



GEOS272

Geology of Australia - Global Perspectives

S2 External 2017

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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Anytime by email appointment

Lecturer

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During Module by email appointment

Credit points

3

Prerequisites

GEOS125

Corequisites

Co-badged status

Unit description

Investigate interdisciplinary perspectives on the origin and geological evolution of Australia and its plate margins. The Australian continent comprises practically all the rock types from over 3.8 billion years of Earth's history. Explore the geology of Australia from Archaean cratonic shields to Proterozoic fold belts and sedimentary basins of the western two-thirds of Australia. Discover the immense continental growth during the Phanerozoic evolution of the eastern margin of Australia. Place the spectacular diversity of Australian geology into a global perspective by exploring the active plate margins around the Australian tectonic plate.

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:

An understanding of the geologic history of Australia

An understanding of the different plate boundaries associated with the Australian Plate

Developing skills in rock identification, recognition of basic geological structures and inference of depositional environments from field observations

Competence in accessing, using and synthesizing appropriate information through writing and video

Developing independence and skills for working in a group

General Assessment Information

Presentation of Written Reports

You are required to research, prepare and write the case study reports at the standard expected at 300 level. Since most of what you learn is tested in written form, it is essential that you learn to write effectively. Organisation is the key to achieving this, and the following steps should assist you.

* All text-based assessments are to be submitted electronically (via Turnitin)

Preparation

1. Determine what is required in the case study report. Make sure you understand each word used to ensure that you are writing to the topic set, not to one of your own invention.
2. Read the relevant unit material and generate a list of key words, which will help you locate other references in the Library. Do this early. Remember that reference books may be hard to find if you leave your library research too late.
3. When taking notes from a reference always note the bibliographical information and Call Number. If you write down a quotation, take a note of the page it was on. There is nothing more frustrating than having to look back through a book for one sentence.

The Outline

1. Introduction. Define terms and outline your approach to the topic.
2. Discussion. This section is for explanation and discussion of the topic. It may help to write down a list of major points that will become your paragraphs, so that you can arrange your notes under each point.
3. Conclusion. This is not a reiteration of the discussion, but a summary statement that rounds off the report.

The Drafts (at least one — more probably two or three)

1. Keep referring back to the question — have you strayed from the topic?
2. Single sentences or paragraphs should not express too many ideas. A logical development of your theme should be the aim throughout the essay.
3. In your initial draft, do not worry too much about the word limit. It is a simple matter to cut extraneous or repetitive material in subsequent rewrites — in fact this should be your aim.
4. Support your statements with facts and references.
5. References: quotations should be used only if the point being made is vital to your argument and if you could not express it better yourself.

The Final Product

1. If possible, allow a few days between writing your final draft and the finished report, to allow you to critically read and edit it. There is a danger that if it is too fresh in your mind, you will read what you think is there, rather than what you have actually written. Read your final draft through several times — once for fluency and clarity of ideas, once for punctuation and once for spelling. For clarification of problems, refer to an authority such as the Australian Government Publishing Service Style Manual.
2. Type your assignment for submission, and then check it again. Is there a title, your name on each page, page numbers, etc.?
3. Submit your case study report on or before the due date to us by the beginning of the lecture in the week nominated.

Formatting

1. All typed text submitted for case studies is to be 12 point font at 1.5 line spacing. Margins should be approximately 2cm. Place your name and student number in the header and number each page.
2. Page limits should be strictly adhered to.
3. In all that you hand in, marks will be given for “communication”; that is how effectively you communicate your ideas. This will include how well your text/maps/profiles/sketches convey your concepts, and how well written your report is (including correct use of English and of referencing procedures).

* Students must keep a copy of their reports.

The Dangers of Plagiarism and how to avoid it

The integrity of learning and scholarship depends on a code of conduct governing good practice and acceptable academic behaviour. One of the most important elements of good practice

involves acknowledging carefully the people whose ideas we have used, borrowed, or developed. All students and scholars are bound by these rules because all scholarly work depends in one way or another on the work of others.

Therefore, there is nothing wrong in using the work of others as a basis for your own work, nor is it evidence of inadequacy on your part, provided you do not attempt to pass off someone else's work as your own.

To maintain good academic practice, so that you may be given credit for your own efforts, and so that your own contribution can be properly appreciated and evaluated, you should acknowledge your sources and you should ALWAYS:

1. State clearly in the appropriate form where you found the material on which you have based your work.
2. Acknowledge the people whose concepts, experiments, or results you have extracted, developed, or summarised, even if you put these ideas into your own words.
3. Avoid excessive copying of passages by another author, even where the source is acknowledged. Find another form of words to show that you have thought about the material and understood it, but remember to state clearly where you found the ideas.

If you take and use the work of another person without clearly stating or acknowledging your source, you are falsely claiming that material as your own work and committing an act of PLAGIARISM. This is a very serious violation of good practice and an offence for which you will be penalised.

YOU WILL BE GUILTY OF PLAGIARISM if you do any of the following in an assignment, or in any piece of work which is to be assessed, without clearly acknowledging your source(s) for each quotation or piece of borrowed material:

Copy out part(s) of any document or audio-visual material, including computer-based material.

1. Use or extract someone else's concepts or experimental results or conclusions, even if you put them in your own words.
2. Copy out or take ideas from the work of another student, even if you put the borrowed material in your own words.

Submit substantially the same final version of any material as a fellow student. On occasions, you may be encouraged to prepare your work with someone else, but the final form of the

Desired Standards

Grade	Standard Required
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High Distinction	Demonstrates an extensive knowledge and understanding of the concepts of the course. Analysis skills are very sophisticated with a balance of individual components and larger ideas. Capable of generalising from examples and evaluating ideas.
Distinction	Demonstrates a thorough knowledge and understanding of the concepts of the course. Analysis skills are sophisticated with a balance of individual components and larger ideas. Capable of generalising from examples and evaluating ideas.
Credit	Demonstrates a sound knowledge and understanding of the concepts of the course. Can break down complex problems into components and synthesise multiple factors into a larger idea. Can evaluate the importance and limitations of data.
Pass	Demonstrates a basic knowledge and understanding of the concepts of the course. Analysis is mainly descriptive. Demonstrates limited capacity to identify complex factors within an idea or to combine multiple factors.
Fail	Demonstrates a poor knowledge and understanding of the concepts of the course. Analysis skills are very limited.

Extensions

Extensions for reports and workshop submissions will be given only for illness or misadventure, which must be supported by documentation and a written request. This request should also indicate the extension period required.

Tasks 10% or less - No extensions will be granted. Students who have not submitted the task prior to the deadline will be awarded a mark of 0 for the task, except for cases in which an application for disruption of studies is made and approved.

Tasks above 10% - No extensions will be granted. There will be a deduction of 5% of the total available marks made from the total awarded mark for each 24 hour period or part thereof that the submission is late (for example, 25 hours late in submission – 10% penalty). This penalty does not apply for cases in which an application for disruption of studies is made and approved. No submission will be accepted after solutions have been posted.

Feedback

Feedback on assessment tasks is given in this unit in the following ways:

- 1) Our primary mode of assessment feedback: the assessment marker will present overall feedback to the class, at either a lecture or in a tutorial, on what aspects of the assignment were done best and where improvement is needed in general.
- 2) Scoring full marks for a given component indicates that you did exceptionally well. Alternatively, scoring poorly in a component strongly suggests it required further work.

3) Students are strongly encouraged to seek further feedback (at the time it is given or by making an appointment with the assessment marker) if they are unsure of any aspect of the feedback or if they want further feedback.

4) In the instance of scoring very poorly overall, you will be provided with written feedback on the assignment indicating where you could improve.

Assessment Tasks

Name	Weighting	Hurdle	Due
Quizzes	10%	No	See Unit schedule
Research Topic Paper/Video	25%	No	03/09/17 and 08/10/17
Narrabeen Field Work Report	15%	No	17/09/17
Lachlan Field Trip	10%	No	5pm 22/10/17
Final Exam	40%	No	TBA

Quizzes

Due: **See Unit schedule**

Weighting: **10%**

There are a total of 5 quizzes that will be given during the class. The quizzes are done by you alone, closed-book. External students will have their quizzes available online. Each quiz comprises up to 5 questions, based on prior lectures material. Your overall quiz assessment will be based on your best 4 individual quiz results. If you do not complete a quiz in its scheduled week you will receive 0/10 for that individual quiz mark.

On successful completion you will be able to:

- An understanding of the geologic history of Australia
- An understanding of the different plate boundaries associated with the Australian Plate
- Competence in accessing, using and synthesizing appropriate information through writing and video

Research Topic Paper/Video

Due: **03/09/17 and 08/10/17**

Weighting: **25%**

Research Topic Paper (**15%**): 1,500 words min., maximum 2,500 words *on any aspect of the Geology of the Australian Plate*, Due: *End of Week 5*

These are to be done individually, even if you choose to work in a pair for the subsequent video, so please make sure you both hand in separate aspects of the research topic in your

assignment.

Video Presentation (10%): Either individually or in pairs to deliver a 3 to 4 minute-long video presentation on a subject of particular interest on any aspect of the Geology of the Australian Plate, Due: *End of Week 8*. Video will be presented during Weeks 9-10 practicals.

On successful completion you will be able to:

- An understanding of the geologic history of Australia
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- Competence in accessing, using and synthesizing appropriate information through writing and video
- Developing independence and skills for working in a group

Narrabeen Field Work Report

Due: **17/09/17**

Weighting: **15%**

800 words approx.

The Narrabeen trip is compulsory for internal students.

External students are encouraged to attend, if that is not possible contact Elena Belousova (elena.belousova @mq.edu.au) for alternative Assignment to be arranged

On successful completion you will be able to:

- An understanding of the geologic history of Australia
- Developing skills in rock identification, recognition of basic geological structures and inference of depositional environments from field observations
- Competence in accessing, using and synthesizing appropriate information through writing and video
- Developing independence and skills for working in a group

Lachlan Field Trip

Due: **5pm 22/10/17**

Weighting: **10%**

Lachlan field trip report is based on individual field book and field mapping exercise

This field trip is compulsory for both internal and external students

On successful completion you will be able to:

- An understanding of the geologic history of Australia
- Developing skills in rock identification, recognition of basic geological structures and

inference of depositional environments from field observations

- Competence in accessing, using and synthesizing appropriate information through writing and video
- Developing independence and skills for working in a group

Final Exam

Due: **TBA**

Weighting: **40%**

The final exam will cover material from the lectures, text-book readings, class exercises and case studies. Questions will draw on information and ideas from different lectures and practicals to give an integrated view of the unit. The exam will include questions that ask you to apply your knowledge to interpret and solve problems.

On successful completion you will be able to:

- An understanding of the geologic history of Australia
- An understanding of the different plate boundaries associated with the Australian Plate
- Competence in accessing, using and synthesizing appropriate information through writing and video

Delivery and Resources

This unit concentrates on 3 major geologic time periods that will be explored throughout the unit. These are:

- Australia's earliest geologic history
- The Palaeo- and Neo Proterozoic
- Current day Australia, including seismic activity

You will also learn about the main concepts of U-Pb geochronology and explore appropriate computer tools to solve problems related to geochronology.

We will have a visitor lecturer Dr. Dick Glen, a former Principal Research Scientist at the Geological Survey of NSW, who will be also leading a weekend field trip to Goulburn area (Lachlan Orogen field trip)

Contacts and Communication

Convenor: *Dr. Elena Belousova*

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Other staff teaching on unit and guest lecturers:

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If sending email, please include GEOS272 in the subject line.

We will communicate to you mainly through your student email account/iLearn at Macquarie University. Please make sure you check this email at least weekly.

Late Enrolments

If you enrol late in the unit, you will have already missed one or more lectures. It is your responsibility to catch up. Also, you will still be expected to submit all assignments within the remaining time.

Lectures, availability of lecture material and attendance requirements

It is the policy in this unit to encourage students to attend one lecture and one practical per week, and make their own notes from the lectures. It is expected that many of the lectures will be interactive, with questions and answers throughout. Lectures will be recorded using Echo 360, and files of the lecture graphics will also be made available through iLearn. These will be particularly useful for revision purposes. Note that all quizzes will be given during practicals or lectures, so do not miss them! (External students will have online access to their quizzes)

Hours

This is a 3 credit point unit. It is anticipated that you will spend >9 hours per week involved with the unit, including the 4-hour class contact time per week. It is particularly important that you spend plenty of time preparing the three major assignments: Research Topic, Narrabeen Field Report and Video Presentation.

Set Textbook and Background Reading

- Text Book by Robert Henderson and David Johnson "**The Geology of Australia**", 3rd Edition, ISBN: 978-1-107-43241-3 OR alternatively Text Book by David Johnson, James Cook University, "The Geology of Australia", 2nd Edition, 2009, ISBN: 9780521767415
- Background notes from Prof. Geoff Clarke, University of Sydney (will be available on iLearn)
- You will need access to iLearn for quizzes and unit resources: Unit Guide, lectures and practicals.
- You will use computers in some practicals
- You will need to be able to access books and journal papers in the library
- You will be exposed to a variety of materials and concepts in the practicals

Unit Schedule

GEOS 272 - The Geology of Australia: Global Perspectives

LECTURE AND PRACTICAL SCHEDULE:

Semester 2. Lecture: Tuesday 12-1pm E8A 188;

Practicals: Tuesday 2-5 pm E5A 210 or Friday 11am-2pm W5C 311

	LECTURE	PRACTICALS	
Week	Tue 12-1pm E8A 188	Either Tue 2-5 pm E5A 210 or Fri 11am-2pm W5C 311	
1 1 & 4 Aug	Overview of Australian Geology/Course introduction [EB]	Quiz 1-5	Google Earth – The Australian Plate: Tectonic elements, plate boundaries and economic deposits [EB]
2 8 & 11 Aug	Landforms and Impact craters [TR]		Google Earth – Mt Todd and Impact Craters in 3D [EB]
3 15 & 19 Aug	Sydney Basin [RF]	Quiz 1	
FIELD TRIP	Narrabeen Field Trip [EB] Saturday 19 August 9am-2pm		
4 22 & 25 Aug	Supercontinent Cycles and the Australian Continent in Global Geodynamics [EB]		The Australian Continent in Global Geodynamics [EB]
5 29 Aug & 1 Sept	Zircons and what they tell us [EB]		Zircon geochronology (Isoplot) [EB]
6 5 & 8 Sept	Australia and the Early Earth [TR]	Quiz 2	Work on video presentation/Narrabeen project
7 12 & 15 Sept	Yilgarn, Pilbara and Gawler Economic deposits [BS]		Precambrian ore deposits [BS]
8 3 & 6 Oct	Snowball Earth [BS]		Neoproterozoic [BS]
9 10 & 13 Oct	Delamerian [ST]	Quiz 3	Video Presentations [EB]

10 17 & 20 Oct	The growth of Eastern Australia [RG]		Introduction to Lachlan Field trip/ mapping [RG]/ Presentations [EB]
FIELD TRIP	Lachlan Orogen Field trip, Leader Dr. Richard Glen Weekend 21-22 October		
11 24 & 27 Oct	Lachlan Orogen [RV/ST]	Quiz 4	Photomicrograph practical igneous microstructure and metamorphic petrology [RV]
12 31 Oct & 3 Nov	New Zealand – Australia Plate 2 [LM]		New Zealand – Volcanics [LM and EB]
13 07 & 10 Nov	Earthquakes and the Australian Plate 1 [YY]	Quiz 5	Seismic practical [YY]

IMPORTANT DATES:

5 Quizzes will be given during the class (10%)

End of Week 5 - Research Topic Paper (15%)

End of Week 7 - Narrabeen Field Report (15%)

End of Week 8 - Video Presentation (10%)

End of Week 10 - Lachlan Field Trip Report (10%)

Final exam (date to be determined) (40%)

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

Assessment Policy http://mq.edu.au/policy/docs/assessment/policy_2016.html

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

Complaint Management Procedure for Students and Members of the Public http://www.mq.edu.au/policy/docs/complaint_management/procedure.html

Disruption to Studies Policy (in effect until Dec 4th, 2017): http://www.mq.edu.au/policy/docs/disruption_studies/policy.html

Special Consideration Policy (in effect from Dec 4th, 2017): <https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policies/special-consideration>

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/

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.

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) 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

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.

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

- Competence in accessing, using and synthesizing appropriate information through writing and video
- Developing independence and skills for working in a group

Assessment tasks

- Research Topic Paper/Video
- Narrabeen Field Work Report

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

- An understanding of the geologic history of Australia
- An understanding of the different plate boundaries associated with the Australian Plate
- Developing skills in rock identification, recognition of basic geological structures and inference of depositional environments from field observations
- Competence in accessing, using and synthesizing appropriate information through writing and video

Assessment tasks

- Quizzes
- Research Topic Paper/Video
- Narrabeen Field Work Report

- Lachlan Field Trip
- Final Exam

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

- An understanding of the geologic history of Australia
- Developing skills in rock identification, recognition of basic geological structures and inference of depositional environments from field observations

Assessment tasks

- Quizzes
- Research Topic Paper/Video
- Narrabeen Field Work Report
- Lachlan Field Trip
- Final Exam

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

- An understanding of the geologic history of Australia
- An understanding of the different plate boundaries associated with the Australian Plate
- Competence in accessing, using and synthesizing appropriate information through writing and video

Assessment tasks

- Quizzes
- Research Topic Paper/Video

- Narrabeen Field Work Report
- Lachlan Field Trip
- Final Exam

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

- An understanding of the geologic history of Australia
- Competence in accessing, using and synthesizing appropriate information through writing and video
- Developing independence and skills for working in a group

Assessment tasks

- Quizzes
- Research Topic Paper/Video
- Narrabeen Field Work Report
- Lachlan Field Trip
- Final Exam

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 outcomes

- An understanding of the geologic history of Australia
- Competence in accessing, using and synthesizing appropriate information through writing and video
- Developing independence and skills for working in a group

Assessment tasks

- Research Topic Paper/Video
- Narrabeen Field Work Report
- Lachlan Field Trip

Changes from Previous Offering

What has changed?

- Narrabeen Field Trip was moved to weekend
- Lectures and practicals have been slightly re-ordered