



Course Outline

GEOS2131

Field Methods and Mapping

School of BEES

Faculty of Science

T3, 2022

1. Staff

Position	Name	Email	Consultation times and locations
Course Convenor	Martin van Kranendonk	m.vankranendonk@unsw.edu.au	By appointment

2. Course information

Units of credit: 6UOC

Pre-requisite(s): Assumed knowledge GEOS1211 OR GEOS1111

Teaching times and locations:

Component	HPW	Time	Day	Location
Lecture 1	1	4 - 5 PM	WED	Online
Lecture 2	1	11 AM - 12 PM	THURS	Online
Lab	3	2 - 5 PM	FRI	D26 G01 Lab 2
Presenter consultation	1	12- 1 PM	THURS	Online via Teams or in D26 Rm 201b
Field trip	6 days		Week 6	Rouchel, Upper Hunter Valley

2.1 Course summary

This course will cover practical geological mapping techniques, general field skills, and the integration of stratigraphic, lithological, structural, and palaeontological concepts. A field mapping camp, for 6 days in duration in the Upper Hunter Valley of NSW, forms the principal component of the course and students will incur some personal costs. Use of remote sensed and geophysical imagery of the area to be mapped will be included.

2.2 Course aims

This course aims to integrate fundamental geological knowledge and develop skills of students in geological field mapping via a six-day, field work-based mapping exercise in the Upper Hunter Valley. The course aims to introduce students to geological mapping and to expose students to the importance and subtle difficulties of geological mapping, improving students' ability to work harmoniously in a group of mixed abilities.

2.3 Course learning outcomes (CLO)

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

1. Undertake geological field mapping to collect data in an efficient and safe manner
2. Identify and describe basic sedimentary and volcanic rocks, and geological structures in the field
3. Accurately measure the orientation of geological features using a geological compass
4. Interpret field data and observations to infer stratigraphy over a ~15km² mapping area
5. Construct a geological map and cross-section based upon field data and observations
6. Communicate results and ideas in both oral format and as a formal geological report
7. Work effectively as part of a group to conduct fieldwork, interpret data and present ideas.

3. Strategies and approaches to learning

3.1 Learning and teaching activities

Mapping is a key skill for the natural sciences. It is practiced at all levels and at all scales, and not just in geology. This course is a practical course with face-to-face learning, augmented by readings. There are two main practical elements: 1) learning to use stereographic airphotos for geological mapping – this is achieved in the lab; 2) undertake geological mapping in the field, outdoors, using available techniques and technologies, but using your feet to cover the ground and your eyes to make observations. Lectures introduce you to basic concepts required to do the mapping and to understand geology as applies to mapping skills. The main assessment tasks relate to developing an understanding of stratigraphy, regional variations, and complications brought about by changes across space and through deformation – real-life geological situations.

3.2 Expectations of students

Students must attend 100% laboratory periods during the term.

Attendance to the week-long geological field mapping trip during week 6 is compulsory. The field trip includes camping in the outdoors, and walking/hiking through pastoral landscapes.

4. Course schedule and structure

This course consists of 18 hours of class lecture contact hours, as well as 27 hours compulsory laboratory contact, and the 6 day field mapping trip in week 6. Students are expected to attend all laboratory sessions. There is no final exam.

	Week	Date	LECTURES	Date	Lab
September	1	14.09	Why Mapping and intro to course	16.09	Stratigraphy and fence diagrams, Pre-Rouchel assignment and rock types at Rouchel
		15.09	What is on a map?		
	2	21.09	Principles of Stratigraphy	23.09	Airphotos, mapping groups, and use of stereoscopes
		22.09	PUBLIC HOLIDAY		
	3	28.09	Depositional environments: Stratigraphic facies	30.09	Airphotos, mapping groups, and use of stereoscopes
		29.09	Depositional environments: Volcanic facies		
October	4	05.10	Plutonic rocks and Structures	07.10	Geological maps, field notes, strike/dip and base-map preparation in groups
		06.10	Field mapping – how and with what tools?		
	5	12.10	New England Fold Belt	14.10	Mapping skills: air photo interp, strike/dip, site documentation, use of stereonets. PRE-ROUCHEL ASSIGNMENT DUE
		13.10	Safety and field camp details		
	6		ROUCHEL FIELD TRIP MON 17th - SAT 22nd		
	7	26.10	Stratigraphic nomenclature of igneous rocks	28.10	How to make a geological cross-section and write a geological report. Group work on maps and report.
		27.10	Multiple deformation events in complex geological terrains		
November	8	2.11	Dating of rocks	4.11	Thin section petrography. Information on presenting a good talk.
		3.11	Remote sensing tools and geophysics		
	9	9.11	No lecture	11.11	No formal lab: students welcome to work on their reports and presentations in the teaching lab
		10.11	No lecture		
	10	16.11	No lecture	18.11	Group presentations, 5 mins per person
		17.11	No lecture		

5. Assessment

5.1 Assessment tasks

Assessment task	Weight	Due date (normally midnight on due date)
Assessment 1: Pre-Rouchel assignment. Each mapping group will be required to undertake a preliminary air photo interpretation of their mapping area before arriving at Rouchel, and complete the rest of the pre-Rouchel assessment questions.	30%	Week 5 (Oct 14 th : 5PM)
Assessment 2: Performance in the field and group presentations	15%	5% Performance in Week 6 – during the field trip (Oct 17-22, 2022) 10% Presentations April 15 th in lab, 5 minutes each
Assessment 3: Final report Based on the Rouchel field camp, each student will submit an individual report on the area mapped. Assessment of the report will be based on the geological map and cross-section, geological description, the extent and depth of interpretation of data, as well as English expression.	55%	Week 11 (Fri Nov 25 th @ 5PM)

See field trip manual for full details of each assessment

Further information

UNSW grading system: <https://student.unsw.edu.au/grades>

UNSW assessment policy: <https://student.unsw.edu.au/assessment>

5.2 Assessment criteria and standards

See field trip guide for full details on assessment marking criteria

5.3 Submission of assessment tasks

Assessments will be done in class (presentations) or submitted online.

Normal school penalties apply for late submission

The rule is 10% (of the assignment mark) for each day late – up to a maximum of 7 days after which assignment will receive 0. Consideration for relief from this rule can be given only for documented reasons (and student should submit documentation through Student Central).

5.4. Feedback on assessment

See field trip guide for full details on assessment feedback

Include a strategy for giving feedback to students on their assessment preparation, activities and/or marked submissions for each task. Tell students when, where and how they will receive feedback for this assessment.

More information is available on the Teaching Gateway:

- *Grading and Giving Feedback*
<http://teaching.unsw.edu.au/grading-assessment-feedback>
- *Giving Assessment Feedback*
<https://teaching.unsw.edu.au/assessment-feedback>

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>.

7. Readings and resources

The Map that Changed the World, by Simon Winchester

Geological Field techniques, by Coe, A.L. (Wiley-Blackwell)

See field trip guide for additional resources

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

8. Administrative matters

School information	<p>School website: http://www.bees.unsw.edu.au/</p> <p>School office – The Biosciences Student Office is where to go for administrative matters relating to BEES courses. It is located on the ground floor of the biological sciences building, room G27. BEESinfo@unsw.edu.au</p>
Occupational Health and Safety	<p>Information on relevant Occupational Health and Safety policies and can be found on the following website: http://www.bees.unsw.edu.au/health-and-safety</p> <p>UNSW OHS Home page: http://safety.unsw.edu.au/</p>
Equity and Diversity	<p>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 Convenor prior to, or at the commencement of, their course, or with the Equity Officer (Disability) in the Equity and Diversity Unit (9385 4734 or http://www.studentequity.unsw.edu.au/).</p> <p>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.</p>
Student complaint procedure	<p>http://student.unsw.edu.au/complaints</p> <p>School contact</p> <p>Dr Jes Sammut j.sammut@unsw.edu.au</p> <p>Faculty contact</p> <p>A/Prof Chris Tisdell, Associate Dean (Education) cct@unsw.edu.au, Tel: 9385 6792</p> <p>University contact</p> <p>Student Conduct and Appeals Officer (SCAO) within the Office of the Pro-Vice-Chancellor (Students) and Registrar. Telephone 02 9385 8515, email studentcomplaints@unsw.edu.au</p>

9. Additional support for students

- The Current Students Gateway: <https://student.unsw.edu.au/>
- Academic Skills and Support: <https://student.unsw.edu.au/academic-skills>
- Student Wellbeing, Health and Safety: <https://student.unsw.edu.au/wellbeing>
- Disability Support Services: <https://student.unsw.edu.au/disability-services>
- UNSW IT Service Centre: <https://www.it.unsw.edu.au/students/index.html>