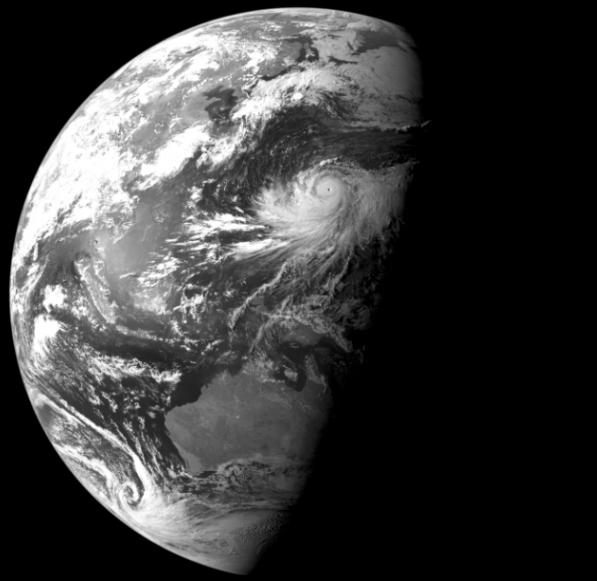


**School of Biological, Earth
and Environmental Sciences,
Faculty of Science**



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

**Trimester Two (T2)
2019**

1. Staff

Lecturers: **Professor Rob Brander (Course Convenor*)**
Biological Sciences North (D26) Room 401B; Office Telephone 9385-2899;
rbrander@unsw.edu.au

*On study leave from July 25; direct all course enquiries after this date to David Edwards

David Edwards

Biological Sciences North (D26) Room 401C; Office Telephone 9385-8064;
d.edwards@unsw.edu.au

Associate Professor Scott Mooney

Biological Sciences North (D26) Room 410D; 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). Teaching Demonstrators will also assist in some Labs.

Tutorial Staff: Tutorials will be run by Teaching Demonstrators.

2. Course Information

Course Code: GEOS 1701
Units of Credit: 6
Hours per Week: 3 Lecture, 3 Practical (Lab), 1 Tutorial (in alternating weeks)
Field Trip: 1 day
Prerequisites: None
Online Timetable: <http://timetable.unsw.edu.au/2019/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:

<https://www.handbook.unsw.edu.au/undergraduate/courses/2019/GEOS1701>

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 popular with students and we continually adjust the course to make it better based on student feedback. This year we have added a Mid-Term exam to reduce the volume of content to study for the Final Exam. The overall weighting of the Mid-Term + Final Exam (35%) is also reduced from last year (50%) in order to increase the weighting of the Field Trip Assessment from 10% to 15% (Table 2). Some of the labs have been modified to provide more engaging and effective delivery, learning outcomes and feedback. A requirement of the new Trimester system has also been to implement a new Tutorial stream, which involves a 10% assessment (Table 2). We also ask you to please be patient as this is the first time the course has run in the new Trimester system.

2.6 Follow On Courses

This course is intended to provide you with basic skills and knowledge for upper level courses that might interest you 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 2020)
- 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 BioSciences Student Office in on the Ground Floor of the Biological Sciences North (D26) Building (Ph: 9385-2961) or consult with the Course Convenor Prof Rob Brander.

Attendance: Students are strongly recommended to attend all lectures, labs and tutorials. Students who miss a significant amount of classes, or miss an assessment task, due to ill health or other issues are advised to contact 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 trimester examination period (Aug 16-31). Please bear this in mind when making end of trimester 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 most of the labs require use of a personal electronic device and/or laptop in class. Students will be notified in advance of these occasions.

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 6-7 hours of class contact hours per week (Lecture + Lab + Tutorial). 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 lectures per week. The lecture times and locations are:

Monday	10 – 11 am	Old Main Building (OMB)149
Tuesday	2 – 4 pm	Civil Engineering (CIVENG) 101

Lectures commence in Week 1 as outlined in Table 3.

4.2 Laboratory program

Lab classes are scheduled as 3 hours per week in **Teaching Lab 2 in the Biological Sciences Building (D26)**. 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 Lab Class 2 = Wed 10 – 1 Lab Class 3 = Wed 2 – 5

Workplace Health and Safety (WHS) requires that all students wear closed shoes in the lab classes See <http://www.ohs.unsw.edu.au/> for more WHS information at UNSW.

Lab classes commence in Week 1 as outlined in Table 3.

4.3 Tutorial program

Tutorials are scheduled as 1 hour per week. However we will run Tutorials in alternating weeks beginning in Week 2. You need to attend a tutorial in Weeks 2, 4, 6, 8, and 10 in one of the following Tutorial times. Stick to your Tutorial time once enrolled:

Tutorial 1 = Wed 1–2 (MAT311) Tutorial 2 = Wed 1-2 (MAT108) Tutorial 3 = Fri 10–11 (MAT106)
Tutorial 4 = Fri 11–12 (MAT108) Tutorial 5 = Fri 2 – 3 (MAT108)

Tutorials commence in Week 2 as outlined in Table 3.

4.3 Field trip

Students are required to attend a mandatory 1 day field trip to the Northern Illawarra region and Royal National Park on **either Saturday July 20 or Sunday July 21**. On each day, students will be transported by bus, leaving UNSW approximately 9 am and returning approximately 6 PM.

The field trip involves a Field Trip Report Assessment worth 15% of the course. There will be approximately 50 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 June 14) on a first come, first serve basis. 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 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 2:

Table 2: GEOS 1701 Assessment Guide

Assessment Item	Assessment Details	Value (%)
Lab Assessments (4 @ 10% each)	1. Online Mapping Quiz due Sun June 23	40
	2. Coastal Monitoring due Fri June 28	
	3. Climate Change due Week 7	
	4. Coogee Beach Field Exercise due Week 10	
Field Trip Assessment	Field Trip Quiz + Week 8 Lab	15
Student Presentations	In Tutorials	10
Mid-Term Exam	Week 5 (in Labs)	15
Final Exam	End of Session Exam Period Aug 16-31 (TBA)	20

5.2 Assessment criteria and standards

Lab Assessments are assessed on how students take theory and apply it into practical tasks. 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. The **Field Trip Assessment** is based on knowledge gained and tasks completed during the Field Trip in the form of a Quiz in the Tues July 23 Lecture and exercises during the Week 8 Lab. The **Mid-Term Exam** is based only on Lectures 1-7 material and the **Final Exam** is based on material from Lectures 8-18.

Table 3: GEOS 1701 Lecture and Lab Program T2 2019

Week	Lecture Number and Date	Lecture Topic	Who	Lab Topic	Lab Details	Tutorials			
1	1. Mon June 3	Life, The Earth and Everything	RB	Welcome to GEOS1701	<ul style="list-style-type: none"> • Intro to Labs/WHS • Interactive Online Student Quiz 				
	2. Tues June 4	Landscape Evolution							
		Landform Movement and Hazards							
2	Mon June 10	<i>Public Holiday NO LECTURE</i>		Google Earth	<ul style="list-style-type: none"> • Pre-Lab Material • Self-Guided Lab • Part of Lab Assessment 1 	Intro to Tutorials			
	3. Tues June 11	Arid Environments	RB						
		Catchment Hydrology							
3	4. Mon June 17	Water Resources and Pollution	RB	Mapping and Air Photo Interpretation	<ul style="list-style-type: none"> • Pre-Lab Material • Workshop • Lab Assessment 1 				
	5. Tues June 18	River Systems							
		River Processes and Management Issues							
4	6. Mon June 24	Coastal Processes	RB	Coastal Monitoring	<ul style="list-style-type: none"> • Pre-Lab Material • Workshop • Lab Assessment 2 	Student Talks			
	7. Tues June 25	Coastal Environments							
		Coastal Hazards and Management Issues							
5	8. Mon July 1	Earth's Atmosphere and Energy Balance	DE	Mid-Term Exam Introduction to Climate Change	<ul style="list-style-type: none"> • Hand Back Assignments • Part of Lab Assessment 3 				
	9. Tues July 2	Climate Elements							
		Global Circulation Systems							
6	10. Mon July 8	Global Climates	DE	Climate Change: Challenge of our Lifetime	<ul style="list-style-type: none"> • Pre-Lab Material • Workshop • Lab Assessment 3 	Student Talks			
	11. Tues July 9	Getting Down and Dirty with Soils							
		Soil Erosion and Management Issues							
7	12. Mon July 15	What is Biogeography	SM	NO LABS	<ul style="list-style-type: none"> • Lab Assessment 3 Due 				
	13. Tues July 16	The Distribution of Individuals							
		Is Biodiversity Important							
<i>Field Trip Saturday July 20 or Sunday July 21 (Field Trip Assessment)</i>									

Week	Lecture Number and Date	Lecture Topic	Who	Lab Topic	Lab Details	Assess Tasks			
8	14. Mon July 22	Is there a Limit to Human Populations?	SM	Field Trip Soils and Sediments	<ul style="list-style-type: none"> Component of Field Trip Assessment 	Student Debates			
	Tues July 23	Field Trip Quiz	RB/DE						
9	15. Mon July 29	Climate Change and Variability	DE	Coogee Beach Field Exercise (No Lab Class)	<ul style="list-style-type: none"> Pre-Lab Material Self-Guided Lab Lab Assessment 4 				
	16. Tues July 30	Human Induced Climate Change	DE						
		Human Induced Climate Change							
10	17. Mon Aug 5	Are Australian Ecosystems Different?	SM	Course Revision, Final Exam Prep and Assignment Return	<ul style="list-style-type: none"> Lab Assessment 4 Quiz Interactive (Fun!) Student Quiz My Experience 	Student Debates			
	18. Tues Aug 6	Humans as Agents of Change	SM						
		Inter-Disciplinary Environmental Science							
11	19. Mon Aug 12	Course Summary and Future Directions	DE/SM						

RB = Professor Rob Brander*; DE = David Edwards; SM = Associate Professor Scott Mooney

* Prof Brander is on special study leave from July 25. All course related enquiries after this date should be made to David Edwards.

Please note that the topics of the lectures listed in Table 3 may change at the discretion of the Lecturers. Students will be notified in advance of any changes to the lecture topics or sequence.

For due dates/weeks of assessments, please refer to Table 2. Students will be notified of specific due dates for assessments and methods of handing in assessments during the course.

We follow the UNSW grading system: <https://student.unsw.edu.au/grade>. 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 Assessment) 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 (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 Lab classes with a focus on assessment feedback and course revision (Weeks 5 and 10).

Feedback on the final exam is possible by appointment only. Final examination scripts are retained in the School for a period of 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 75% 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 done to allow you to take better notes during the lecture and should not be an excuse to miss the lecture.

Generally, Lecture powerpoints provide only a brief overview of the material actually presented in Lectures. All lecture material (both slide content and verbal content) is assessable on the Mid-Term and 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 Assessment 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>