



GEOS3126

Structural and Metamorphic Geology

Session 1, In person-scheduled-weekday, North Ryde 2022

School of Natural Sciences

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Disclaimer

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General Information

Unit convenor and teaching staff

Nathan Daczko

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Credit points

10

Prerequisites

(GEOS272 or GEOS2126) and (120cp at 1000 level or above) and special approval

Corequisites

Co-badged status

Unit description

This unit applies field training to understand the processes by which rocks become deformed and altered in response to physical conditions in the Earth's crust, such as stress, geothermal gradient and burial-history. Scales range from microscopic to regional. Practical work comprises exercises on geometrical and kinematic analysis of brittle and ductile structures, superposed folding, reconstruction of large structures, deformational and metamorphic textures, metamorphic mineral assemblages, and laboratory and project work on metamorphic and structural styles in different tectonic environments (convergent, wrench and extensional). Field training integrates stratigraphic, sedimentological, structural, igneous and tectonic field studies in a varied terrain. It provides extended experience in geological mapping, particularly in photogeological techniques and study of local to regional relations, and requires preparation of a field report.

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:

ULO1: Examine the style, geometry and mineral assemblage of overprinting deformation events to determine their sequence and pressure-temperature path.

ULO2: Conduct form surface and structural mapping of a poly-deformed terrain to determine the geological and tectonic history of the area and to create an accurate geological map at the standard of a practicing geologist.

ULO3: Identify mineral assemblages in hand sample and thin section, and relate these to mineral composition, phase diagrams and the geochemistry of rocks to assign metamorphic pressure-temperature conditions of their origin.

ULO4: Research and integrate appropriate sources of information to examine complex geological problems and present ideas with supporting evidence in scientific writing.

General Assessment Information

Assessment Criteria

Assessment at Macquarie University is standards-based, as outlined in the [Assessment Policy](#). This means that your work will be assessed against clear criteria, and these criteria (e.g. in a rubric) will be made available when the assessment tasks are released to you on iLearn.

Submission of Assessments

You should always check that you have submitted the correct file. If you have a problem, please email the Unit Convenor with your correct file. You must also keep a copy of your assessments until the end of semester in case there is a problem with your submission. It is your responsibility to ensure that you can provide a copy of your assessment if requested.

Marking of Assessments

Assignments will usually be marked with grades provided through Gradebook on iLearn. Please do not submit your assessments via email or in hard copy unless requested (e.g. a sketch or drawing). We aim to return your assessment grades and feedback within two to three weeks of the date that you submitted it. We appreciate your patience and will advise you through iLearn when your marked assessments and feedback are available for viewing.

Penalties for Late Assessments

The penalty for late submission of assessments in this unit is **ten percent (10 %) of the assessment value per day**, calculated from the due time and date. This means that if the assignment is worth a total of 30 marks (or 30 % of the unit) you will lose 3 marks for each day it is late. This is a hefty penalty designed to make you aware of the importance of organising yourself around assessment due dates. The penalty will be applied over weekdays and weekends unless you have been granted an extension prior to the due date.

Extensions for Assessments

To obtain an extension for an assessment task, you will need to follow the formal process as outlined in the [Special Consideration Policy](#), and you must provide appropriate supporting evidence (e.g. medical certificate - see advice for [Special Consideration](#) requests). The final decision regarding the granting of an extension lies with the unit convenor. Permission for extensions must be sought **before the due date** unless there are exceptional circumstances. Please let us know of problems in advance or as soon as possible, not after the event. We are likely to be much more sympathetic and able to accommodate your circumstance if you follow this advice.

For unavoidable disruptions during exams, you should apply for [Special Consideration](#) as soon as possible. If a Supplementary Examination is granted as a result of the Special Consideration process, the exam time will be scheduled after the conclusion of the official examination period and you will receive an individual notification prior to the exam with the exact date and time of the Supplementary Examination. You will only be allowed one opportunity to sit the Supplementary Exam as outlined in the [Special Consideration Policy](#)

Assessment Tasks

Name	Weighting	Hurdle	Due
Virtual Field Trip	30%	No	Week 8
Practical Examination	50%	No	Week 13
Multiple Quizzes	20%	No	Weekly

Virtual Field Trip

Assessment Type ¹: Field work task

Indicative Time on Task ²: 20 hours

Due: **Week 8**

Weighting: **30%**

The virtual fieldwork task is completed online and may comprise multiple components such as preparation for the field trip, virtual field-based tasks and analysis of data collected on the virtual field trip. Following the virtual fieldwork task, petrographic and scanning electron microscope examination of thin sections will be completed to document evidence for the former presence of melt.

On successful completion you will be able to:

- Examine the style, geometry and mineral assemblage of overprinting deformation events to determine their sequence and pressure-temperature path.

- Conduct form surface and structural mapping of a poly-deformed terrain to determine the geological and tectonic history of the area and to create an accurate geological map at the standard of a practicing geologist.
- Identify mineral assemblages in hand sample and thin section, and relate these to mineral composition, phase diagrams and the geochemistry of rocks to assign metamorphic pressure-temperature conditions of their origin.

Practical Examination

Assessment Type ¹: Examination

Indicative Time on Task ²: 10 hours

Due: **Week 13**

Weighting: **50%**

The in-class practical examination requires you to apply the new skills and knowledge developed in this unit.

On successful completion you will be able to:

- Examine the style, geometry and mineral assemblage of overprinting deformation events to determine their sequence and pressure-temperature path.
- Identify mineral assemblages in hand sample and thin section, and relate these to mineral composition, phase diagrams and the geochemistry of rocks to assign metamorphic pressure-temperature conditions of their origin.

Multiple Quizzes

Assessment Type ¹: Quiz/Test

Indicative Time on Task ²: 10 hours

Due: **Weekly**

Weighting: **20%**

The quizzes test knowledge and may be online or in-class. See iLearn for a detailed list of quizzes in this unit.

On successful completion you will be able to:

- Examine the style, geometry and mineral assemblage of overprinting deformation events to determine their sequence and pressure-temperature path.

- Identify mineral assemblages in hand sample and thin section, and relate these to mineral composition, phase diagrams and the geochemistry of rocks to assign metamorphic pressure-temperature conditions of their origin.
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¹ If you need help with your assignment, please contact:

- the academic teaching staff in your unit for guidance in understanding or completing this type of assessment
- the [Writing Centre](#) for academic skills support.

² Indicative time-on-task is an estimate of the time required for completion of the assessment task and is subject to individual variation

Delivery and Resources

Unit iLearn

This unit has an iLearn page that can be accessed through ilearn.mq.edu.au. It contains important information and other materials relating to the unit, including details and links for assessments.

Communication

The unit iLearn is the primary way that we communicate with you. Please check it regularly for announcements and posts. You are encouraged to use the Discussion Board on iLearn to post questions and generate discussion with other students. Please only email the convenor with private matters – all other questions should be posted on iLearn.

Unit Organisation

This unit is delivered face to face in Week 2–5. Other work is required to be completed by students at home. The organisation of these is outlined in a detailed unit schedule which is available on [iLearn](#).

Classes

The class timetable for this unit can be found through the [Timetable](#) portal. You should also check the unit schedule as some weeks may have other instructions or locations.

Workload

The expected workload for this 10-credit point unit is 150 hours of activity.

Requirements to complete this unit satisfactorily

To complete this unit satisfactorily, you must:

1. Participate in all scheduled classes;
2. Complete all assessments and the final exam; and

3. Achieve a pass grade or higher.

The descriptions for grades common to all coursework units offered by Macquarie University are outlined in [Schedule 1 of the Assessment Policy](#).

Recommended Texts and/or Materials

All readings are available through ILearn.

Technology Used and Required

This unit will use iLearn and Echo360. See the [Instructions on how to log in to iLearn](#) and the [iLearn quick guides for students](#) which will help you:

- [Getting started](#) - Find out how to navigate and familiarise yourself with the iLearn environment
- [Activities](#) - Learn how to effectively complete the activities required of you in iLearn
- [Assignments and Gradebook](#) - Find out how to submit assessments and view your grades using iLearn
- [Online study tips](#) - Studying online is a unique experience, learn how to navigate it here
- [Discussion forums](#) - Explore the different types, and features of discussion forums in iLearn
- [Lecture recordings](#) - Find out how to access lectures online, as well as the features available to you

Unit Schedule

See the unit reader available in iLearn for the unit schedule.

Policies and Procedures

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

- [Academic Appeals Policy](#)
- [Academic Integrity Policy](#)
- [Academic Progression Policy](#)
- [Assessment Policy](#)
- [Fitness to Practice Procedure](#)
- [Assessment Procedure](#)
- [Complaints Resolution Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#)

Students seeking more policy resources can visit [Student Policies \(https://students.mq.edu.au/support/study/policies\)](https://students.mq.edu.au/support/study/policies). It is your one-stop-shop for the key policies you need to know about throughout your undergraduate student journey.

To find other policies relating to Teaching and Learning, visit [Policy Central \(https://policies.mq.edu.au\)](https://policies.mq.edu.au) and use the [search tool](#).

Student Code of Conduct

Macquarie University students have a responsibility to be familiar with the Student Code of Conduct: <https://students.mq.edu.au/admin/other-resources/student-conduct>

Results

Results published on platform other than [eStudent](#), (eg. iLearn, Coursera etc.) 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 or if you are a Global MBA student contact globalmba.support@mq.edu.au

Academic Integrity

At Macquarie, we believe [academic integrity](#) – honesty, respect, trust, responsibility, fairness and courage – is at the core of learning, teaching and research. We recognise that meeting the expectations required to complete your assessments can be challenging. So, we offer you a range of resources and services to help you reach your potential, including free [online writing and maths support](#), [academic skills development](#) and [wellbeing consultations](#).

Student Support

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

The Writing Centre

[The Writing Centre](#) provides resources to develop your English language proficiency, academic writing, and communication skills.

- [Workshops](#)
- [Chat with a WriteWISE peer writing leader](#)
- [Access StudyWISE](#)
- [Upload an assignment to Studiosity](#)
- [Complete the Academic Integrity Module](#)

The Library provides online and face to face support to help you find and use relevant information resources.

- [Subject and Research Guides](#)
- [Ask a Librarian](#)

Student Services and Support

Macquarie University offers a range of [Student Support Services](#) including:

- [IT Support](#)
- [Accessibility and disability support](#) with study
- Mental health [support](#)
- [Safety support](#) to respond to bullying, harassment, sexual harassment and sexual assault
- [Social support including information about finances, tenancy and legal issues](#)

Student Enquiries

Got a question? Ask us via [AskMQ](#), or contact [Service Connect](#).

IT Help

For help with University computer systems and technology, visit http://www.mq.edu.au/about_us/offices_and_units/information_technology/help/.

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

Changes from Previous Offering

This unit was last run in 2020 and is running for the last time in 2022 for a special cohort of students.