



Course Outline

GEOS1211

Earth and Environmental Science

School of Biological, Earth and Environmental Sciences

Faculty of Science

Trimester 1, 2024

1 Staff

Your course convenor is Prof Andy Baker. a.baker@unsw.edu.au

Andy is an Earth and Environmental Scientist. His research focuses on the intersection between geology and water, from caves to aquifers. Using stalagmites he reconstructs past climates, past groundwater recharge, and past fire history. He characterises organic matter in natural and human environments, from groundwater to drinking water. He is the main lecturer on GEOS1211.



Other essential members of the GEOS1211 team:

Tim Churchill is a carnivorous marsupial paleontologist and Clare Fletcher a geoconservationist for Earth and Mars provide teaching support in the lab and the field.

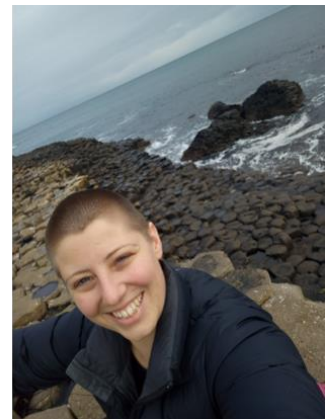
Behind the scenes, professional and technical staff support for the lab and field classes is provided by Mira van der Ley and Bernadette Phu. Expect to see Mira in the week 7 lab class.

Dr. Mira van der Ley

Bernadette Phu

Tim Churchill

Clare Fletcher



Library outreach is led by Bronwyn Edwards, who you will meet in week 1:



And expect guest appearances from other GEOS teaching colleagues and UNSW Analytical Centre staff.

2 Course Information

Units of credit: 6

Pre-requisite(s): None.

Teaching times and locations: Tuesdays 14:00-17:00 OR Wednesdays 10:00-13:00 OR Wednesdays 14:00-17:00 in Biological Sciences (E26) Teaching Lab 2 *or* in the field.

Week One Welcome

On the first Wednesday, we will have a welcome to the course, where you can get to know each other and the staff, complete some paperwork needed for field classes, and have an introduction to the course, and learn about some library resources relevant to the course.

Weeks Two to Ten

Each week, in weeks 2-5 and 7-10, we will cover a different topic. Before each class, you are required to watch a short video about the topic and complete some reading. This will require you to read some academic papers or textbook chapters. Expect to allocate up to 3-hours each week for this pre-class work. You will be tested on your understanding of the topic before the start of the Wednesday lab or field class. Each test counts 5% towards your final grade. You will also be given the option to repeat the test at the end of the class. The highest of the two marks will be counted towards your grade. The Wednesday class will either be a local field trip or a laboratory class.

Field classes (Every week, weeks 2-5, either Tuesday 14:00-17:00 or Wednesday 10:00-13:00 or 14:00-17:00).

Four local field classes will be held at locations on or close to campus. The subject matter will relate to the reading material that you will have read and been tested on before the class.

Lab classes (Every week, weeks 2-5, either Tuesday 14:00-17:00 or Wednesday 10:00-13:00 or 14:00-17:00).

These sessions will be in Teaching Lab 2. The subject matter will relate to the reading material that you will have read and been tested on before the class.

What to bring to field-based practical sessions:

The field classes will take place outside and you should come prepared for whatever weather is forecast. Wear appropriate footwear and apply necessary sun protection.

What to bring to the lab classes:

You must wear closed shoes in the laboratory.

2.1 Course Summary

This course investigates Earth's environment from a scientific perspective. In particular, it considers evidence throughout Earth's history to inform important environmental processes today. Topics considered include environmental pollution, soil hydrology, and groundwater science. Students will discover the environmental and earth science context of the Kensington Campus. The geology of Sydney is investigated, and how it relates to the city's development and geoheritage. The topics are delivered through laboratory and field-based learning in the local area. The field work component occurs solely in class time and will not incur additional costs.

2.2 Course aims

The primary aim of this course is to provide students with an understanding of the Earth's environment. The course focuses on an Earth's history perspective, introducing students to contemporary environmental processes and environmental issues. Through a blended learning approach, the course activities will enable students to describe and interpret a wide range of Earth environmental processes occurring over geological and modern-day timescales.

This course provides you with fundamental knowledge essential for most 'GEOS' courses (those where the course code starts with GEOS) in the School of Biological, Earth and Environmental Sciences. It is complementary with GEOS1701, GEOS1111, BIOS1301, and BIOS1101.

GEOS1211 prepares students for GEOS2131, GEOS2181, GEOS2291, GEOS2721 and GEOS2821. (It is a core compulsory course in the Earth Science majors and the Environmental Management program).

2.3 Course learning outcomes (CLO)

At the successful completion of this course you should be able to:

1. Use an Earth history perspective to describe the Earth's environment and environmental processes.
2. Monitor and analyse fundamental features of a variety of Earth materials and landforms to identify and interpret their environmental history.
3. Analyse landscapes to interpret how their underlying geology affects human use and environmental processes.
4. Undertake field and laboratory projects using a framework of understanding environmental processes and taking an Earth history perspective.
5. Communicate field and laboratory observations of environmental and earth science processes.

2.4 Relationship between course and program learning outcomes and assessments

Course Learning Outcome (CLO)	LO Statement	Related Tasks & Assessment
CLO 1	Use an Earth history perspective to describe the Earth's environment and environmental processes.	Weekly class tests
CLO 2	Monitor and analyse fundamental features of a variety of Earth materials and landforms to identify and interpret their environmental history.	Field trips and field report
CLO 3	Analyse landscapes to interpret how their underlying geology affects human use and environmental processes.	Weekly class tests Field trips and field report
CLO 4	Undertake field and laboratory projects using a framework of understanding environmental processes and taking an Earth history perspective.	Field trips and field report Practical assignment
CLO5	Communicate field and laboratory observations of environmental and earth science processes.	Field trips and field report Practical assignment

3. Strategies and approaches to learning

3.1 Learning and teaching activities

This course enables students to develop an understanding of the Earth's environment from a scientific perspective. The topics covered highlight the importance of having an Earth history perspective on contemporary environmental processes.

The course is designed to make good use of blended learning, with on-line and face-to-face delivery. On-line lectures and related self-guide learning resources are complemented by problem-based learning activities, available both on-line or face-to-face through virtual or physical field classes, and associated tutorials..

3.2 Expectations of students

Each week, before the laboratory or field class, you will be given some materials to read on the topic that is being covered. Before the class, you will be assessed on your understanding of that topic with a short test that assesses your understanding of the reading materials. You will be required to complete the test before the laboratory or field class. There will be eight topics, four related to the field classes and four related to the lab classes. The test will occur each week that there is a laboratory or field class and each is worth 5%. Overall, the assignment is 40% of the course mark, with the marks equally weighted between the weeks (8 x 5%)

An integral part of this course is engagement in field class activities. You will be expected to submit a field report which is based on the field trip component of the course. This will assess your understanding of environmental earth science processes through field observations and their interpretation. The assignment will require you to submit a field notebook which contains your observations and interpretation of the four field trips. The assignment is 20% of the course mark, with the marks equally weighted between the four field classes (4 x 5%)

Also integral to the course is engagement in the lab classes. You will be expected to submit a report which is based on the laboratory component of the course. This will assess your understanding of environmental earth science processes through field and laboratory observations and their interpretation. There will be four laboratory classes in each of weeks 7-10. The assignment will require you to submit a report which contains your observations and interpretation of the data collected and analysed in the laboratory classes. The assignment is 40% of the course mark.

You must complete all set work to a satisfactory standard as outlined in the course material and in the assignment descriptions.

From the university guidelines (<https://student.unsw.edu.au/uoc>): "The normal workload expectations of a student are approximately 25 hours per term for each UOC, including class."

4 Course schedule and structure

Week	Date	Reading Topic (Video, on-line)	Field class / lab class (in-person, Wednesdays)	Location
1	13 or 14 Feb	<i>No reading needed before the lab this week</i>	Ice-breaker, course administration and introductions	UNSW, Teaching Lab 2
2	20 or 21 Feb	Sydney Geology I: the Botany Sands	Campus environmental earth science tour	UNSW, meet outside building E26
3	27 or 28 Feb	Soil hydrology	Soil moisture	UNSW, Teaching Lab 2
4	5 or 6 Mar	Groundwater	Botany Sands Aquifer	Centennial Parklands (meet at Royal Randwick Light Rail station)
5	12 or 13 Mar	Sydney Geology 2: the Hawkesbury Sandstone	The sandstone city	The Rocks (meet outside Museum of Contemporary Art, Circular Quay)
6		Flexibility week		
7	26 or 27 Mar	Urban Pollution	Soil analyses using portable XRF and database	UNSW, E26 teaching lab 2
8	2 or 3 Apr	Sydney's soil lead pollution	Hypothesis testing, metadata	UNSW, E26 teaching lab 2
9	9 or 10 Apr	Exploratory Data Analysis	Exploratory data analysis	UNSW, E26 teaching lab 2
10	16 or 17 Apr	Library resources and referencing skills	Scientific Report Writing	UNSW, E26 teaching lab 2

5 Assessment

Assessment task	Length	Weight	Mark	Assessment criteria	Due date	Feedback
Assessment 1: Field Report 1. Campus 2. Soil hydrology 3. Botany Sands aquifer 4. The sandstone city	8 pages (2 pages per field trip)	20% total (4 x 5%)	/100	Understanding of environmental earth science processes through field observations and their interpretation	Friday week 5, by Turnitin on Moodle	Generic feedback given in on Moodle and individual feedback given via Moodle by Turnitin
Assessment 2: Lab Report	Maximum length: 2000 words	40%	/100	Understanding of environmental earth science processes through field observations and their interpretation Critical review	Friday week 10, by Turnitin on Moodle	Generic feedback given in on Moodle and individual feedback given via Moodle by Turnitin
Assessment 3: Class Tests	Typically up to 5 short answer questions	40% (8 * 5%)	/100	Understanding of environmental earth science processes through demonstrated analytical thinking related to video and reading materials	At the start of each class in weeks 2-5, 7-10. With a chance to retake at the end of the class.	Generic feedback after class.

Assignment submission for Assessment 1 and Assessment 2 must be digital via Turnitin through Moodle.

Further information UNSW grading system: <https://student.unsw.edu.au/grades> UNSW assessment policy: <https://student.unsw.edu.au/assessment>

5.1 Submission of assessment tasks / special consideration

If you experience sickness, misadventure or other circumstances beyond your control that may impact your ability to complete/attend classes/fieldtrips/assessments you should request special consideration through <https://www.student.unsw.edu.au/special-consideration>. Please also e-mail the course convenor, as soon as possible.

The School of BEES also has certified Mental Health First Aiders who can help in an emergency or help with accessing other university or external supports. and can help provide information regarding supports provided by the university and externally. <https://www.unsw.edu.au/science/our-schools/bees/student-life-resources/flourish-mentally>

UNSW has a standard late submission penalty of:

- 5% per day
- for all assessments where a penalty applies
- capped at five days (120 hours), after which a student cannot submit an assessment, and
- no permitted variation

6 Academic integrity, referencing and plagiarism

Referencing is a way of acknowledging the sources of information that you use to research your assignments. You need to provide a reference whenever you draw on someone else's words, ideas or research. Not referencing other people's work can constitute plagiarism.

Further information about referencing styles can be located at <https://student.unsw.edu.au/referencing>

Academic integrity is fundamental to success at university. Academic integrity can be defined as a commitment to six fundamental values in academic pursuits: honesty, trust, fairness, respect, responsibility, and courage.¹ 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 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>

The UNSW Learning Centre also provides substantial educational written materials, workshops, and tutorials <http://www.lc.unsw.edu.au/services-programs>

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;

¹ International Center for Academic Integrity, 'The Fundamental Values of Academic Integrity', T. Fishman (ed), Clemson University, 2013.

- 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; and
- 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.

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

7 Reading and resources

All materials are provided on the course Moodle page and are provided at the UNSW Leganto site. The direct link is:

https://unsw.alma.exlibrisgroup.com/leganto/public/61UNSW_INST/lists/52149013310001731?auth=SAML

8 Administrative matters

8.1 School of BEES Student Office

Please contact the Nucleus Student Hub: <https://nucleus.unsw.edu.au/en/contact-us>

8.2 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 (Mira van der Ley) prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equity and Diversity Unit (9385 4734 or <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 (<https://student.unsw.edu.au/disability>).

The School of Biological, Earth and Environmental Sciences aims to provide a safe, supportive and welcoming environment for all staff and students regardless of their race, sex, age, religion, disability, sexual orientation or gender identification. As such, the School strongly supports UNSW's Equity and Diversity Policy in regard to these matters. <http://www.bees.unsw.edu.au/equity>

Definitions, policies and reporting portals can be found here:

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

8.3 Grievance policy

In all cases you should first try to resolve any issues with the course convenor (Andy Baker, a.baker@unsw.edu.au). If this is unsatisfactory, you should contact the School Student Ethics Officer (A/Prof Stephen Bonser, s.bonser@unsw.edu.au) or the Deputy Head of School (A/Prof Scott Mooney s.mooney@unsw.edu.au) who is the School's Grievance Officer and Designated Officer under the UNSW Plagiarism Procedure. 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>).

9. Additional support for students

The Current Students Gateway:

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

Academic Skills and Support:

<https://www.student.unsw.edu.au/skills>

Academic Skills

The Learning Centre wants you to make the most of your university studies. Here you will find resources and support to help you develop and refine your academic skills.

Essay and Assignment Writing Resources to help you with	Working with Academic Integrity online module For good academic practice	Individual consultations One-on-one support and advice about assignment writing

Disability Support Services:

<https://www.student.unsw.edu.au/els>

Disability Support Services

If you are trying to manage the demands of university as well as a health condition, learning disability or have personal circumstances that are having an impact on your studies, our disability services may be able to provide you with assistance.

Featured information

Study skills support Disability services program	Mental health video Raising awareness video	Join us on facebook Disability services on facebook

What you need to know

Register for support

If you want to receive support during your time at university for your disability needs then you will need to register for disability support.

Overview of disability services

Discover the things you need to know about studying with a disability at university as well as some answers to some commonly asked questions.

Support and educational adjustments

Student Wellbeing, Health and Safety:

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

Same sex marriage debate Counselling newsletter	Sexual misconduct Harassment, assault, rape	Urgent help Emergency contacts
Campus security 24/7 security on campus	Counselling Individual appointments	Medical health services Doctor, dentist, pharmacy...
Discrimination / harassment Know your rights	Safety Online safety tutorial	LGBTIQ support ALLY Network
Mind smart Self-help videos and guides	Student Minds Student voice on mental health	Bullying & cyberbullying Put a stop to bullying
UNSWAlert SMS Emergency notification system	Join us on facebook Wellbeing and safety pages	More contacts Wellbeing, health and safety support services

UNSW IT Service Centre:

<https://www.myit.unsw.edu.au/>

Services & Support for Students

Getting started at UNSW - a guide for new students

As a new student at UNSW you will receive a student ID when you collect your student card. You use this as your UNSW username with either your zPass or UniPass password to access online resources at UNSW. Each student is automatically assigned a UNSW email address and can use the free student email service. On campus, students with laptops and mobile devices can access the free UniWide wireless service. For more details on these and other services click the links below. If you require support for IT related matters contact the IT Service Centre.

	UNSW Username & Passwords		Student Email
	Campus Printers		UniWide Wireless & Residential Internet
	Student File Storage		Eduroam Wireless
	Research Data Management Services		Software & Hardware
	Reference & Resources		myAccess
	Training Portal		UNSW IT Help Program

10 Student Conduct and Health & Safety

a. Respectful behaviour

You have a right to feel safe, respected, and welcome to fully participate in university life.

This also means that you have an obligation to ensure that your behaviour does not infringe on the enjoyment of these rights for other students or staff.

Behaviour that negatively impacts on others, or is unlawful, can constitute misconduct.

Definitions, policies and reporting portals can be found at these sites:

<https://student.unsw.edu.au/equity> <https://www.unsw.edu.au/planning-assurance/conduct-integrity/gendered-violence>

<http://subjectguides.library.unsw.edu.au/elise/respect>

Fieldtrips are academic activities which are fun and are a great way to get to know your classmates. Students and staff are committed to providing a friendly and safe environment for all. To achieve this, participants must follow the following:

- Treat all other field participants and members of the public with courtesy and respect.
- Adopt a responsible attitude whilst on the fieldtrip
- Do not perform duties or functions for the University under the influence of alcohol or drugs
- Comply with instructions and directions issued by fieldtrip supervisors
- Take action to avoid, eliminate or minimize risks

Additionally, behaviour on course fieldtrips must be consistent with the Student Code of Conduct. There are five primary student responsibilities under this Code:

- A condition of enrolment that students inform themselves of the University's rules and policies affecting them
- An obligation to act with integrity in academic work, to ensure that all academic work is conducted ethically and safely
- An obligation to observe standards of equity and respect in dealing with every member of the University community
- An obligation to use and care for University resources in a lawful and appropriate manner
- An obligation to not diminish the University's reputation in the carrying out of academic and other associated University activities.

UNSW is within its right to terminate participation in a fieldwork activity and may institute academic misconduct proceedings in circumstances where a student wilfully fails to work in a safe manner or fail in the above duties.

b H&S

According to the School of BEES policy, each student is responsible for:

- Taking reasonable care for his or her own health and safety, and
- Taking reasonable care that his or her acts or omissions do not adversely affect the health and safety of other persons, and
- Complying, so far as reasonably able, with any reasonable instruction that is given to ensure UNSW is not in breach of the NSW WHS Act 2011, and
- Complying with UNSW HS policies, procedures and guidelines and BEES HS protocols
- Taking action to avoid, eliminate or minimise hazards
- Making proper use of all safety devices and personal protective equipment
- Seeking information or advice regarding hazards and procedures before carrying out new or unfamiliar work
- Being familiar with emergency and evacuation procedures, the location of first aid and emergency personnel and equipment, and if appropriately trained, the use of such equipment.

The School of BEES recognises its obligations to provide a safe working environment for all persons involved in school-related activities. To achieve this goal with regards to teaching and learning, the school adopts the UNSW Health and Safety Policy v4.1 and the H336 HS Responsibility, Authority and Accountability Procedure. These documents stipulate that everyone attending a UNSW workplace must ensure their actions do not adversely affect the health and safety of others. This outcome is achieved through the establishment of a documented chain of responsibility and accountability for all persons in the workplace, extending from the Head of School through to the students undertaking courses offered by the School of BEES. As part of this chain of responsibility and accountability, the course convenor is responsible for ensuring all activities associated with this course are safe. The course convenor has undertaken detailed risk assessments of all course activities and identified all associated potential hazards. These hazards have been minimised and appropriate steps taken to ensure your health and safety. For each activity, clear written instructions are given, and appropriate hazard warnings or risk minimisation procedures included for your protection.