



AGRI11001 Soil and Irrigation Management

Term 2 - 2023

Profile information current as at 26/04/2024 01:07 am

All details in this unit profile for AGRI11001 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

This unit covers the fundamentals of soil and irrigation systems. You will learn how soil properties affect crop growth; how management strategies can be applied to manage variable soil conditions; how to interpret soil analytical data and how to develop soil improvement programs. The unit will show you how different growing conditions define management options and how a range of irrigation systems can be used to increase production.

Details

Career Level: *Undergraduate*

Unit Level: *Level 1*

Credit Points: 6

Student Contribution Band: 7

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

There are no requisites for this unit.

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 - 2023

- Bundaberg
- Emerald
- 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. **Online Quiz(zes)**

Weighting: 30%

2. **Portfolio**

Weighting: 30%

3. **Written Assessment**

Weighting: 40%

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 SUTE

Feedback

It would be helpful if assessments and quizzes were more spread out over the study period

Recommendation

Further opportunities to spread out quizzes and assessment due dates should be explored.

Feedback from SUTE

Feedback

Create more opportunities for student interaction

Recommendation

Suitable topics and questions will be used to encourage discussions and exchange of ideas between students during tutorials. The compulsory residential school is great for face-to-face interactions.

Unit Learning Outcomes

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

1. Apply knowledge of soil testing results in order to describe different soil types
2. Explain how soil properties determine production opportunities
3. Develop, monitor and review soil amendment practices
4. Determine the feasibility of using or upgrading irrigation systems
5. Develop and evaluate an appropriate irrigation plan.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Online Quiz(zes) - 30%	•	•	•		
2 - Portfolio - 30%	•	•		•	
3 - Written Assessment - 40%			•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes				
	1	2	3	4	5
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					

Textbooks and Resources

Textbooks

There are no required textbooks.

Additional Textbook Information

N/A

IT Resources

You will need access to the following IT resources:

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

Referencing Style

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

For further information, see the Assessment Tasks.

Teaching Contacts

Richard Koech Unit Coordinator

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Schedule

Week 1 - 10 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Unit Introduction and Soil Physics		

Week 2 - 17 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Soil Chemistry		

Week 3 - 24 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Soil Biology and Australian Soil Classification		

Week 4 - 31 Jul 2023

Module/Topic	Chapter	Events and Submissions/Topic
Soil Management		

Week 5 - 07 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
Soil Constraints and Land Degradation		Quiz 1 is due end of Week 5 (13/08/2023, 11:45 PM AEST)

Vacation Week - 14 Aug 2023

Module/Topic	Chapter	Events and Submissions/Topic
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Week 6 - 21 Aug 2023		
Module/Topic	Chapter	Events and Submissions/Topic
Soil and Water Relationships		
Week 7 - 28 Aug 2023		
Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Irrigation		Residential School, Friday 01/09/2023 to Saturday 02/09/2023 Rockhampton North Campus (ROK 08/LG.07) Assessment 2A is due at the end of Week 7 (03/09/2023, 11:45 PM AEST).
Week 8 - 04 Sep 2023		
Module/Topic	Chapter	Events and Submissions/Topic
Irrigation Planning and Design		
Week 9 - 11 Sep 2023		
Module/Topic	Chapter	Events and Submissions/Topic
Irrigation Scheduling		Quiz 2 is due end of Week 9 (17/09/2023, 11:45 PM AEST).
Week 10 - 18 Sep 2023		
Module/Topic	Chapter	Events and Submissions/Topic
Performance Evaluation of Irrigation Systems		
Week 11 - 25 Sep 2023		
Module/Topic	Chapter	Events and Submissions/Topic
Irrigation Modernisation in Australia		Assessment 2B is due end of Week 11 (01/10/2023, 11:45 PM AEST).
Week 12 - 02 Oct 2023		
Module/Topic	Chapter	Events and Submissions/Topic
Soil and Irrigation Management Review		
Review/Exam Week - 09 Oct 2023		
Module/Topic	Chapter	Events and Submissions/Topic
		Assessments 3 is due Monday of Review/Exam Week (9/10/2023, 11:45 PM AEST).
Exam Week - 16 Oct 2023		
Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Online Quizzes

Assessment Type

Online Quiz(zes)

Task Description

This assessment task consists of two Online Quizzes:

Quiz 1 (15%) - Due Week 5

This quiz will assess your understanding of content delivered during lectures and tutorials in Weeks 1, 2 and 3 of the Term. The quiz may include short answer, multiple-choice and calculation-type of questions.

Quiz 2 (15%) - Due Week 9

This quiz will assess your understanding of content delivered during lectures and tutorials in Weeks 4, 5 and 6 of the Term. The quiz may include short answer, multiple-choice and calculation-type questions.

Further details will be provided on the Moodle site.

Number of Quizzes

2

Frequency of Quizzes

Other

Assessment Due Date

Quiz 1 is due at the end of Week 5 (13/08/2023, 11:45 PM AEST) and Quiz 2 is due at the end of Week 9 (17/09/2023, 11:45 PM AEST).

Return Date to Students

Assessments will be returned to students within 10 working days after the due date.

Weighting

30%

Minimum mark or grade

50% of the total marks allocated to Quiz 1 and Quiz 2

Assessment Criteria

The quizzes will have a series of short-answer, multiple-choice and calculation-type of questions. Responses to these questions will be assessed according to their quality, accuracy and level of detail provided by the student.

Referencing Style

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

Submission

Online

Learning Outcomes Assessed

- Apply knowledge of soil testing results in order to describe different soil types
- Explain how soil properties determine production opportunities
- Develop, monitor and review soil amendment practices

2 Portfolio

Assessment Type

Portfolio

Task Description

The portfolio is made up of **two tasks** related to practical activities undertaken independently and during the Residential School.

Assessment 2A. Soil Research Report (15%)

This assessment task requires you to undertake basic soil research of a farm/property you are familiar with or region and prepare a report. Your report will include the following information:

- Background information of the farm/property or region (e.g. location, climate, predominant land use etc.).
- Brief description of the key soil properties of the farm/property or region (e.g. texture, structure, colour, pH).
- The predominant soil/s type according to the Australian Soil Classification system (https://www.clw.csiro.au/aclep/asc_re_on_line_V2/soilhome.htm).
- A soil map of the farm/property or region. You can use the **Queensland Globe** (<https://qldglobe.information.qld.gov.au/>) or the **Australian Soil Resource Information system ASRIS** (<https://www.asris.csiro.au/index.html>) to produce the map.
- Results of soil texture analysis (e.g. using ribbon or soaking/shaking method) and soil infiltration test. Explain the methods you have used to undertake the tests.

Your report will be between 1000 and 1500 words, and include an introduction, main body addressing the points listed above, conclusion and references.

Assessment 2B. Practical Report (15%)

This assessment task requires you to submit a report related to field and laboratory soil analysis and irrigation performance evaluation tests undertaken during the two-day Residential School. A handbook containing all the activities that will be undertaken during the Residential School will be provided on the Moodle site. You will use the handbook provided as the template for your practical report.

Further details about the Residential School activities will be provided in the Moodle site.

Assessment Due Date

Assessment 2A is due at the end of Week 7 (03/09/2023, 11:45 PM AEST). Assessment 2B is due at the end of Week 11 (01/10/2023, 11:45 PM AEST).

Return Date to Students

Assessments will be returned within 10 working days after the due date.

Weighting

30%

Minimum mark or grade

50% of the total marks allocated to Assessments 2A and 2B.

Assessment Criteria

Assessment 2A (Soil Research Report) will be based on:

- Content - the quality and details of the presented information. All aspects of the task must be covered - background information, key soil properties, identification of the predominant soil type/s, soil map, undertake practical activities (soil texture analysis, soil infiltration test).
- Structure of the presentation - report to include title page, Introduction, Main Body of the report, Conclusion and References.
- Evidence of practical activities undertaken (e.g. results, photographs)
- Presentation of the report - use of images/photos/maps, tables, formatting, page numbers etc.
- Word length (1000 - 1500 words)

Assessment 2B (Practical Report) will be based on:

- The quality of data and information collected during Residential School.
- Analysis and presentation of the results using tables and figures.
- Discussion of the results obtained from the practical activities.
- The clarity of English expression, spelling and grammar.

Referencing Style

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

Submission

Online

Learning Outcomes Assessed

- Apply knowledge of soil testing results in order to describe different soil types
- Explain how soil properties determine production opportunities
- Determine the feasibility of using or upgrading irrigation systems

3 Develop and Evaluate an Irrigation Plan

Assessment Type

Written Assessment

Task Description

This assessment task requires you to prepare a plan for a new irrigation system or a modification of an existing irrigation system. You will also develop an appropriate management plan for your system. You are required to choose a property with a current water allocation which could be used to supply water to a farming enterprise. The property MAY or MAY NOT have an existing irrigation system. You will need to visit the property to collect data to develop your plan. You will select an appropriate irrigated cropping or pasture enterprise and provide a justification.

Your Irrigation Plan will be in the format of a report (**2500-3000 words**) and will include an introduction, aims, the main

body addressing the points listed below, and in addition, conclusions and references.

1. Background information

- Brief overview of the farm including location, topography, size and enterprises (crops or livestock) currently on the farm. Include an aerial map of the farm (you may use Google maps, Google Earth, Queensland Globe or similar programs).
- Climatic parameters - rainfall and temperature.
- Soil information - (Australian Soil Classification, texture and structure).
- Water supply (source, quality and treatment requirements).

2. Cropping enterprise and irrigation system

- Crop/s or pasture to be irrigated, including water and other management requirements of the crop/s. The water requirements of the crop may be obtained from published literature and industry websites. Explain the reason for choosing the crop/s.
- Select an irrigation system to be used (e.g. trickle, furrow, sprinkler irrigation). Explain your choice of irrigation system.
- A sketch of the irrigation layout/design.
- Specific requirements of the irrigation system (e.g. determination of peak water demand - show relevant calculations).

3. Installation requirements of the selected irrigation system

- Pumping requirements (including type of pump and its capacity).
- List of the major components used in the installation of the system (e.g. pipes, valves, and emitters or sprinklers).
- Installation procedures for various components.
- Periodic checking procedures to evaluate the efficiency and effectiveness of the irrigation system.

4. Budget

- Estimate the cost of the implementation of the irrigation system based on requirements (pumps, pipes, valves etc.) and approximate labour costs.

Assessment Due Date

Assessments 3 is due Monday of Review/Exam Week (9/10/2023, 11:45 PM AEST).

Return Date to Students

Assessments will be returned within 10 working days after the due date.

Weighting

40%

Minimum mark or grade

50% of the total marks allocated to Assessments 3A and 3B

Assessment Criteria

- Content - all the key aspects covered in the report (background information; cropping enterprise and irrigation system; sketch of the irrigation layout/design; installation requirements; and irrigation system management and operation).
- The detail, accuracy and quality of the information provided.
- The clarity of English expression, spelling and grammar.
- Referencing.
- Presentation of report - structure, use of figures and tables.
- Word length (2500-3000 words).

Referencing Style

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

Submission

Online

Learning Outcomes Assessed

- Develop, monitor and review soil amendment practices
- Determine the feasibility of using or upgrading irrigation systems
- Develop and evaluate an appropriate irrigation plan.

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