



# GEOS188

## Advanced Geoscience I

S2 Day 2018

*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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Credit points

3

Prerequisites

Admission to BAdvSc

Corequisites

Co-badged status

Unit description

This unit caters for advanced geoscience students who are strong in chemistry, biology, mathematics or physics and who are interested in pursuing a scientific career. This unit consists of weekly research-focussed seminars on current topics in geoscience with a variety of scientists from a diverse background. Students are expected to produce a presentation on their favourite topic. Students will also undertake research projects with departmental researchers and/or scientists in government departments.

## 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:

Read, interpret and discuss major contributions to geoscience research published in the peer-reviewed literature.

Evaluate how the experimental design and approach of geoscience studies influences the soundness and impact of conclusions.

Write a short review paper on a geoscience topic for a non-specialist audience.

Demonstrate foundational learning skills including active engagement in their learning process.

Demonstrate capacity to present ideas clearly with supporting evidence.

Application of knowledge to solving problems and evaluating ideas and information.

Demonstrate the ability to write a scientific report.

## General Assessment Information

If you receive [special consideration](#) for the final exam, a supplementary exam will be scheduled in the interval between the regular exam period and the start of the next session. By making a special consideration application for the final exam you are declaring yourself available for a resit during the supplementary examination period and will not be eligible for a second special consideration approval based on pre-existing commitments. Please ensure you are familiar with the [policy](#) prior to submitting an application. You can check the supplementary exam information page on FSE101 in iLearn ([bit.ly/FSESup](http://bit.ly/FSESup)) for dates, and approved applicants will receive an individual notification one week prior to the exam with the exact date and time of their supplementary examination.

## Assessment Tasks

Name	Weighting	Hurdle	Due
<a href="#">Assignment 1</a>	20%	Yes	Week 5
<a href="#">Assignment 2</a>	20%	Yes	Week 10
<a href="#">Oral Presentation</a>	20%	Yes	Week 12
<a href="#">Geoscience Research Report</a>	40%	Yes	Week 13

### Assignment 1

Due: **Week 5**

Weighting: **20%**

**This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)**

This assignment will focus on reviewing literature on a key topic in the field of geoscience that you find fascinating/intriguing/interesting.

On successful completion you will be able to:

- Read, interpret and discuss major contributions to geoscience research published in the peer-reviewed literature.
- Write a short review paper on a geoscience topic for a non-specialist audience.

- Demonstrate capacity to present ideas clearly with supporting evidence.

## Assignment 2

Due: **Week 10**

Weighting: **20%**

**This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)**

This assignment will involve undertaking an analysis of a set of geoscience data.

On successful completion you will be able to:

- Evaluate how the experimental design and approach of geoscience studies influences the soundness and impact of conclusions.
- Demonstrate foundational learning skills including active engagement in their learning process.
- Demonstrate capacity to present ideas clearly with supporting evidence.
- Demonstrate the ability to write a scientific report.

## Oral Presentation

Due: **Week 12**

Weighting: **20%**

**This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)**

Each student has to select a topic relevant to the unit on which a ~20 minute long **oral presentation** will be given to the academic staff on the unit, and other invited EPS researchers. Topics will be based on seminars that the student has attended.

On successful completion you will be able to:

- Read, interpret and discuss major contributions to geoscience research published in the peer-reviewed literature.
- Demonstrate capacity to present ideas clearly with supporting evidence.

## Geoscience Research Report

Due: **Week 13**

Weighting: **40%**

**This is a hurdle assessment task (see [assessment policy](#) for more information on hurdle assessment tasks)**

A **geoscience research report** based on research undertaken with an EPS academic staff member, or a government scientist.

On successful completion you will be able to:

- Read, interpret and discuss major contributions to geoscience research published in the peer-reviewed literature.
- Evaluate how the experimental design and approach of geoscience studies influences the soundness and impact of conclusions.
- Demonstrate foundational learning skills including active engagement in their learning process.
- Demonstrate capacity to present ideas clearly with supporting evidence.
- Application of knowledge to solving problems and evaluating ideas and information.
- Demonstrate the ability to write a scientific report.

## Delivery and Resources

There is no textbook for the unit.

The unit also has a WEB site which can be found through the iLearn WEBSITE at <https://ilearn.mq.edu.au/login/MQ/>.

Information for students about access to online units is available at

<https://ilearn.mq.edu.au/login/MQ/>

## Referencing

It is important that you understand how to correctly reference the information you do use, as often you will want to legitimately quote material or ideas from other sources. Information obtained from any source, including the internet, is covered by copyright law. You must acknowledge any source that you refer to in your assignment, both within the text of your assignment, and at the end of it (by including a list of references). Referencing your sources also enables the reader to view your sources and follow your essay. Academic conventions and copyright law require that you acknowledge when you use the ideas of others. In most cases, this means stating which book or journal article is the source of an idea or quotation.

There are two aspects to learn: in-text references and a list of references cited. Please note that for the assignments, we insist that you reference using in-text references, with a reference list at the end (ie, not with footnotes). This is a common way to do it in many areas of science (but not all!), and it reminds you and indicates to the reader what the source is and how old it is. Please use the Harvard Style of referencing.

There is much information on in-text references and referencing of print and non-print sources available at:

<http://libguides.mq.edu.au/content.php?pid=459099&sid=3778407>

<http://libguides.mq.edu.au/content.php?pid=459099&sid=3759396>

*How to cite references within the text of an assignment:*

These are also called in-text references. When you use another's ideas you should immediately acknowledge your sources, including in figure or table captions. Always give the surname of the author and the date of publication. Use the author-date method of citation for quotations and paraphrasing. Note spelling of et al. (used when 3 or more authors; please remember the fullstop). Note that the in text refs don't have author initials.

**Direct quote:** Brown et al. (1990, p. 12) conclude that 'the depth to the Moho under the oceans is less than under the continents'. Note that for a direct quote the page must be cited.

**General acknowledgement of the source of information:** "As explained by Schmidt and Lackie (2014), the Q-Meter is....."

**More specific reference but not a direct quote:** "The distribution of Martian volcanism in the highlands (Johnson, 2011) can be used to infer... etc."

**More general reference to sources:** "Most older textbooks in geology (e.g. Peters et al., 1941; Stamp 1938) either ignored the deep ocean basin deposition or....."

**Website in text:** "Details about PhD scholarships are available from the Macquarie University web site <<http://www.hdr.mq.edu.au/>>."

*How to create a list of references:*

At the end of your assignment, create a list of the references you have cited in the text. Arrange this in alphabetical order of author's surnames. The author's surname is placed first, followed by

initials or first name, then other authors the same way, and then the year of publication is given. Where an item doesn't have an author, arrange it by its title.

Then the reference needs the paper or book title, journal (if it's a journal article), publisher (if it's a book) or url and date accessed (if it's a web page). The format should follow the Harvard style as described in these links: it is a good guide, and your references should contain the same information.

Please be very careful (a) to put in the reference list every citation from the text (including web sites) and any figure/table captions, and (b) to not put in the list references that you have not cited in the text or figure/table captions.

### **Reference examples: journal**

Cameron, R.L., Goldich, S.S & Hottman, J.H. 1960. Radioactive age of rocks from the Windmill Islands. Budd Coast, Antarctica. *Stockholm Contributions to Geology* **6**, 1-6.

Goodwin, I.D. 1993. Holocene deglaciation, sea level change and the emergence of the Windmill Islands, Budd Coast, Antarctica. *Quaternary Research* **40**, 70-80.

Sandwell, D.T. & Smith, W.H.F. 1997. Marine gravity anomaly from Geosat and ERS 1 satellite altimetry. *Journal of Geophysical Research*, **102**, No B5. 10,039-10,054.

### **Reference example: book**

Peters, K. E., Walters, C. C. and Moldowan, J. M. (2005) *The Biomarker Guide*, 2nd Edition. Cambridge University Press, Cambridge, 1155 pp.

### **Reference example: chapters in edited books**

Einstein, A.C., Voldemort, T. M., Vader, D., 2012. How to apply evil. In: Devil, M.A. (Ed.), *Handbook of Evil*, Wiley, pp. 47-73.

George, S. C., Volk, H., Ahmed, M., Middleton, H., Allan, T. and Holland, D. (2004) Novel petroleum systems in Papua New Guinea indicated by terpane and methylhopane distributions. In: Boulton, P. J., Johns, D. R. and Lang, S. C. (Eds), Eastern Australasian Basins Symposium II, Adelaide, 19–22 September, Petroleum Exploration Society of Australia, Special Publication, pp. 575-588.

**Reference example (web site, author and date known):**

Wright, S. 2004, Open area test site (OATS) development, undergraduate project, University of Southern Queensland, Toowoomba, viewed 27 March 2011, <<http://eprints.usq.edu.au/archive/00000047>>.

**Reference example (web site, author and date not known):**

Macquarie University, NSW, viewed 12 January 2012, <<http://www.hdr.mq.edu.au/>>

**Places to Start the Big Search**

[http://libguides.mq.edu.au/earth\\_planetary\\_sciences](http://libguides.mq.edu.au/earth_planetary_sciences)

## Policies and Procedures

Macquarie University policies and procedures are accessible from [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central>). 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](#)
- [Grade Appeal Policy](#)
- [Complaint Management Procedure for Students and Members of the Public](#)
- [Special Consideration Policy](#) (**Note:** *The Special Consideration Policy is effective from 4*



*December 2017 and replaces the Disruption to Studies Policy.)*

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

If you would like to see all the policies relevant to Learning and Teaching visit [Policy Central](https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<https://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/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/study/getting-started/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://www.mq.edu.au/about\\_us/offices\\_and\\_units/information\\_technology/help/](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**

- Evaluate how the experimental design and approach of geoscience studies influences the soundness and impact of conclusions.
- Demonstrate foundational learning skills including active engagement in their learning process.
- Demonstrate capacity to present ideas clearly with supporting evidence.
- Application of knowledge to solving problems and evaluating ideas and information.
- Demonstrate the ability to write a scientific report.

#### **Assessment tasks**

- Assignment 2
- Geoscience Research Report

### **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 outcome**

- Demonstrate capacity to present ideas clearly with supporting evidence.

#### **Assessment tasks**

- Assignment 2
- Oral Presentation

### **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**

- Read, interpret and discuss major contributions to geoscience research published in the peer-reviewed literature.
- Evaluate how the experimental design and approach of geoscience studies influences the soundness and impact of conclusions.
- Write a short review paper on a geoscience topic for a non-specialist audience.
- Demonstrate foundational learning skills including active engagement in their learning process.
- Demonstrate capacity to present ideas clearly with supporting evidence.
- Application of knowledge to solving problems and evaluating ideas and information.
- Demonstrate the ability to write a scientific report.

## **Assessment tasks**

- Assignment 1
- Assignment 2
- Oral Presentation
- Geoscience Research 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**

- Read, interpret and discuss major contributions to geoscience research published in the peer-reviewed literature.
- Evaluate how the experimental design and approach of geoscience studies influences the soundness and impact of conclusions.
- Write a short review paper on a geoscience topic for a non-specialist audience.

- Demonstrate foundational learning skills including active engagement in their learning process.
- Demonstrate capacity to present ideas clearly with supporting evidence.
- Application of knowledge to solving problems and evaluating ideas and information.
- Demonstrate the ability to write a scientific report.

## **Assessment tasks**

- Assignment 1
- Assignment 2
- Oral Presentation
- Geoscience Research Report

## **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**

- Read, interpret and discuss major contributions to geoscience research published in the peer-reviewed literature.
- Evaluate how the experimental design and approach of geoscience studies influences the soundness and impact of conclusions.
- Write a short review paper on a geoscience topic for a non-specialist audience.
- Demonstrate foundational learning skills including active engagement in their learning process.
- Demonstrate capacity to present ideas clearly with supporting evidence.
- Application of knowledge to solving problems and evaluating ideas and information.
- Demonstrate the ability to write a scientific report.

## **Assessment tasks**

- Assignment 1
- Assignment 2
- Geoscience Research Report

## 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:

### Assessment task

- Assignment 2

## 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

- Read, interpret and discuss major contributions to geoscience research published in the peer-reviewed literature.
- Evaluate how the experimental design and approach of geoscience studies influences the soundness and impact of conclusions.
- Write a short review paper on a geoscience topic for a non-specialist audience.
- Demonstrate foundational learning skills including active engagement in their learning process.
- Application of knowledge to solving problems and evaluating ideas and information.
- Demonstrate the ability to write a scientific report.

### Assessment tasks

- Assignment 1
- Assignment 2
- Oral Presentation
- Geoscience Research Report