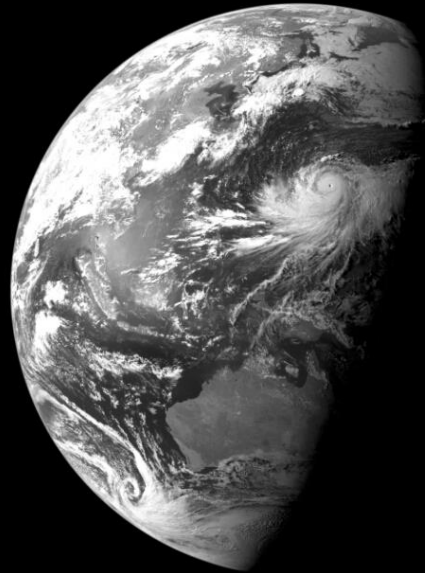


**School of Biological, Earth
and Environmental Sciences,
Faculty of Science**



GEOS 1701
**Environmental Systems,
Processes and Issues**

**Session 2
2018**

1. Staff

Lecturers: **Associate Professor Rob Brander (Course Convenor)**
Biological Sciences North (D26 BioLink Wing) Room 450F; Office Telephone
9385-2899; rbrander@unsw.edu.au

David Edwards
Biological Sciences North (D26 BioLink Wing) Room 554A; Office
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Associate Professor Scott Mooney
Biological Sciences North (D26 BioLink Wing) Room 552B; Office Telephone
9385-8063; s.mooney@unsw.edu.au

All lecturers are available for meeting or consultation with students by appointment.

Laboratory Staff: The **Lab Co-ordinator** for the course is David Edwards with technical support from Mira van der Ley (m.vanderley@unsw.edu.au). Casual Lab Demonstrators will also assist in some Labs.

2. Course Information

Course Code: GEOS 1701
Units of Credit: 6
Hours per Week: 2 Lecture and 3 Practical
Field Trip: 1 day
Prerequisites: None
Online Timetable: <http://timetable.unsw.edu.au/2018/GEOS1701.html>

2.1 Course Summary

GEOS 1701 explores the role of environmental processes, operating over a range of temporal and spatial scales, in shaping patterns of the physical environment in the context of human interactions and resulting management issues. This important topic incorporates the fields of Physical Geography, Environmental Science, Environmental Management and Biogeography. Specifically, we examine the variety of processes operating in atmospheric, terrestrial, hydrological, coastal and ecological systems. Course material provides a broad overview of global physical environments, although emphasis will be placed on Australian examples. More information is provided in the Course UNSW Handbook entry:

<http://www.handbook.unsw.edu.au/undergraduate/courses/2018/GEOS1701.html>

2.2. Course Aims

There are two fundamental aims of this course: i) to provide students with an understanding of physical environments and the processes that form and influence them; and ii) introduce students to a range of physical environmental management issues by examining the nature of interactions between humans and natural systems. Students will also gain an appreciation of how we monitor environmental process and change.

2.3 Course learning outcomes (CLO's)

The Course Learning Outcomes (CLO's) for this course describe what you should be able to do by the end of the semester if you participate fully in all learning activities and successfully complete all assessment items. These CLO's also relate to some of the overall Program Learning Goals for all undergraduate students taking Geoscience and Environmental Science degrees. The following table shows how the CLO's for this course relate to these Program goals and indicates where in the course the CLO's are assessed.

Table 1. Course Learning Outcomes for GEOS1701

Program Learning Goals	Course Learning Outcomes	Course Delivery Method
<i>This course helps you to achieve the following learning goals:</i>	<i>On successful completion of this course, you should be able to:</i>	<i>The learning outcome will be assessed in the following items:</i>
1. Knowledge	Describe fundamental process and form relationships of physical environmental systems Interpret past, present and future controls on physical environments Discuss complex human-physical relationships causing Australian and global environmental management issues Identify pathways and challenges involved in solving these environmental problems	<ul style="list-style-type: none"> • Lectures • Lab assessments • Lab workshops • Field trip • Field trip report • Final exam
2. Critical thinking and problem solving	Formulate and solve real problems in relation to environmental data using basic statistical analysis, presentation of data plots, using methods appropriate to the problem and available data	<ul style="list-style-type: none"> • Lab assessments • Lab workshops • Group work • Final exam
3. Written communication	Construct written work which is logically and professionally presented using the scientific method Convey data, statistics and graphical results so that non-experts can understand the key outcomes of analyses Self-manage successful time management strategies	<ul style="list-style-type: none"> • Lab assessments • Field trip report • Final Exam

4. Oral communication	Articulate formulated and reasoned opinions and arguments on environmental issues in front of your classmates	<ul style="list-style-type: none"> • Lab presentations • Lab debate
5. Team/group work	Participate actively and productively in team-based discussions of environmental issues and problems	<ul style="list-style-type: none"> • Lab presentations • Lab debate • Lab assessments
6. Personalised, self-guided, flipped classroom and blended, learning skills	Complete independent research and learning using a variety of internet based resources and computing skills	<ul style="list-style-type: none"> • Pre-lab material • Geocaching lab • Field trip report
7. Practical skills	<p>Be aware of various methods, techniques and approaches used to monitor and measure different physical environments</p> <p>Use word processing, data spreadsheet and geo-spatial software</p>	<ul style="list-style-type: none"> • Lectures • Labs • Lab assessments • Field trip • Field trip report

2.5 Continual Course Improvement

This course has always been extremely popular with students and based on direct student feedback and course evaluations via MyExperience, we continually adjust the course to make it better. This year we have reduced the number of individual assessment items from 8 to 6 and have increased the weighting of lab assessments from 5% to 10%. We have also modified some of the labs to provide more engaging and effective delivery, learning outcomes and feedback. The field trip assessment and content has also been modified to increase students' fieldwork activities. Given these changes, we will seek and encourage you to provide us with feedback throughout the session. We also ask you to be patient as we are trying a lot of things for the first time.

2.6 Follow On Courses

This course is intended to provide you with basic skills and knowledge for upper level courses that such as:

- GEOS 2711 Australian Climate and Vegetation (runs in T2 in 2019)
- GEOS 2721 Australian Surface Environments and Landscapes (runs in T3 in 2019)
- GEOS 3721 Australian Soil Use and Management (runs in T3 in 2019)
- GEOS 3731 Coastal Processes and Hazards (runs in T1 in 2019)
- GEOS 3761 Environmental Change (runs in T2 in 2019)

This course can also be taken with the course *BIOS1301 Ecology and Sustainability* as part of the first year of the Bachelor of Science Major in Geography.

3. Strategies and Approaches to Learning

3.1 Learning and teaching activities

The course learning outcomes (CLO's) are achieved through a range of instructional techniques including lectures, practical laboratory classes, a field trip (and report) and lab assessments. Lectures are a face-to-face forum with opportunity for student interaction via two-way questions. Lab classes provide a range of learning strategies including group work, group presentations, debates, peer assessment and personalised learning, the latter via an online student-driven

assessment task external to the classroom at Coogee Beach. Students will also gain hands-on experience analysing soil and sediment samples and will gain experience in online interpretation of landscapes and maps using geo-spatial software such as Google Earth and NearMap.

3.2 Expectations of Students

- Announcements:** Announcements regarding the course will be made in lectures and via the Course Moodle internet site. It is the responsibility of students to ensure they are aware of all announcements.
- Assistance:** If you experience any logistical problems with the course, or have any enquiries, please contact Faye Mo in the School of BEES Undergraduate Student Office in Room G27 of the Biological Sciences building (Ph: 9385-2961) or consult with the Course Convenor A/Prof Rob Brander.
- Attendance:** Students are strongly recommended to attend all lectures and labs. Students who miss a significant amount of classes, or miss an assessment task, due to ill health or other issues are advised to contact A/Prof Rob Brander (Course Convenor) as soon as possible and provide certified documentation.
- Illness:** You can apply for **Special Consideration** when illness or circumstances that are beyond your control, or are unexpected, interfere severely with your academic performance. More information on Special Consideration can be found at: <https://student.unsw.edu.au/special-consideration>
- Exam Period:** The University expects that all students (domestic and international) be present and available for the entire duration of the UNSW end of semester examination period (November 2 - 20). Please bear this in mind when making end of semester work or travel plans. The final exam timetable is usually not released until after Week Ten of session.
- Online Needs:** It is expected that students will have regular access to the internet either via, computers available at the University, home computers, personal laptops or through personal electronic devices (e.g. mobile phone, iPad). Please note that some of the labs require use of a personal electronic device and/or laptop in class. Students will be notified in advance of these occasions and may be required to share with a classmate.
- Course Evaluation:** Student evaluative feedback on the course is gathered every year through the use of UNSW MyExperience, which is available through your MyUNSW account and on the Course Moodle page towards the end of the course. MyExperience allows you to provide feedback on both the course itself and the teaching provided in the course. Student feedback is taken very seriously and influences continual course improvements so please contribute. More information on MyExperience can be found at <https://student.unsw.edu.au/myexperience>

4. Course Schedule and Structure

GEOS1701 consists of on average 5 hours of class contact hours per week (Lecture + Lab). You are expected to take an additional 6-8 hours of non-class contact hours on average to complete assessments, pre-lab material, suggested readings and exam preparation.

4.1 Lecture program

You are required to attend two 1-hour lectures per week. The lecture times and locations are:

Monday	12 – 1 pm	Ritchie Theatre
Tuesday	5 – 6 pm	Colombo Theatre B

Lectures commence in Week 1 as outlined in Table 2.

4.2 Laboratory class program

Lab classes are scheduled as 3 hours per week. You should be enrolled in one of the following Lab times and should stick to your Lab once enrolled:

Lab Class 1	Tues	10 – 1	Teaching Lab 5 (Room G006 Building E26)
Lab Class 2	Tues	2 – 5	Teaching Lab 5 (Room G006 Building E26)
Lab Class 3	Wed	10 – 1	Teaching Lab 5 (Room G006 Building E26)
Lab Class 4	Wed	2 – 5	Teaching Lab 5 (Room G006 Building E26)

Workplace Health and Safety (WHS) requires that all students wear closed shoes in the lab classes (i.e no thongs or sandals). See <http://www.ohs.unsw.edu.au/> for more WHS information at UNSW.

Lab classes commence in Week 1 as outlined in Table 2.

4.3 Field trip

Students are required to attend a 1 day field trip to the Northern Illawarra region and Royal National Park on **either Saturday Sept 15 or Sunday Sept 16**. On each day, students will be transported by bus, leaving UNSW at 9 am and returning between 5-6 PM.

The field trip involves a Field Trip Report Assessment worth 10% of the course and is therefore mandatory. There will be approximately 60 spots available for each day. Students will be provided with more information about the Field Trip in the Week 1 Lab. Sign up sheets for the field trip will also be made available on the course Moodle site by the end of Week 2 (Friday August 3) on a first come, first serve basis.

Table 2: GEOS 1701 Lecture and Lab Program

Week	Lecture Number and Date	Lecture Topic	Who	Lab Topic	Lab Details	Assess Tasks
1	1. Mon July 23	Introduction to the Course: Life, the Earth and Everything:	RB	Welcome to Physical Environmental Systems	<ul style="list-style-type: none"> Intro to Labs/WHS Interactive Online Student Quiz 	
	2. Tues July 24	Earth's Atmosphere and Energy Balance	DE			
2	3. Mon July 30	Climate Elements	DE	Climate Change: Challenge of our Lifetime	<ul style="list-style-type: none"> Pre-lab material In class workshop Component of Lab Exercise #1 	
	4. Tues July 31	Global Circulation Systems				
3	5. Mon Aug 6	Global Climates	DE	Climate Change: Challenge of our Lifetime	<ul style="list-style-type: none"> Group presentations Component of Lab Exercise #1 	
	6. Tues Aug 7	Climate Change and Variability				
4	7. Mon Aug 13	Human Induced Climate Change	DE	Mapping and Air Photo Interpretation	<ul style="list-style-type: none"> Pre-lab material In-class workshop Component of Lab Exercise #2 	Submit Lab Exercise #1 (10%)
	8. Tues Aug 14	Landscape Evolution	RB			
5	9. Mon Aug 20	Landform Movement and Hazards	RB	Google Earth	<ul style="list-style-type: none"> Pre-lab material Self-guided exercise Component of Lab Exercise #2 	
	10. Tues Aug 21	Catchment Hydrology				
6	11. Mon Aug 27	River Systems	RB	Mapping/Skills Quiz Activity Pre-lab for coastal and organise debate groups	<ul style="list-style-type: none"> Pre-lab material In-class workshop Component of Lab Exercise #2 	Lab Exercise #2 (10%)
	12. Tues Aug 28	River Processes and Management Issues				
7	13. Mon Sept 3	Coastal Processes	RB	Coastal Monitoring	<ul style="list-style-type: none"> Pre-lab material In-class workshop Component of Lab Exercise #3 	
	14. Tues Sept 4	Coastal Environments				

Week	Lecture Number and Date	Lecture Topic	Who	Lab Topic	Lab Details	Assess Tasks
8	15. Mon Sept 10	Coastal Hazards and Management Issues	RB	Physical Management Issues Debate	<ul style="list-style-type: none"> Group/Team Debate Component of Lab Exercise #3 Field Trip Briefing 	Submit Lab Exercise #3 (10%)
	16. Tues Sept 11	Getting Down and Dirty with Soils	DE			
Field Trip Saturday Sept 15 <u>or</u> Sunday Sept 16						
9	17. Mon Sept 17	Soil Erosion and Management Issues	DE	Field Trip Soils and Sediments	<ul style="list-style-type: none"> Component of Field Report 	
	18. Tues Sept 18	What is Biogeography?	SM			
Mid-Session Break Monday Sept 22 through Monday Oct 1						
10	Mon Oct 1	No Lecture: Public Holiday	--	Revision Lab #1	<ul style="list-style-type: none"> Optional catch up/revision Lab Opportunity for student feedback 	Submit Field Report (10%)
	19. Tues Oct 2	Is Biodiversity Important?	SM			
11	20. Mon Oct 8	Is There a Limit to Human Population?	SM	Self-Guided Field Exercise at Coogee Beach	<ul style="list-style-type: none"> Pre-lab material In-class workshop Component of Lab Exercise #4 	
	21. Tues Oct 9	Are Australian Ecosystems Different?				
12	22. Mon Oct 15	Fire in Australia; Past, Present and Future	SM	Coogee exercise debrief Field Trip Report Review	<ul style="list-style-type: none"> In-class workshop Component of Lab Exercise #4 Hand back Field Trip Report MyExperience review of course 	Submit Lab Exercise #4 (10%)
	23. Tues Oct 16	Humans as Agents of Environmental Change				
13	24. Mon Oct 22	Course Summary, Exam Review and Mystery Event	ALL	Revision Lab #2	<ul style="list-style-type: none"> Optional catch up/revision Lab Opportunity for student feedback 	
	25. Tues Oct 23	No Lecture	--			

The **cost of this field trip is approximately \$30** and payment can be made via a link on the course Moodle site. You will be advised when the final payment amount is confirmed and the payment link becomes live. Payments must be made before the field trip.

If you cannot attend this field trip, or miss it for any reason after you've paid, you will need to contact the Course Convenor A/Prof Rob Brander as soon as possible. Only valid reasons are accepted and require supporting documentation.

5. Assessment

5.1 Assessment tasks

Assessment of your performance in this course will utilise a range of different tasks and methods. Each assessment item will focus on different elements of the course. Course assessment will consist of three components as shown in Table 3:

Table 3: GEOS 1701 Assessment Guide

Assessment Item	Lab Hand Out	Lab Due Date	Value (%)
Lab Assessments (4 @ 10% each)	1. Week 2	Week 4	40
	2. Week 4	Week 6	
	3. Week 7	Week 8	
	4. Week 11	Week 12	
Field Trip Report	Field Trip Sept 15/16; Due in Week 10 Lab		10
Final Exam	End of Session Exam Period Nov 2-20 (TBA)		50

5.2 Assessment criteria and standards

The **Lab Assessments** are assessed on how students take theory and apply it into practical tasks including group presentations. Literacy and numeracy are also assessed as part of these exercises. Lab assessments should be mostly completed during lab class times, but often extend over multiple Lab Weeks as they have multiple components. You will be notified in each Lab of the hand-in method although these will be done mostly online.

The **Field Trip Report** incorporates knowledge gained and tasks completed during the Field Trip and the Week 9 Lab.

The **Final Exam** will focus on material presented in Lectures 1 to 24, but some Lab material will be included as outlined in the final lecture of the course (Lecture 24; Monday Oct 22).

We follow the UNSW grading system: <https://student.unsw.edu.au/grades>. You should also familiarise yourself with the UNSW assessment policy: <https://student.unsw.edu.au/assessment>

5.3 Submission of assessment tasks

Students will be advised how to submit their assessments (including the Field Trip Report) in their Lab classes.

Late work will be penalised by 10% of the value of the assignment per day (not including weekends). After 7 late days the work will be given a value of 0%. This is School of BEES policy and there are no exceptions unless an extension is provided. Extensions are only provided by the Course Convenor (A/Prof Rob Brander) for valid reasons (medical or otherwise) and official certification must be appended to the work when handed in.

Only valid reasons will be accepted for missing the Final Exam and appropriate documentation relating to your absence is required.

5.4 Feedback on assessment

Marking of your assessments will be provided by both Lab Demonstrators and a peer review process on occasion. Lecturers will mark check Demonstrator marking for consistency. Depending on the nature of the assessment, feedback on assessments will be provided either on the Assessment directly when handed back or will be discussed verbally in a Lab Class. There are two dedicated Lab sessions for course/lab revision and to discuss assessment feedback (Weeks 10 and 13).

Feedback on the final exam is possible by appointment only. Final examination scripts are retained in the School for 6 months after which they are destroyed.

5.5 Grade Summary

A final grade summary for all assessments during the course prior to the Final Exam will be posted on the course Moodle website **once the MyExperience student course evaluations (see Section 3.2) reach a 70% response rate**. This summary is valuable as it allows students to check for any data entry errors.

6. Academic Integrity, referencing and plagiarism

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 (Fishman, 2013). 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.

Every year at UNSW, many students are caught copying or cheating in various ways resulting either in severe penalty for the assignment in question or in automatic failure of a course. If you think we do not recognize copying and plagiarism, you are very mistaken!

In addition to the UNSW Policy on Academic Honesty and Plagiarism, the School of Biological, Earth and Environmental Sciences (BEES), also considers any work submitted that has been produced outside of a given course in a given year to be plagiarism i.e:

- Work produced for a third party e.g. your place of employment, is considered intellectual property of the third party, and as such if such work is submitted in place of a required course work, it is deemed plagiarism.
- All work submitted for assessment must be created specifically for the given assessment task in the given year. Work produced in previous years or for other assessments is not acceptable.

Further information about academic integrity and plagiarism can be located at:

- The Current Students site <https://student.unsw.edu.au/plagiarism>, and
- The ELISE training site <http://subjectguides.library.unsw.edu.au/elise/presenting>

The *Conduct and Integrity Unit* provides further resources to assist you to understand your conduct obligations as a student: <https://student.unsw.edu.au/conduct>

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, or replicate, someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

For further information about referencing styles see <https://student.unsw.edu.au/referencing>

For example, the Fishman (2013) reference above would be listed in a reference list (bibliography) as:

Fishman, T. (Ed.) 2013. *The Fundamental Values of Academic Integrity*. International Center for Academic Integrity, Clemson University.

7. Resources and readings

7.1 Moodle

This course is available online through the UNSW Moodle system which can be accessed via your MyUNSW or by:

1. Going to <https://moodle.telt.unsw.edu.au/login/index.php>
2. Enter your Username (your UNSW zID) and Password (your zPass) and click the 'Agree and sign on' button
3. Look for GEOS1701 under the 'My Courses Tab'

The GEOS1701 Moodle site will contain information regarding course announcements, lectures, labs, and assignments. You will find that the course has been divided into blocks of material according to Semester Week. In each Week block you will find Lecture, Lab and Reading resources pertaining to that week.

Please visit the Support Section at <https://student.unsw.edu.au/moodle-support> for more information and tutorials about Moodle.

7.2 Online lecture notes

Lecture powerpoints will be made available to students on Moodle in a variety of formats depending on Lecturer preference. Please remember that access to lecture notes is a privilege and not a right. Lecturers may choose not to upload material, or remove material, if they see fit. While most lecture material will be posted on Moodle prior to the lecture, this is to allow you to take better notes during the lecture and is not an excuse to miss the lecture.

Generally, Lecture powerpoints provide only a brief overview of the material actually presented in Lectures. All material is assessable on the Final Exam and if you rely solely on the online powerpoints and do not take advantage of the online lecture recordings (see below), then you will not do well in the course. Attending lectures is a core part of the university experience and allows you to interact with the lecturers and your fellow classmates. Do not miss out on this valuable part of university life!

7.3 Online lecture recordings

Lectures for this course should be recorded automatically by the Echo360 system which automatically posts lecture recording links (and screen captures) to the EchoCenter in Moodle. The system does fail from time to time. If it does, there is nothing the Lecturer can do about it!

7.4 Online laboratory material

There is no hardcopy Lab Manual for this course. Instead, relevant pre-lab material will be provided on Moodle. It is the students' responsibility to complete this material before the start of each Lab class (when required to do so). Instructions on Lab assessments and workshops will also be provided on Moodle, but may be augmented by in-class handouts. Any material related to both the Labs and the Field Trip Report will also be uploaded onto Moodle.

7.5 Discussion boards

For each Week on the Moodle page you will find a link to a Discussion Board. While we encourage questions during lectures (and will ask some ourselves), if you have any questions about course material outside of the Lectures, you should first post the question on the Discussion Board. Instead of just emailing the lecturers, peer engagement with your classmates is a very effective learning method. Of course, we will also be checking the Discussions.

7.6 Readings

There is NO prescribed textbook for this course. However, in previous years we used *Christopherson, R.W. (2012). Elemental Geosystems. Seventh Edition. Prentice Hall, New Jersey* as the course textbook. This book is available for purchase through various online booksellers and may be signed out from the UNSW Library (Call No. P 910.02/48G)

Any previous editions or any other used textbook relating to Physical Geography and/or Environmental Science will also likely include much of the material covered in the course.

Alternatively, if you are very keen, there is an e-text version of the Christopherson book that comes with a study tools package called *MasteringGeography* that includes self-assessed online quizzes, e-tutorials and videos. For more information, go to

<https://register.pearsoncmg.com/reg/buy/buy1.jsp?productID=354678>

Lecturers will also recommend readings where necessary throughout the Course that are relevant to the lecture and/or laboratory material and may post links to these on Moodle.

8. Additional Student Support and Other Stuff

8.1 ELISE tutorial

Information literacy is a UNSW graduate attribute. For commencing students, a basic level of information literacy is necessary to enable each student to undertake their academic program effectively. It has been found that many students, regardless of their UAI or other entry criteria, do not clearly understand the use of information in the university environment.

ELISE is a mandatory online tutorial on how information is organised and used in the university context. It is a UNSW requirement that all new undergraduate and postgraduate coursework students complete the tutorial and attain at least 80% in the ELISE quiz following the tutorial. Students will not be able to enrol for next semester until they complete the ELISE quiz.

For more information about ELISE go to: <http://subjectguides.library.unsw.edu.au/elise>

8.2 Disability services and student well being

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 **UNSW Disability Support Services** <https://student.unsw.edu.au/disability-services> prior to, or at the commencement of, the course. 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.

UNSW takes student wellbeing, health and safety very seriously and if you find you need support to help with your personal life, getting your academic success on track or just want to know how to stay safe, then a number of options are available at:

<https://student.unsw.edu.au/wellbeing>

8.3 Other services

- The Current Students Gateway: <https://student.unsw.edu.au/>
- Academic Skills and Support: <https://student.unsw.edu.au/academic-skills>
- UNSW IT Service Centre: <https://www.it.unsw.edu.au/students/index.html>