



ENAR12015 Structural Geology and Sedimentology

Term 2 - 2017

Profile information current as at 25/04/2024 02:38 pm

All details in this unit profile for ENAR12015 have been officially approved by CQU University and represent a learning partnership between the University and you (our student). The information will not be changed unless absolutely necessary and any change will be clearly indicated by an approved correction included in the profile.

General Information

Overview

This unit is designed to introduce students to the recognition, interpretation and classification of major geological structures (structural geology) and sedimentary rocks (sedimentology), building on from preliminary concepts and knowledge introduced in PHYG12003 Geological Science. Distance education (FLEX) students will be required to have access to a computer, to make frequent use of internet resources and to attend a residential school on Rockhampton Campus to promote development of unit learning outcomes.

Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 8

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

PHYG12003 Geological Science.

Important note: Students enrolled in a subsequent unit who failed their pre-requisite unit, should drop the subsequent unit before the census date or within 10 working days of Fail grade notification. Students who do not drop the unit in this timeframe cannot later drop the unit without academic and financial liability. See details in the [Assessment Policy and Procedure \(Higher Education Coursework\)](#).

Offerings For Term 2 - 2017

- Distance

Attendance Requirements

All on-campus students are expected to attend scheduled classes - in some units, these classes are identified as a mandatory (pass/fail) component and attendance is compulsory. International students, on a student visa, must maintain a full time study load and meet both attendance and academic progress requirements in each study period (satisfactory attendance for International students is defined as maintaining at least an 80% attendance record).

Residential Schools

This unit has a Compulsory Residential School for distance mode students and the details are:

Click here to see your [Residential School Timetable](#).

Website

[This unit has a website, within the Moodle system, which is available two weeks before the start of term. It is important that you visit your Moodle site throughout the term. Please visit Moodle for more information.](#)

Class and Assessment Overview

Recommended Student Time Commitment

Each 6-credit Undergraduate unit at CQUniversity requires an overall time commitment of an average of 12.5 hours of study per week, making a total of 150 hours for the unit.

Class Timetable

[Regional Campuses](#)

Bundaberg, Cairns, Emerald, Gladstone, Mackay, Rockhampton, Townsville

[Metropolitan Campuses](#)

Adelaide, Brisbane, Melbourne, Perth, Sydney

Assessment Overview

1. **Written Assessment**

Weighting: 20%

2. **Group Work**

Weighting: 20%

3. **Written Assessment**

Weighting: 20%

4. **Practical and Written Assessment**

Weighting: 40%

5. **Portfolio**

Weighting: Pass/Fail

Assessment Grading

This is a graded unit: your overall grade will be calculated from the marks or grades for each assessment task, based on the relative weightings shown in the table above. You must obtain an overall mark for the unit of at least 50%, or an overall grade of 'pass' in order to pass the unit. If any 'pass/fail' tasks are shown in the table above they must also be completed successfully ('pass' grade). You must also meet any minimum mark requirements specified for a particular assessment task, as detailed in the 'assessment task' section (note that in some instances, the minimum mark for a task may be greater than 50%). Consult the [University's Grades and Results Policy](#) for more details of interim results and final grades.

CQUniversity Policies

All University policies are available on the [CQUniversity Policy site](#).

You may wish to view these policies:

- Grades and Results Policy
- Assessment Policy and Procedure (Higher Education Coursework)
- Review of Grade Procedure
- Student Academic Integrity Policy and Procedure
- Monitoring Academic Progress (MAP) Policy and Procedure – Domestic Students
- Monitoring Academic Progress (MAP) Policy and Procedure – International Students
- Student Refund and Credit Balance Policy and Procedure
- Student Feedback – Compliments and Complaints Policy and Procedure
- Information and Communications Technology Acceptable Use Policy and Procedure

This list is not an exhaustive list of all University policies. The full list of University policies are available on the [CQUniversity Policy site](#).

Textbooks and Resources

Textbooks

ENAR12015

Prescribed

Sedimentology and Stratigraphy

Edition: Second (2009)

Authors: Nichols, G

Wiley - Blackwell

Chichester , West Sussex , United Kingdom

ISBN: 978-1-4051-9379-5

Binding: Paperback

ENAR12015

Prescribed

Structural Geology

Edition: 2 (2016)

Authors: Fossen, H

Cambridge

Cambridge , Cambridge , United Kingdom

ISBN: 9781107057647

Binding: Paperback

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Zoom

Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

Teaching Contacts

Andrew Hammond Unit Coordinator

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Schedule

Week 1 - 10 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Structural Geology & Sedimentology	Module 1 (available on the unit website).	

Week 2 - 17 Jul 2017

Module/Topic	Chapter	Events and Submissions/Topic
Origin and transport of sedimentary material	Module 2 (available on the unit website).	

Week 3 - 24 Jul 2017		
Module/Topic	Chapter	Events and Submissions/Topic
The composition, classification and description of sedimentary rocks	Module 3 (available on the unit website).	
Week 4 - 31 Jul 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Primary rock structures and diagenesis	Module 4 (available on the unit website).	Written Assessment 1 Due: Week 4 Friday (4 Aug 2017) 5:00 pm AEST
Week 5 - 07 Aug 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Rock deformation and unconformities	Module 5 (available on the unit website).	
Vacation Week - 14 Aug 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Week 6 - 21 Aug 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Faults, folds and folding	Module 6 (available on the unit website).	
Week 7 - 28 Aug 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Residential School		Rockhampton-based Residential School: 30 August to 01 September
Week 8 - 04 Sep 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Lineations, foliations and cleavage	Module 7 (available on the unit website).	Group Work during Residential School Due: Week 8 Friday (8 Sept 2017) 5:00 pm AEST
Week 9 - 11 Sep 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Joints and shear fractures	Module 8 (available on the unit website).	
Week 10 - 18 Sep 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Depositional environments and facies	Module 9 (available on the unit website).	Written Assessment 2 Due: Week 10 Friday (22 Sept 2017) 5:00 pm AEST
Week 11 - 25 Sep 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Stratigraphy and basin analysis	Module 10 (available on the unit website).	
Week 12 - 02 Oct 2017		
Module/Topic	Chapter	Events and Submissions/Topic
Unit Review and completion of Assessment Items		Practical and Written Assessment Due: Week 12 Friday (6 Oct 2017) 5:00 pm AEST
Review/Exam Week - 09 Oct 2017		
Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 16 Oct 2017

Module/Topic

Chapter

Events and Submissions/Topic

Assessment Tasks

1 Written Assessment 1

Assessment Type

Written Assessment

Task Description

This assessment item tests your knowledge on Modules 1, 2, 3 and 4.

Sedimentology

Part A: (80 marks)

You are a graduate geoscientist about to undertake your first core-logging assignment with your new employer, a major mining company. Describe how you would undertake the lithological descriptions of clastic and non-clastic sedimentary rocks in cores i.e. what are the field and core logging procedures and techniques you would follow to describe your cores and the stratigraphic procedures you would use. Your answer should include a flow diagram (figure) outlining the sequencing of tasks you will undertake to do this. Ensure that you describe what each task and term means e.g. sorting, texture, maturity etc. All tables and figures utilized from the literature are to be suitably referenced using the Harvard System.

Part B: (20 marks)

From Part A extract tables and figures to produce a checklist and geological field wallet that you would take out into the field with you to assess these sedimentary sequences. Ensure that you reference the source/s of this information. You will require this field wallet during your Residential School. Please upload your file/s as either Word format (.doc or .docx) or PDF format.

You will need to look beyond the Study Guide for answers. Please ensure that you only use reputable sites, for example Government web sites and professional bodies. Do cite the source of all external information utilized using the Harvard referencing system.

Please upload your file/s in either Word (.doc or .docx) or PDF formats so that we can readily open and mark the file/s with our online marking tools.

Note: Further support on writing style and referencing is provided on the Moodle site for this unit.

Assessment Due Date

Week 4 Friday (4 Aug 2017) 5:00 pm AEST

Submit electronically via Moodle with your name, unitcode and assignment number i.e.

NAME_ENAR12015_Assignment_1

Return Date to Students

Returned electronically or via Moodle as ENAR12015 Assignment 1 Marked

Weighting

20%

Minimum mark or grade

To Pass this unit you must submit all assessment items (assignments) and obtain a minimum of 40% for any single assessment item (assignment) and must obtain an overall grade of 50% or more on all assessment items (assignments)

Assessment Criteria

The assessment criteria will be based on:

- Presentation and layout i.e. the general appearance and style of the report, attention to detail and quality to provide a legible, professional looking report
- Effective written communication skills i.e. are clear, coherent and succinct that demonstrate an understanding of content
- Content. This includes the accuracy and relevance of answer, application of knowledge, language and grammar used in answering questions
- Evidence of sourcing and referencing relevant material beyond that provided in the Study Guide material

- Showing the requisite equations and using the appropriate SI units and symbols
- All steps and workings to calculations to be submitted to show how an answer was derived
- Use of “in text” referencing, appropriately cited figures and tables, a complete reference or bibliographic list at the end of the assignment. All referencing is to be undertaken using the Harvard System.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Submit electronically via Moodle with your name, unit code and assignment number i.e. NAME_ENAR12015_Assignment_1

Learning Outcomes Assessed

- Discuss the physical structure of the Earth and the processes producing these structures
- Classify rock structures and their implications for engineering and mining operations
- Analyse and interpret geological maps for the structures therein
- Apply the principles of stratigraphy
- Develop and produce professional project reports

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Ethical practice

2 Group Work during Residential School

Assessment Type

Group Work

Task Description

Class members will be assigned to groups during the Residential School. Groups will utilize a range of specialist sedimentological and structural equipment to undertake laboratory and field based tasks. These tasks, along with equipment training, will be outlined during the Residential School. A group submission will be required once the field and equipment derived data has been analyzed, interpreted and discussed. Further details about the group-based assessment items will be provided during the start of the Residential School and placed on Moodle. Some resources, access to cores and field sites are still to be finalized with outside organizations and providers.

As group members you need to be able to allocate tasks to others within your group, to share and or pool information and for the group to submit a cohesive, professional report.

Please upload your file/s in either Word (.doc or .docx) or PDF formats so that we can readily open and mark the file/s with our online marking tools.

Assessment Due Date

Week 8 Friday (8 Sept 2017) 5:00 pm AEST

Submit electronically via Moodle with your name, unit code and assignment number i.e.

NAMES_ENAR12015_Group_Work

Return Date to Students

Returned electronically or via Moodle as ENAR12015 Group Assignment Marked

Weighting

20%

Minimum mark or grade

To Pass this unit you must submit all assessment items (assignments) and obtain a minimum of 40% for any single assessment item (assignment) and must obtain an overall grade of 50% or more on all assessment items (assignments)

Assessment Criteria

The assessment criteria will be based on:

- Presentation and layout i.e. the general appearance and style of the document, attention to detail and quality to

- provide a legible, professional looking document
- Effective written communication skills i.e. are clear, coherent and succinct that demonstrate an understanding of content
- Content. This includes the accuracy and relevance of answer, application of knowledge, language and grammar used in answering questions
- Evidence of sourcing and referencing relevant material beyond that provided in the Study Guide and Residential School material
- Use of “in text” referencing, appropriately cited figures and tables, a complete reference or bibliographic list at the end of the assignment. All referencing is to be undertaken using the Harvard System.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online Group

Submission Instructions

Submit electronically via Moodle with your name, unit code and assignment number i.e.

NAMES_ENAR12015_Group_Work

Learning Outcomes Assessed

- Discuss the physical structure of the Earth and the processes producing these structures
- Classify rock structures and their implications for engineering and mining operations
- Analyse and interpret geological maps for the structures therein
- Describe and discuss the concepts of sedimentology including: the sedimentary cycle, classification of sedimentary rocks, and an interpretation of the sedimentary processes of transport and deposition that formed them.
- Conceptualise sedimentary environments such as continental, coastal, deep and shallow marine
- Apply the principles of stratigraphy
- Develop and produce professional project reports
- Demonstrate an effective, professional level of teamwork and communication and support collaborative peer group learning

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

3 Written Assessment 2

Assessment Type

Written Assessment

Task Description

This assessment item tests your knowledge of Structural Geology and rock deformation from Modules 1, 4, 5, 6, 7 & 8 (these are available in Moodle). This will take the form of a number of short answers questions (20 marks), stereoscopic projections and calculations (20 marks) and some structural geology mapping exercises (40 marks). The structural maps, stereoscopic diagrams and software are to be accessed from the Moodle site.

We will discuss the stereoscopic projections and calculations, software use, and structural geology mapping exercises during our weekly forums on Zoom. You will need to look beyond the Study Guide for some answers. Please ensure that you only use reputable sites, for example Government web sites and professional bodies. Do cite the source of all external information utilized using the Harvard referencing system.

Please upload your file/s in either Word (.doc or .docx) or PDF formats so that we can readily open and mark the file/s with our online marking tools.

Assessment Due Date

Week 10 Friday (22 Sept 2017) 5:00 pm AEST

Submit electronically via Moodle with your name, unit code and assignment number i.e.

NAME_ENAR12015_Assignment_2

Return Date to Students

Returned electronically or via Moodle as ENAR12015 Assignment Marked

Weighting

20%

Minimum mark or grade

To Pass this unit you must submit all assessment items (assignments) and obtain a minimum of 40% for any single assessment item (assignment) and must obtain an overall grade of 50% or more on all assessment items (assignments)

Assessment Criteria

The assessment criteria will be based on:

- Presentation and layout i.e. the general appearance and style of the report, attention to detail and quality to provide a legible, professional looking report
- Effective written communication skills i.e. are clear, coherent and succinct that demonstrate an understanding of content
- Content. This includes the accuracy and relevance of answer, application of knowledge, language and grammar used in answering questions
- Evidence of sourcing and referencing relevant material beyond that provided in the Study Guide material
- Showing the requisite equations and using the appropriate SI units and symbols
- All steps and workings to calculations to be submitted to show how an answer was derived
- Use of "in text" referencing, appropriately cited figures and tables, a complete reference or bibliographic list at the end of the assignment. All referencing is to be undertaken using the Harvard System.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Submit electronically via Moodle with your name, unit code and assignment number i.e. NAME_ENAR12015_Assignment_2

Learning Outcomes Assessed

- Discuss the physical structure of the Earth and the processes producing these structures
- Analyse and interpret geological maps for the structures therein
- Describe and discuss the concepts of sedimentology including: the sedimentary cycle, classification of sedimentary rocks, and an interpretation of the sedimentary processes of transport and deposition that formed them.
- Conceptualise sedimentary environments such as continental, coastal, deep and shallow marine
- Apply the principles of stratigraphy
- Develop and produce professional project reports

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Information Technology Competence
- Cross Cultural Competence

4 Practical and Written Assessment

Assessment Type

Practical and Written Assessment

Task Description

This assessment item will be undertaken during the Residential School (30 August to 01 September) as a combination of practical and theoretical tasks based on field and laboratory measurements and observations. After data manipulation and interpretation, some aspects of which will require customized software, a formal report will need to be submitted for assessment. Further details will be provided during the Residential School as well as being placed on the unit's Moodle site.

Researching the answers to field and laboratory analyses will require extensive Internet searches. You will need to look

beyond the Study Guide for answers. Please ensure that you only use reputable sites, for example Government web sites and professional bodies. Do cite the source of all external information utilized using the Harvard referencing system.

Please upload your file/s in either Word (.doc or .docx) or PDF formats so that we can readily open and mark the file/s with our online marking tools.

Assessment Due Date

Week 12 Friday (6 Oct 2017) 5:00 pm AEST

Submit electronically via Moodle with your name, unit code and assignment number i.e.

NAME_ENAR12015_Assignment_4

Return Date to Students

Returned electronically or via Moodle as ENAR12015 Assignment Marked

Weighting

40%

Minimum mark or grade

To Pass this unit you must submit all assessment items (assignments) and obtain a minimum of 40% for any single assessment item (assignment) and must obtain an overall grade of 50% or more on all assessment items (assignments)

Assessment Criteria

The assessment criteria will be based on:

- Presentation and layout i.e. the general appearance and style of the report, attention to detail and quality to provide a legible, professional looking report
- Effective written communication skills i.e. are clear, coherent and succinct that demonstrate an understanding of content
- Content. This includes the accuracy and relevance of answer, application of knowledge, language and grammar used in answering questions
- Evidence of sourcing and referencing relevant material beyond that provided in the Study Guide material
- Showing the requisite equations and using the appropriate SI units and symbology
- All steps and workings to calculations to be submitted to show how an answer was derived
- Use of "in text" referencing, appropriately cited figures and tables, a complete reference or bibliographic list at the end of the assignment. All referencing is to be undertaken using the Harvard System.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Submit electronically via Moodle with your name, unit code and assignment number i.e.

NAME_ENAR12015_Assignment_4

Learning Outcomes Assessed

- Discuss the physical structure of the Earth and the processes producing these structures
- Classify rock structures and their implications for engineering and mining operations
- Analyse and interpret geological maps for the structures therein
- Describe and discuss the concepts of sedimentology including: the sedimentary cycle, classification of sedimentary rocks, and an interpretation of the sedimentary processes of transport and deposition that formed them.
- Conceptualise sedimentary environments such as continental, coastal, deep and shallow marine
- Apply the principles of stratigraphy
- Develop and produce professional project reports
- Demonstrate an effective, professional level of teamwork and communication and support collaborative peer group learning

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work

- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

5 Learning Portfolio

Assessment Type

Portfolio

Task Description

The Learning Portfolio will provide students with the opportunity to reflect on and discuss topics they are covering each week. Questions will be raised each week via a weekly forum on Moodle and discussed further during the weekly forum responses and during the weekly online Zoom sessions. Students will be required to record and demonstrate their weekly participation by recording details of this in their Learning Portfolio.

The Learning Portfolio is to include:

- a weekly Study Diary of the topics discussed
- a brief outline of the questions raised and discussed during the weekly forum and online Zoom sessions, and
- outlining how these relate to the unit's learning outcomes (Reflective Learning).

The key requirement for this assessment item is for a student to be brief yet succinct in his/her record-keeping and to demonstrate active online participation and engagement with the unit's content via the weekly online Zoom sessions.

Assessment Due Date

Review/Exam Week Friday (13 Oct 2017) 5:00 pm AEST

Submit electronically via Moodle with your name, unit code and assignment number i.e. NAME_ENAR12015_Learning Portfolio

Return Date to Students

Returned electronically or via Moodle as ENAR12015 Portfolio Marked

Weighting

Pass/Fail

Minimum mark or grade

Pass/Fail

Assessment Criteria

This assessment criteria will be based on:

- Making regular, weekly entries, into your Study Diary
- Ensuring you accurately state the question/s raised and succinctly yet briefly outline the discussion derived thereof during the weekly forum and online Zoom sessions
- Presentation and layout i.e. the general appearance and style of the document, attention to detail and quality to provide a legible, professional looking document
- Effective written communication skills i.e. are clear, coherent and succinct that demonstrate an understanding of content
- Content. This includes the accuracy and relevance of answer, application of knowledge, language and grammar used in answering questions
- Evidence of sourcing and referencing relevant material beyond that provided in the Study Guide material
- Use of "in text" referencing, appropriately cited figures and tables, a complete reference or bibliographic list at the end of the assignment. All referencing is to be undertaken using the Harvard System.

To PASS this assessment item a student must demonstrate that s/he has actively engaged with at least 75% of the total material covered during the weekly Moodle forums and online Zoom sessions.

Referencing Style

- [Harvard \(author-date\)](#)

Submission

Online

Submission Instructions

Submit electronically via Moodle with your name, unit code and assignment number i.e. NAME_ENAR12015_Learning Portfolio

Learning Outcomes Assessed

- Discuss the physical structure of the Earth and the processes producing these structures

- Classify rock structures and their implications for engineering and mining operations
- Analyse and interpret geological maps for the structures therein
- Describe and discuss the concepts of sedimentology including: the sedimentary cycle, classification of sedimentary rocks, and an interpretation of the sedimentary processes of transport and deposition that formed them.
- Conceptualise sedimentary environments such as continental, coastal, deep and shallow marine
- Apply the principles of stratigraphy
- Develop and produce professional project reports
- Demonstrate an effective, professional level of teamwork and communication and support collaborative peer group learning

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Literacy
- Team Work
- Information Technology Competence
- Cross Cultural Competence
- Ethical practice

Academic Integrity Statement

As a CQUniversity student you are expected to act honestly in all aspects of your academic work.

Any assessable work undertaken or submitted for review or assessment must be your own work. Assessable work is any type of work you do to meet the assessment requirements in the unit, including draft work submitted for review and feedback and final work to be assessed.

When you use the ideas, words or data of others in your assessment, you must thoroughly and clearly acknowledge the source of this information by using the correct referencing style for your unit. Using others' work without proper acknowledgement may be considered a form of intellectual dishonesty.

Participating honestly, respectfully, responsibly, and fairly in your university study ensures the CQUniversity qualification you earn will be valued as a true indication of your individual academic achievement and will continue to receive the respect and recognition it deserves.

As a student, you are responsible for reading and following CQUniversity's policies, including the [Student Academic Integrity Policy and Procedure](#). This policy sets out CQUniversity's expectations of you to act with integrity, examples of academic integrity breaches to avoid, the processes used to address alleged breaches of academic integrity, and potential penalties.

What is a breach of academic integrity?

A breach of academic integrity includes but is not limited to plagiarism, self-plagiarism, collusion, cheating, contract cheating, and academic misconduct. The Student Academic Integrity Policy and Procedure defines what these terms mean and gives examples.

Why is academic integrity important?

A breach of academic integrity may result in one or more penalties, including suspension or even expulsion from the University. It can also have negative implications for student visas and future enrolment at CQUniversity or elsewhere. Students who engage in contract cheating also risk being blackmailed by contract cheating services.

Where can I get assistance?

For academic advice and guidance, the [Academic Learning Centre \(ALC\)](#) can support you in becoming confident in completing assessments with integrity and of high standard.

What can you do to act with integrity?



Be Honest

If your assessment task is done by someone else, it would be dishonest of you to claim it as your own



Seek Help

If you are not sure about how to cite or reference in essays, reports etc, then seek help from your lecturer, the library or the Academic Learning Centre (ALC)



Produce Original Work

Originality comes from your ability to read widely, think critically, and apply your gained knowledge to address a question or problem