quaternary environmental and vegetation change in Australia	Scott Mooney	6 th or 7 th Sept (JE /Casey) Group Presentations in lab class	

Week	Lecture Wednesday 10:00 - 12:00 in CLB 5	Lecturer	Lab (one of) Thursday 12:00 - 2:00 pm in E26 Lab 3 or Friday 9:00 - 11:00 am in E26 lab 5	Assignments due
8	12 th Sept Synoptic processes and rainfall in Australia	Jason Evans	13 th or 14 th Sept (JE/Casey) Climate variability across Sydney	Individual assignment (based on group presentation) due before COB Friday 14 th September
9	19 th Sept Twentieth Century climatic variability in Australia	Jason Evans	20 th or 21 st Sept (DK/JE/Casey) Species-climate modelling: the present and potential future distribution of endemic alpine flora	
Session Break (and long weekend)				
10	3 rd Oct Extreme climatic events in Australia	Jason Evans	4 th or 5 th Oct No formal lab	Rainfall variability across Sydney Assignment due before COB Friday 5 th October
11	10 th Oct Biogeography of Australian vegetation	David Keith	11 th or 12 th Oct No formal lab	
12	17 th Oct Southern conifers in Australia: past and contemporary distributions	Scott Mooney	18 th or 19 th Oct No formal lab	Field Report due before COB Friday 19 th October
13	24 th Oct Australian climate and vegetation Course review and revision	Scott Mooney	25 th or 26 th Oct No formal lab	