



GEOS206

Marine Depositional Environments

S1 Day 2018

Dept of Earth and Planetary Sciences

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Disclaimer

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General Information

Unit convenor and teaching staff

Convenor

April Abbott

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Contact via email

12 Wally's Walk, 3.38

By appointment

Field Trip Leader

Simon George

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12 Wally's Walk, 3.29

By appointment

Credit points

3

Prerequisites

GEOS126

Corequisites

Co-badged status

Unit description

This unit builds the skills necessary to understand geological processes in modern and ancient marine environments. With a focus on marine sedimentology, we will examine the formation, accumulation, alteration, and preservation of sediments in the geological record. We will cover the basics of fluid flow and sediment transport, sedimentary textures and structures, and illustrate the connections between modern landforms and ancient rocks/depositional environments. This unit will focus on the reconstruction and interpretation of ancient paleo- environments based on the analysis of sedimentary structures, stratigraphy, and fossils. The unit will include a practical component as well as a five day field trip to the New South Wales South Coast.

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:

- Identify basic marine sediments, sedimentary structures, and stratigraphic features
- Understand interactions between climate, circulation, tectonics, weathering, and sedimentary environments
- Demonstrate ability to observe and record information in the field
- Interpret the depositional history of a stratigraphic sequence
- Develop an internally consistent hypothesis to explain observations
- Effectively and accurately communicate scientific information
- Evaluate scientific evidence to formulate and justify a hypothesis

General Assessment Information

Practicals

Practicals are an important opportunity to explore the applications of lecture and reading material. Please note while practicals do not receive a mark, students must satisfactorily **participate in a minimum of 10 (ten)** of the 12 (twelve) weekly practicals to achieve a grade of pass or higher in this unit. Due to space and supplies limitations, you must participate in the practical session you are enrolled in. Permission to attend a different practical may be possible and will be evaluated on a case by case basis, but this permission must be approved by the unit convenor in advance.

Field work

During this unit we will have a field trip to the NSW South Coast from April 23rd through April 27th to student both modern and ancient marine depositional environments. As a vital part of the unit, participation in the field trip is **compulsory**. Please contact one of your instructors immediately with any concerns.

Quizzes

A quiz will be posted on iLearn weekly (except in week 13) to be completed between 5 pm Wednesday and 8 am the following Tuesday. No quizzes completed after the 8 am deadline will be marked. Quizzes will cover material from lecture, readings, and practicals. Your two lowest marks will be dropped, each of the remaining 10 quizzes will count for 2% of your final mark.

Late Submissions

Any work received after the deadline will be marked down 10%, with an additional 5% each day (24 hrs) past the deadline. Extensions are only possible with instructor permission and requests must be made more than 48 hrs **prior** to the assignment deadline.

Final Exam

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/FSESupp) 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
Weekly Quizzes	20%	No	one per week
Field Trip Report	20%	No	week 9
Field Notebook	10%	No	27 April 2018
Research Project Poster	20%	No	week 13
Final Exam	30%	No	finals

Weekly Quizzes

Due: **one per week**

Weighting: **20%**

Weekly quizzes are to be completed between 5 pm Wednesday and 8 am Tuesday.

On successful completion you will be able to:

- Identify basic marine sediments, sedimentary structures, and stratigraphic features
- Understand interactions between climate, circulation, tectonics, weathering, and sedimentary environments
- Interpret the depositional history of a stratigraphic sequence

Field Trip Report

Due: **week 9**

Weighting: **20%**

Your report for the South Coast Trip is due by beginning of Tuesday lecture during week 10 (noon). This report must be submitted electronically via the provided TurnItIn link on iLearn. Report requirements and marking scheme will be provided before the field trip.

On successful completion you will be able to:

- Understand interactions between climate, circulation, tectonics, weathering, and sedimentary environments
- Interpret the depositional history of a stratigraphic sequence
- Effectively and accurately communicate scientific information
- Evaluate scientific evidence to formulate and justify a hypothesis

Field Notebook

Due: **27 April 2018**

Weighting: **10%**

Your field notebook from the South Coast trip is due at the completion of the trip (when we load buses at the last stop)

On successful completion you will be able to:

- Identify basic marine sediments, sedimentary structures, and stratigraphic features
- Demonstrate ability to observe and record information in the field
- Effectively and accurately communicate scientific information

Research Project Poster

Due: **week 13**

Weighting: **20%**

Research project assignments will be handed out during your week 8 practical. All posters need to be printed landscape on A0 paper and be handed in by the beginning of Tuesday lecture (noon) week 13. Details on the research question, required content for the poster, and marking will be included in the week 8 handout.

On successful completion you will be able to:

- Develop an internally consistent hypothesis to explain observations
- Effectively and accurately communicate scientific information
- Evaluate scientific evidence to formulate and justify a hypothesis

Final Exam

Due: **finals**

Weighting: **30%**

Cumulative examination of material covered throughout the term.

On successful completion you will be able to:

- Identify basic marine sediments, sedimentary structures, and stratigraphic features
- Understand interactions between climate, circulation, tectonics, weathering, and

sedimentary environments

- Interpret the depositional history of a stratigraphic sequence
- Effectively and accurately communicate scientific information
- Evaluate scientific evidence to formulate and justify a hypothesis

Delivery and Resources

For a text book we will be using: Sedimentology and Stratigraphy (2nd Edition, Gary Nichols)

Other required and recommended readings will be provided throughout the term via iLearn.

Unit Schedule

The material for this unit will be grouped into 3 sections

Week 1-4: Getting to the Ocean

In order to have deposition in marine environments, we need a supply of sediments. During this section we will cover the rock cycling, weathering, basic sedimentology, boundary environments, and basic fluid dynamics.

Week 5-10: Sedimentation in the Ocean

During this section we focus our attention to marine environments including what controls them, how we define them, and what we may expect to find at each.

Week 11-13: Interpreting the Rock Record

To end the unit, we will combine what we've learned so far (mainly from modern systems) and apply it so we can learn about systems long ago or far away.

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](http://staff.mq.edu.au/work/strategy-planning-and-governance/university-policies-and-procedures/policy-central) (<http://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.

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

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

- Identify basic marine sediments, sedimentary structures, and stratigraphic features
- Understand interactions between climate, circulation, tectonics, weathering, and sedimentary environments
- Demonstrate ability to observe and record information in the field
- Interpret the depositional history of a stratigraphic sequence
- Develop an internally consistent hypothesis to explain observations
- Effectively and accurately communicate scientific information
- Evaluate scientific evidence to formulate and justify a hypothesis

Assessment tasks

- Weekly Quizzes
- Field Trip Report
- Field Notebook
- Research Project Poster
- 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

- Understand interactions between climate, circulation, tectonics, weathering, and

sedimentary environments

- Interpret the depositional history of a stratigraphic sequence
- Develop an internally consistent hypothesis to explain observations
- Evaluate scientific evidence to formulate and justify a hypothesis

Assessment tasks

- Weekly Quizzes
- Field Trip Report
- Field Notebook
- Research Project Poster
- 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

- Demonstrate ability to observe and record information in the field
- Interpret the depositional history of a stratigraphic sequence
- Develop an internally consistent hypothesis to explain observations
- Evaluate scientific evidence to formulate and justify a hypothesis

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 outcome

- Effectively and accurately communicate scientific information

Assessment tasks

- Weekly Quizzes
- Field Trip Report

- Field Notebook
- Research Project Poster
- Final Exam

Changes from Previous Offering

Participation in a minimum of 10 (ten) of the weekly practicals is now required for students to achieve a grade of pass or higher in this unit.

The unit description has been updated:

This unit builds the skills necessary to understand geological processes in modern and ancient marine environments. With a focus on marine sedimentology, we will examine the formation, accumulation, alteration, and preservation of sediments in the geological record. We will cover the basics of fluid flow and sediment transport, sedimentary textures and structures, and illustrate the connections between modern landforms and ancient rocks/depositional environments. This unit will focus on the reconstruction and interpretation of ancient paleo-environments based on the analysis of sedimentary structures, stratigraphy, and fossils. The unit will include a practical component as well as a five day field trip to the New South Wales South Coast.