



# ENVR12001 Soil Science and Conservation

## Term 1 - 2019

Profile information current as at 28/04/2024 12:30 am

All details in this unit profile for ENVR12001 have been officially approved by CQUniversity 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

Soils are the physical and chemical foundation of terrestrial ecosystems and Australian soils are among the oldest and most fragile in the world. In this unit you will learn the origin of soils and how they are affected by geology, geography, climate, living organisms and time. You will develop soil classification and testing skills in the laboratory and in the field, and study the conservation, management and remediation of Australian soils.

### 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

Pre-requisites: CHEM11043 Atoms, Molecules and Matter or CHEM11041 Chemistry for the Life Sciences and BIOL11099 Living Systems or BIOL11102 Life Science Laboratory

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 1 - 2019

- Mixed Mode
- Rockhampton

### 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. **Practical and Written Assessment**

Weighting: 30%

#### 2. **Presentation and Written Assessment**

Weighting: 40%

#### 3. **Examination**

Weighting: 30%

### 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](#).

## Previous Student Feedback

### Feedback, Recommendations and Responses

Every unit is reviewed for enhancement each year. At the most recent review, the following staff and student feedback items were identified and recommendations were made.

#### Feedback from Have your say

**Feedback**

Students appreciated the exam being weighted at 30%.

**Recommendation**

We will maintain the exam weighting.

#### Feedback from Have your say

**Feedback**

Students found the guest speakers to be very useful and engaging.

**Recommendation**

We will use the same speakers or equivalent next year. Their time slots should be 30 minutes longer, as most speakers ran out of time to answer student questions in one hour.

#### Feedback from Have your say

**Feedback**

The weighting of the group assessment was not commensurate with the work it required.

**Recommendation**

Weighting will be transferred from Assessment 1 (Prac Report) to Assessment 2 (Group Report) to better reflect the effort put into these assessments.

#### Feedback from Unit coordinator

**Feedback**

Better use of professional soil methods for determining grain-size need to be used in the residential school

**Recommendation**

Unit Coordinator will use the methods outlined in the Australian Soil and Land Survey Field Handbook, 3rd Edition (the "Yellow Bible") to determine soil size in the 2019 practical.

#### Feedback from Unit Coordinator

**Feedback**

Extremely negative and personal comments about one lecturer in the Have Your Say.

**Recommendation**

The Unit Coordinator will remind students that all teaching staff are able to view the Unit Feedback, and that civil and constructive comments are the best way to ensure that useful changes are made.

## Unit Learning Outcomes

**On successful completion of this unit, you will be able to:**

1. Describe the physical, chemical and biological characteristics of soil
2. Describe and classify a range of soils
3. Plan and conduct soil tests in the laboratory and field
4. Discuss the major challenges for the sustainable management and remediation of Australian soils.

## Alignment of Learning Outcomes, Assessment and Graduate Attributes



## Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes			
	1	2	3	4
1 - Practical and Written Assessment - 30%	•	•	•	
2 - Presentation and Written Assessment - 40%	•		•	•
3 - Examination - 30%		•		•

## Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4
1 - Communication	•	•		•
2 - Problem Solving		•	•	•
3 - Critical Thinking		•	•	•
4 - Information Literacy	•	•	•	•
5 - Team Work			•	
6 - Information Technology Competence			•	
7 - Cross Cultural Competence				•
8 - Ethical practice				
9 - Social Innovation				
10 - Aboriginal and Torres Strait Islander Cultures				

## Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Practical and Written Assessment - 30%	•	•	•	•	•					
2 - Presentation and Written Assessment - 40%	•	•	•	•		•	•			
3 - Examination - 30%	•	•	•							

## Textbooks and Resources

### Textbooks

**There are no required textbooks.**

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Australian soils and landscapes: an illustrated compendium  
<http://ezproxy.cqu.edu.au/login?url=http://ebookcentral.proquest.com.ezproxy.cqu.edu.au/lib/cqu/detail.action?dclid=714045>
- Soil health, soil biology, soil born diseases and sustainable agriculture: a guide  
<http://ezproxy.cqu.edu.au/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=nlebk&AN=1194484&site=eds-live&scope=site>

## Referencing Style

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

For further information, see the Assessment Tasks.

## Teaching Contacts

**Nathan Brooks-English** Unit Coordinator  
[n.english@cqu.edu.au](mailto:n.english@cqu.edu.au)

## Schedule

### Week 1 - 11 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
Soil Development (pedogenesis) and soil chemistry	Readings as assigned on Moodle Week 1 tab.	

### Week 2 - 18 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
Physical properties of soils	Readings as assigned on Moodle Week 2 tab.	

### Week 3 - 25 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
Soil microbes, sampling and processing	Readings as assigned on Moodle Week 3 tab.	

### Week 4 - 01 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
Soil mineralogy and clays	Readings as assigned on Moodle Week 4 tab.	

### Week 5 - 08 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
Soil solutions and ion chemistry	Readings as assigned on Moodle Week 5 tab.	

**Vacation Week - 15 Apr 2019**

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

**Week 6 - 22 Apr 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Field Trip and Res School (no lectures this week), April 26 to 28, 2019.	Readings as assigned on Moodle Week 6 tab.	Field trip and residential school (Compulsory). See Moodle for more details and scheduling updates.

**Week 7 - 29 Apr 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Soil acidity and nutrients	Readings as assigned on Moodle Week 7 tab.	

**Week 8 - 06 May 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Guest Speakers	Readings as assigned on Moodle Week 8 tab.	<b>Field Workbook and Summary Due:</b> Week 8 Friday (10 May 2019) 11:45 pm AEST

**Week 9 - 13 May 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Soil microbial ecology, nutrient cycling, and transport	Readings as assigned on Moodle Week 9 tab.	

**Week 10 - 20 May 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Pollutants and wastes in soils	Readings as assigned on Moodle Week 10 tab.	Group Written Report must be submitted before 5PM AEST Wednesday, May 22, 2019.

**Week 11 - 27 May 2019**

Module/Topic	Chapter	Events and Submissions/Topic
Soil conservation (biodegradation and bioremediation)	Readings as assigned on Moodle Week 11 tab.	

**Week 12 - 03 Jun 2019**

Module/Topic	Chapter	Events and Submissions/Topic
In-class Group Oral Presentations, unit overview and exam preparations		Group Oral Presentation slides must be submitted before 8AM AEST Monday, June 3, 2019. Presentation times will be advised on Moodle once Timetables are completed. Self and Peer Assessments (SPA) must be submitted before 5PM AEST June 7, 2018.

**Review/Exam Week - 10 Jun 2019**

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

**Exam Week - 17 Jun 2019**

Module/Topic	Chapter	Events and Submissions/Topic
--------------	---------	------------------------------

**Assessment Tasks****1 Field Workbook and Summary**

**Assessment Type**

Practical and Written Assessment

**Task Description**

You will submit your Field Workbook and worksheets (10%) and a Summary (20%) of work completed at the residential school.

You must submit a scanned copy of your Field Workbook and the worksheets completed on the field trip, including a legible soil characterisation for the site we visited.

The Summary is a short report that includes a brief description of the experiments carried out and their results, including relevant figures. It will be no more than 1500 words, excluding title page, references, tables, figure and picture captions. Figures must be publication ready and generated using Excel, R or other suitable software. Resources will be available on the Moodle site to explain how to make publication ready figures in Excel. More details of this assessment will be posted on Moodle.

**This Residential School is compulsory for all students. You may not complete this activity using notes produced by another student.**

**Assessment Due Date**

Week 8 Friday (10 May 2019) 11:45 pm AEST

**Return Date to Students**

Week 10 Friday (24 May 2019)

**Weighting**

30%

**Minimum mark or grade**

45%

**Assessment Criteria**

The Summary will be marked on:

1. Completeness (all observations, experiments and results presented);
2. Clarity, grammar, punctuation and organisation;
3. Figure presentation (figures should be publication ready);
4. Accuracy and reasoning of soil characterizations.

The Field Workbook and worksheets will be marked on:

1. Completeness and legibility of information in notebook;
2. Completeness and legibility of information in worksheets.

A complete rubric with weightings will be available on Moodle.

**Referencing Style**

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

**Submission**

Online

**Submission Instructions**

Please submit your Field Workbook and worksheets and Summary separately. Submit the scan of your Field Workbook and worksheets as a pdf document. Please submit your Summary as a word document with embedded figures and pictures.

**Learning Outcomes Assessed**

- Describe the physical, chemical and biological characteristics of soil
- Describe and classify a range of soils
- Plan and conduct soil tests in the laboratory and field

**Graduate Attributes**

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

2 Group Written Report, Group Oral Presentation & SPA

## Assessment Type

Presentation and Written Assessment

## Task Description

This is a group assessment. Your group's task is to prepare a Written Report and a Group Oral presentation on one of the three scenarios presented on Moodle. You will then award each group member a rating on teamwork using the Self and Peer Assessment (SPA) tool on Moodle.

Both the written report and oral presentation should include:

- a description of the setting;
- a summary of the approach you would take to identify potential problems regarding soil at the site; and
- how you would assess, quantify and measure these issues.

The Group Written Report will be a maximum of 3000 words long (excluding title page, figure and picture captions, tables and references). It is worth 25% of total unit grade.

The Group Oral Presentation will consist of an 8 minute presentation of the report with 2 minutes for questions. It is worth 10% of total unit grade.

Your group members will be awarding you a rating based on your contributions to the group work using the Self and Peer Assessment (SPA) tool. It is in your best interests to participate fully and politely with your peers. There is a guide to Working in Groups on the Moodle page. The SPA is worth 5% of total unit grade.

A more detailed task description is available on Moodle.

This assessment will be weighted in the following way:

- Group Written Report: 25% of total unit grade
- Group Oral Presentation: 10% of total unit grade
- Self and Peer Assessment (SPA): 5% of total unit grade

## Assessment Due Date

Group Written report must be submitted by 5PM AEST Wednesday, May 22, 2019. Group Oral Presentation slides must be submitted before 8AM AEST Monday, June 3, 2019. Presentation times will be advised on Moodle once Timetables are completed. Self and Peer Assessments (SPA) must be submitted before 5PM AEST June 7, 2019.

## Return Date to Students

Exam Week Monday (17 June 2019)

## Weighting

40%

## Minimum mark or grade

45% Overall (All 3 parts considered together).

## Assessment Criteria

The Group Written Report, Group Oral Presentation & SPA will be graded in the following way:

Group Written Report:

1. Completeness of scenario description;
2. Approach and reasoning;
3. Appropriateness of the methods selected to assess, quantify and measure the issues;
4. Clarity, grammar, spelling, references, and contribution statement.

Group Oral Presentation:

1. Presentation quality (including slides, on-time delivery, organization and focus);
2. Audience targeting;
3. Equal division of presentation time;
4. Quality of answers to questions asked after the presentation.

Self and Peer Assessment (SPA):

1. Each student's final mark for the SPA will be an average of their peers' assessment of their contribution to the group.

## Referencing Style

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

## Submission

Online



**Submission Instructions**

Group Written Report must be submitted as a word document through Moodle using TurnItIn; Group Oral Presentation slides must be submitted through Moodle; a link to complete the Self and Peer Assessments will be sent to your CQU email when all Group Oral Presentations are completed.

**Learning Outcomes Assessed**

- Describe the physical, chemical and biological characteristics of soil
- Plan and conduct soil tests in the laboratory and field
- Discuss the major challenges for the sustainable management and remediation of Australian soils.

**Graduate Attributes**

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

## Examination

**Outline**

Complete an invigilated examination.

**Date**

During the examination period at a CQUniversity examination centre.

**Weighting**

30%

**Length**

180 minutes

**Minimum mark or grade**

45%

**Exam Conditions**

Closed Book.

**Materials**

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).

Calculator - non-programmable, no text retrieval, silent only

## 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