AGRI11001 *Soil and Irrigation Management*
Term 2 - 2022

Profile information current as at 30/04/2024 11:43 am

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 - 2022

- 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 Moodle Have Your Say

Feedback

Enjoyed the unit, particularly demonstrations in lectures and the Residential School activities.

Recommendation

Staff should strive to continue to improve the delivery of this unit and make it even more enjoyable to students.

Feedback from Moodle Have Your Say

Feedback

Three assessments were due within two weeks (Week 11 and Review/Exam Week), making it harder for some students to complete them by the due date.

Recommendation

Consider spreading out assessments over the 12-week duration of the term where possible.

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.

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 - 11 Jul 2022

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

Week 2 - 18 Jul 2022

Module/Topic	Chapter	Events and Submissions/Topic
Soil Chemistry		

Week 3 - 25 Jul 2022

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

Week 4 - 01 Aug 2022

Module/Topic	Chapter	Events and Submissions/Topic
Soil Management		

Week 5 - 08 Aug 2022

Module/Topic	Chapter	Events and Submissions/Topic
Soil Constraints and Land Degradation		Quiz 1 is due end of Week 5 (14/08/2022, 11:45 PM AEST)

Vacation Week - 15 Aug 2022

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 22 Aug 2022

Module/Topic	Chapter	Events and Submissions/Topic
Soil and Water Relationships		

Week 7 - 29 Aug 2022

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Irrigation		Residential School, Friday 02/09/2022 to Saturday 03/09/2022 Rockhampton North Campus (ROK 08/LG.07)

Week 8 - 05 Sep 2022

Module/Topic	Chapter	Events and Submissions/Topic
Irrigation Planning and Design		

Week 9 - 12 Sep 2022

Module/Topic	Chapter	Events and Submissions/Topic
Irrigation Scheduling		Quiz 2 is due end of Week 9 (18/09/2022, 11:45 PM AEST).

Week 10 - 19 Sep 2022

Module/Topic	Chapter	Events and Submissions/Topic
Performance Evaluation of Irrigation Systems		

Week 11 - 26 Sep 2022

Module/Topic	Chapter	Events and Submissions/Topic
Irrigation Modenisation in Australia		Assessment 2A & 2B due end of Week 11 (02/10/2022, 11:45 PM AEST).

Week 12 - 03 Oct 2022

Module/Topic	Chapter	Events and Submissions/Topic
Soil and Irrigation Management Review		

Review/Exam Week - 10 Oct 2022

Module/Topic	Chapter	Events and Submissions/Topic
		Assessment 3 is due Friday of Review/Exam Week (14/10/2022, 11:45 PM AEST).

Exam Week - 17 Oct 2022

Module/Topic	Chapter	Events and Submissions/Topic

Term Specific Information

This unit has a compulsory Residential School which will be held on ***Friday 02/09/2022 to Saturday 03/09/2022*** at the Rockhampton North Campus (ROK 08/LG.07)

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 (14/08/2022, 11:45 PM AEST) and Quiz 2 is due at the end of Week 9 (18/09/2022, 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 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. Crop, Soil and Irrigation Assessment Report (15%)

This assessment task requires you to prepare and submit a **pre-recorded video, 5-7 minutes long, together with the presentation slides** in Microsoft PowerPoint or similar format. You will base your presentation on an assessment of an irrigated farm in your area, with a focus on crop, soil and irrigation aspects. You may also undertake your assessment at your home or local community garden.

Your assessment and presentation will include:

- Background information about the farm or garden (e.g., location, size, soil type, crop/s or pasture grown, irrigation method/s used and management practices).
- Visual inspection of soil and irrigation system.
- Results of basic field soil texture analysis (e.g. ribbon test or soaking and shaking). Briefly describe the method used.
- Results of field soil infiltration test. Briefly describe the method used.
- Your recommendations for improvement of the soil and irrigation aspects.

Note: You may include information from published literature specifically undertaken in your area.

Assessment 2B. Practical Report (15%)

A two-day Residential School will be organised for this unit at a date to be advised later on the Unit's Moodle site. The practical activities will include field and laboratory soil analysis and irrigation performance evaluation tests. 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

Assessments 2A & 2B are due at the end of Week 11 (02/10/2022, 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 (Crop, Soil and Irrigation Assessment) pre-recorded video will be based on**:**

- Content - the quality and details of the presented information
- Structure of the presentation
- Evidence of practical activities undertaken (e.g. results, photographs)
- Quality of presentation slides
- Time management (video should be 5-7 minutes long)
- Your communication skills

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 all of the 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. Irrigation system management and operation

- Provide a suggested irrigation schedule (application rates and irrigation cycle). Explain using some sample calculations how this may be estimated using evapotranspiration figures.
- Provide examples of techniques used for evaluating the performance of the irrigation system.
- Explain safety procedures to be followed when operating the irrigation system.

Assessment Due Date

Assessment 3 is due Friday of Review/Exam Week (14/10/2022, 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 this assessment (Develop and Evaluate an Irrigation Plan).

Assessment Criteria
The report will be assessed as follows:

- 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).

Further information including marking rubric will be made available on the Moodle site.

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