



# GEOS226

## Introduction to Field Geology

S3 External 2015

*Dept of Earth and Planetary Sciences*

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#### **Disclaimer**

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## General Information

Unit convenor and teaching staff

Unit Convenor

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AHH 2.653

Arrange by EMAIL

Co-Convenor

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Credit points

3

Prerequisites

12cp

Corequisites

ENVE117 or GEOS112 or GEOS115 or GEOS116 or GEOS117 or GEOS125 or GEOS126 or GEOS204

Co-badged status

Unit description

This is a field-based unit with strong emphasis on observation and the development of mapping and generic field skills. Working in small groups, students produce local and regional geological maps to reveal past environments and show how these environments change through time. This involves the study of both natural outcrops and coloured air photographs of the region, complemented by computers using state of the art software.

## Important Academic Dates

Information about important academic dates including deadlines for withdrawing from units are available at <https://www.mq.edu.au/study/calendar-of-dates>

## Learning Outcomes

On successful completion of this unit, you will be able to:

Developed skills in geological mapping, producing maps at a range of scales

Developed or enhanced skills in rock and fossil identification

Developed skills in using a number of computer packages commonly used in industry (Microsoft Excel and Mapinfo)

Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens

Developed skills in using and interpreting air photos for location, geomorphic and geological purposes

Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

## Assessment Tasks

Name	Weighting	Due
<u>Small (A3) map handed in</u>	10%	Day 3
<u>On-line quizzes</u>	5%	26 Nov 2014
<u>Practical test on a traverse</u>	10%	Day 4
<u>Class test (practical)</u>	20%	Day 6
<u>Class test (theory)</u>	40%	Day 6
<u>Participation mark</u>	15%	Days 1 to 6

### Small (A3) map handed in

Due: **Day 3**

Weighting: **10%**

Small (A3) map handed in

On successful completion you will be able to:

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of computer packages commonly used in industry (Microsoft Excel and Mapinfo)
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and

geological purposes

- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

## On-line quizzes

Due: **26 Nov 2014**

Weighting: **5%**

Two on-line quizzes prior to fieldwork

On successful completion you will be able to:

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes
- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

## Practical test on a traverse

Due: **Day 4**

Weighting: **10%**

Practical test on a traverse

On successful completion you will be able to:

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes
- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

## Class test (practical)

Due: **Day 6**

Weighting: **20%**

### Class test (practical)

On successful completion you will be able to:

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes
- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

### Class test (theory)

Due: **Day 6**

Weighting: **40%**

#### Class test (theory)

On successful completion you will be able to:

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes
- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

### Participation mark

Due: **Days 1 to 6**

Weighting: **15%**

#### Participation mark

On successful completion you will be able to:

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of computer packages commonly used in industry (Microsoft Excel and Mapinfo)

- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes
- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

## Delivery and Resources

No major changes since 2013

## Unit Schedule

### 8. SCHEDULE OF EVENTS AT LAKE KEEPIT

Day	Daylight	Evening
<b>Saturday</b>	Drive to Keepit. Buses will stop at Singleton for lunch and Tamworth for supplies.	Welcome and an introduction to the unit.  Field survival: water, hats, sunscreen.  Short lecture on Sediments and Sedimentary rocks.  Hand out materials.  Air photo exercise.
<b>Sunday</b>	Tape and compass	Short lecture on fossils you may find during the day.  Conversion of magnetic to true north.  Draw up traverse (scale 1:2000).  Mapinfo exercise. Talks.

<b>Monday</b>	Tape and compass; trace between creeks	<p>Short lecture on igneous rock classification.</p> <p>True width calculation and stratigraphic columns.</p> <p>Complete and hand-in traverse.</p> <p>Determine formations.</p> <p>Commence small (A3) map.</p> <p>Mapinfo exercise. Talks.</p>
<b>Tuesday</b>	<p>Complete fieldwork for small (A3) map</p> <p>Practical test on a traverse</p>	<p>Short lecture on the post depositional history of the rocks at Keepit (lecturer to be announced).</p> <p>Finish and hand-in small (A3) map.</p> <p>Transfer traverse and small map geology to large (regional) map. Talks.</p>
<b>Wednesday</b>	<p>Examine a section at some distance from small (A3) map location.</p>	<p>Short lecture on cross sections and geological histories.</p> <p>Work on large (regional) map using air photos. Complete and hand-in Mapinfo exercise.</p> <p>Talks.</p>
<b>Thursday</b>	<p>Finish fieldwork by 12 noon. Complete large (regional) map.</p> <p>Hand in equipment.</p> <p>Class test and practical test.</p>	<p>Check all equipment is in.</p> <p>Relax.</p>
<b>Friday</b>	<p>Clean up camp; drive home.</p> <p>Buses will stop at Singleton for lunch.</p>	

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](#). Students should be aware of the following policies in particular with regard to Learning and Teaching:

Academic Honesty Policy [http://mq.edu.au/policy/docs/academic\\_honesty/policy.html](http://mq.edu.au/policy/docs/academic_honesty/policy.html)

Assessment Policy <http://mq.edu.au/policy/docs/assessment/policy.html>

Grading Policy <http://mq.edu.au/policy/docs/grading/policy.html>

Grade Appeal Policy <http://mq.edu.au/policy/docs/gradeappeal/policy.html>

Grievance Management Policy [http://mq.edu.au/policy/docs/grievance\\_management/policy.html](http://mq.edu.au/policy/docs/grievance_management/policy.html)

Disruption to Studies Policy [http://www.mq.edu.au/policy/docs/disruption\\_studies/policy.html](http://www.mq.edu.au/policy/docs/disruption_studies/policy.html) *The Disruption to Studies Policy is effective from March 3 2014 and replaces the Special Consideration Policy.*

In addition, a number of other policies can be found in the [Learning and Teaching Category](#) of Policy Central.

## Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: [https://students.mq.edu.au/support/student\\_conduct/](https://students.mq.edu.au/support/student_conduct/)

## Results

Results shown in *iLearn*, or released directly by your Unit Convenor, are not confirmed as they are subject to final approval by the University. Once approved, final results will be sent to your student email address and will be made available in [eStudent](#). For more information visit [ask.mq.edu.au](http://ask.mq.edu.au).

## Student Support

Macquarie University provides a range of support services for students. For details, visit <http://students.mq.edu.au/support/>

## Learning Skills

Learning Skills ([mq.edu.au/learningskills](http://mq.edu.au/learningskills)) provides academic writing resources and study strategies to improve your marks and take control of your study.

- [Workshops](#)
- [StudyWise](#)
- [Academic Integrity Module for Students](#)
- [Ask a Learning Adviser](#)

## Student Services and Support

Students with a disability are encouraged to contact the [Disability Service](#) who can provide appropriate help with any issues that arise during their studies.

## Student Enquiries

For all student enquiries, visit Student Connect at [ask.mq.edu.au](http://ask.mq.edu.au)

## IT Help

For help with University computer systems and technology, visit <http://informatics.mq.edu.au/help/>.



When using the University's IT, you must adhere to the [Acceptable Use Policy](#). The policy applies to all who connect to the MQ network including students.

## Graduate Capabilities

### Creative and Innovative

Our graduates will also be capable of creative thinking and of creating knowledge. They will be imaginative and open to experience and capable of innovation at work and in the community. We want them to be engaged in applying their critical, creative thinking.

This graduate capability is supported by:

#### Learning outcomes

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of computer packages commonly used in industry (Microsoft Excel and Mapinfo)
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes

#### Assessment task

- Participation mark

### Capable of Professional and Personal Judgement and Initiative

We want our graduates to have emotional intelligence and sound interpersonal skills and to demonstrate discernment and common sense in their professional and personal judgement. They will exercise initiative as needed. They will be capable of risk assessment, and be able to handle ambiguity and complexity, enabling them to be adaptable in diverse and changing environments.

This graduate capability is supported by:

#### Learning outcomes

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of computer packages commonly used in industry (Microsoft Excel and Mapinfo)
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and

geological purposes

- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

## **Assessment tasks**

- On-line quizzes
- Participation mark

## **Commitment to Continuous Learning**

Our graduates will have enquiring minds and a literate curiosity which will lead them to pursue knowledge for its own sake. They will continue to pursue learning in their careers and as they participate in the world. They will be capable of reflecting on their experiences and relationships with others and the environment, learning from them, and growing - personally, professionally and socially.

This graduate capability is supported by:

## **Learning outcomes**

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of computer packages commonly used in industry (Microsoft Excel and Mapinfo)
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes
- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

## **Assessment tasks**

- Small (A3) map handed in
- On-line quizzes
- Participation mark

## **Discipline Specific Knowledge and Skills**

Our graduates will take with them the intellectual development, depth and breadth of knowledge, scholarly understanding, and specific subject content in their chosen fields to make them competent and confident in their subject or profession. They will be able to demonstrate, where relevant, professional technical competence and meet professional standards. They will be able to articulate the structure of knowledge of their discipline, be able to adapt discipline-specific knowledge to novel situations, and be able to contribute from their discipline to inter-disciplinary

solutions to problems.

This graduate capability is supported by:

## **Learning outcomes**

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of computer packages commonly used in industry (Microsoft Excel and Mapinfo)
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes

## **Assessment tasks**

- Small (A3) map handed in
- On-line quizzes
- Practical test on a traverse
- Class test (practical)
- Class test (theory)
- Participation mark

## **Critical, Analytical and Integrative Thinking**

We want our graduates to be capable of reasoning, questioning and analysing, and to integrate and synthesise learning and knowledge from a range of sources and environments; to be able to critique constraints, assumptions and limitations; to be able to think independently and systemically in relation to scholarly activity, in the workplace, and in the world. We want them to have a level of scientific and information technology literacy.

This graduate capability is supported by:

## **Learning outcomes**

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of computer packages commonly used in industry (Microsoft Excel and Mapinfo)
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes

## **Assessment tasks**

- Small (A3) map handed in
- On-line quizzes
- Practical test on a traverse
- Class test (practical)
- Class test (theory)
- Participation mark

## **Problem Solving and Research Capability**

Our graduates should be capable of researching; of analysing, and interpreting and assessing data and information in various forms; of drawing connections across fields of knowledge; and they should be able to relate their knowledge to complex situations at work or in the world, in order to diagnose and solve problems. We want them to have the confidence to take the initiative in doing so, within an awareness of their own limitations.

This graduate capability is supported by:

## **Learning outcomes**

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of computer packages commonly used in industry (Microsoft Excel and Mapinfo)
- Developed skills in using a number of field instruments including a compass and clinometer, GPS, tape, hand lens
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes

## **Assessment tasks**

- Small (A3) map handed in
- Practical test on a traverse
- Class test (practical)
- Class test (theory)
- Participation mark

## **Effective Communication**

We want to develop in our students the ability to communicate and convey their views in forms effective with different audiences. We want our graduates to take with them the capability to read, listen, question, gather and evaluate information resources in a variety of formats, assess, write clearly, speak effectively, and to use visual communication and communication

technologies as appropriate.

This graduate capability is supported by:

### **Learning outcomes**

- Developed skills in geological mapping, producing maps at a range of scales
- Developed or enhanced skills in rock and fossil identification
- Developed skills in using a number of computer packages commonly used in industry (Microsoft Excel and Mapinfo)
- Developed skills in using and interpreting air photos for location, geomorphic and geological purposes
- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

### **Assessment tasks**

- Small (A3) map handed in
- Practical test on a traverse
- Class test (practical)
- Class test (theory)
- Participation mark

## **Engaged and Ethical Local and Global citizens**

As local citizens our graduates will be aware of indigenous perspectives and of the nation's historical context. They will be engaged with the challenges of contemporary society and with knowledge and ideas. We want our graduates to have respect for diversity, to be open-minded, sensitive to others and inclusive, and to be open to other cultures and perspectives: they should have a level of cultural literacy. Our graduates should be aware of disadvantage and social justice, and be willing to participate to help create a wiser and better society.

This graduate capability is supported by:

### **Learning outcomes**

- Developed skills in geological mapping, producing maps at a range of scales
- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

### **Assessment tasks**

- On-line quizzes
- Participation mark

## Socially and Environmentally Active and Responsible

We want our graduates to be aware of and have respect for self and others; to be able to work with others as a leader and a team player; to have a sense of connectedness with others and country; and to have a sense of mutual obligation. Our graduates should be informed and active participants in moving society towards sustainability.

This graduate capability is supported by:

### **Learning outcome**

- Enhanced generic skills such as team work, organisational, problem solving and public speaking skills

### **Assessment tasks**

- On-line quizzes
- Participation mark