AGRI11001 *Soil and Irrigation Management*
Term 1 - 2018

Profile information current as at 18/05/2024 12:07 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 water systems, integrating the VET competency units 'Monitor and manage soils for production' and 'Managing water 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 1 - 2018

- 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).

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. **Portfolio**
Weighting: 40%
2. **Written Assessment**
Weighting: 40%
3. **Practical and Written Assessment**
Weighting: 20%

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 unit evaluation report

Feedback
Pracs need to be more hands on and broader

Recommendation
Increase the number of pracs covering soil science skills either in addition to current excursions integrated across other units or in place of those excursions

Action
The portfolio was divided into 2 on-line quizzes.

Feedback from Moodle unit evaluation report

Feedback
Sometimes the amount of information that was in a single lecture was too much to take in at one sitting.

Recommendation
Increase the number of lectures per week or deliver the lectures for the full term instead of stopping at week 9 to allow the whole farm planning activity to be delivered in the last 3 weeks of term.

Action
QATC coordinated delivery of pracs at each campus

Feedback from Moodle unit evaluation report

Feedback
I didn't like the fact that majority of assessments were quizzes. due to the fact they were quizzes only the correct answer is given back occasionally.

Recommendation
Replace some or all of the quizzes with assessment items that align better with unit learning outcomes and that can be used to provide more constructive feedback to assist student learning.

Action
Guidance for all assessment items was provided to the class. Heavy reliance on quizzes made it difficult to produce useful rubrics. Practice quizzes were set.

Feedback from Teaching staff

Feedback
Lecturing space in Bundaberg was not appropriate for lectures

Recommendation
Timetable lectures for a lecture or tutorial room rather than a lab space

Action
Assessment due dates were posted on moodle at the start of the term. The posted assessment and teaching schedule were followed apart from 2 weeks where cyclone/floods forced campus closures.

Feedback from CQU staff and students

Feedback
The students and CQU staff indicated that some content was repetitive and overlaps with other courses (e.g. content overlap with 11002).

Recommendation
CQU and QATC staff will work to reduce unintentional repetition and instead scaffold learning outcomes across the Agriculture program. This may include project based learning assessments that supplement or replace the current assessments.

Action
Unit content was revised to avoid repetition.

Feedback from Head of Discipline

Feedback
Student evaluation scores indicated that changes are needed in the assessment tasks

Recommendation
Replace some or all of the quizzes with assessment items that align better with unit learning outcomes and that can be used to provide more constructive feedback to assist student learning. Assessment rubrics will be required for these tasks and will assist students in understanding requirements of the tasks.

Unit Learning Outcomes

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

1. Use soil testing information 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

— N/A Level | ∘ Introductory Level | • Intermediate Level | • Graduate Level | ∘ Professional Level | ∘ Advanced Level

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes				
	1	2	3	4	5
1 - Portfolio - 40%	•	•	•	•	•
2 - Practical and Written Assessment - 20%				•	•
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					

Alignment of Assessment Tasks to Graduate Attributes

Assessment Tasks	Graduate Attributes									
	1	2	3	4	5	6	7	8	9	10
1 - Portfolio - 40%	•	•	•	•	•	•				
2 - Practical and Written Assessment - 20%	•	•	•			•				
3 - Written Assessment - 40%	•	•	•	•		•				

Textbooks and Resources

Textbooks

There are no required textbooks.

Additional Textbook Information

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: American Psychological Association 6th Edition (APA 6th edition)
For further information, see the Assessment Tasks.

Teaching Contacts

Daniel Cozzolino Unit Coordinator
d.cozzolino@cqu.edu.au

Schedule

Week 1 - 05 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to soils in agriculture.		**Lab Practical.** Measuring soil physical properties. The practical will train students to undertake standard soil tests for several physical properties.

Week 2 - 12 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Soil Chemistry (e.g. pH, cation exchange capacity, salinity, sodicity and major nutrients in soils). Techniques for assessing soil chemical characteristics.		**Lab Practical.** Measuring soil chemical properties. Hands on soil tests for several soil chemical properties.

Week 3 - 19 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Soil Biology. Overview of the living constituents of soil and their importance in 'soil health' (e.g. nutrient cycles, decomposition of organic substrates and soil properties impacted by soil organic matter).		

Week 4 - 26 Mar 2018

Module/Topic	Chapter	Events and Submissions/Topic
Soil analysis assessment and interpretation.		**Lab Practical.** Review of soil testing methods covered in weeks 1-3. Examination of 'unknown' soil samples to assess students competence in soil tests and interpretation of results.

Week 5 - 02 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Soil constraints and land degradation (e.g. salinity, soil acidification, sodicity, soil structure decline and compaction, water repellence, erosion, and nutrient depletion).		**Field trip.**

Vacation Week - 09 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 16 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Soil water relationships.		**Lab Practical.**

Week 7 - 23 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Soil variability, crop production and precision agriculture.		**Field trip.** **Soil research report** Due: Week 7 Friday (27 Apr 2018) 8:00 pm AEST

Week 8 - 30 Apr 2018

Module/Topic	Chapter	Events and Submissions/Topic
Irrigation planning.		**Lab Practical.** Irrigation activity, assemble basic irrigation system (e.g. calculate application rates, distribution uniformity, evaluate efficiency).

Week 9 - 07 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Irrigation management.		**Field trip.**

Week 10 - 14 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Irrigation systems used in Australian agriculture.		

Week 11 - 21 May 2018

Module/Topic	Chapter	Events and Submissions/Topic
Issues and technologies in irrigated agriculture in Australia.		

Week 12 - 28 May 2018		
Module/Topic	Chapter	Events and Submissions/Topic

Review/Exam week - 04 Jun 2018		
Module/Topic	Chapter	Events and Submissions/Topic
		Develop and evaluate an irrigation plan Due: Review/Exam Week Friday (8 June 2018) 5:00 pm AEST

Assessment Tasks

1 Portfolio

Assessment Type
Portfolio

Task Description
The portfolio is made up of a series of tasks related to the different activities of this Unit (e.g. lectures, field trips, pracs, tutorials) and a quiz.
Tasks include:
PART A (20%). Due date Week 3 (Friday, 23/3/2018). Task: QUIZ. Assessment of content delivered during lectures, field trips, pracs and tutorials from week 1 through to week 3 inclusive. Topics include soil chemical and physical properties, soil biology, prac and field activities.
PART B (20%). Due date Week 10 (Friday, 11/5/2018). Task: PRACTICAL REPORTS. This assessment is the gathering of the practical and field reports collected between weeks 1 to 9. This document is the combination of the complete tasks (answer of questions, diagrams, etc.) in one file.

Assessment Due Date

QUIZ, due date Friday 23rd March, 5:00 PM, Prac and field activities report due date 18th May 2018, 5:00 PM.

Return Date to Students

Grades will be returned within 10 working days of submission.

Weighting
40%

Minimum mark or grade
50% of the marks.

Assessment Criteria
Marks are awarded for:
1. The quality and details of the information collected during prac and field trip activities,
2. The discussion of this information in context of the task,
3. The clarity of English expression, spelling, and grammar,
4. Use of figures, diagrams, drawings and pictures.
The Prac and field trip activities report has a Pass/Fail component.
Students may need to resubmit work to QATC in order to demonstrate competency if they wish to apply for the Diploma qualification

Referencing Style

- American Psychological Association 6th Edition (APA 6th edition)

Submission
Online

Learning Outcomes Assessed

- Use soil testing information to describe different soil types.
- Explain how soil properties determine production opportunities.
- Develop, monitor and review soil amendment practices.
- Determine the feasibility of using or upgrading irrigation systems.
- Develop and evaluate an appropriate irrigation plan.

Graduate Attributes

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

2 Soil research report

Assessment Type
Written Assessment

Task Description
Assessment task: written report. You will research a typical soil/s in your region and prepare a report that includes the following information:
1. Identify and list the predominant soil type/s according to the Australian Soil Classification,
2. Using published data and historical records, describe a particular soil chemical and a physical properties that are optimal to grow a crop in on the soil identified,
3. Develop a soil sampling strategy (e.g. number of samples, sites) for a farm within your region,
4. Describe at least one chemical or physical test that should be conducted on the farm,
5. Review the literature to identify the most appropriate amelioration practices for the soil on your farm that will improve crop yield (to achieve this objective, you will identify characteristics of a hypothetical soil profile for your farm),
6. Based on the characteristics and properties of the soil described, develop a plan to monitor the amelioration practice.
The Soil Research Report will be 1500-2000 words and include an introduction, aims, main body addressing point listed above, conclusions and references.

Assessment Due Date
Week 7 Friday (27 Apr 2018) 8:00 pm AEST

Return Date to Students

Grades will be returned within 10 working days of submission.

Weighting
40%

Minimum mark or grade
50%

Assessment Criteria
The marking rubric and exemplar will be provided in week 1 and posted in the Unit Moodle site. Marks are awarded for:
1. Introduction
2. The quality of the background review
3. The discussion of this information in context of the task
4. The clarity of English expression, spelling, and grammar
5. Accuracy of referencing and style,
6. Use of figures and tables, appropriate length.

Referencing Style

- American Psychological Association 6th Edition (APA 6th edition)

Submission
Online

Learning Outcomes Assessed

- Use soil testing information to describe different soil types.
- Explain how soil properties determine production opportunities.
- Develop, monitor and review soil amendment practices.

Graduate Attributes

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

3 Develop and evaluate an irrigation plan

Assessment Type
Practical and Written Assessment

Task Description
Assessment task: written report. You will prepare a short report on the installation or modification of an irrigation system. For this task you are required to choose a property with a current water supply, which could be used for supplying water to a farming enterprise. You need to identify a crop you are going to irrigate. The following should be covered in your assignment.
You will prepare a short report about the installation and evaluation of an irrigation system. For this task you are required to choose a property with a current water supply, which could be used for supplying water to a farming enterprise. You need to identify a crop you are going to irrigate. The following should be covered in your assignment.
1. Brief background information about:
a) your irrigation project including water supply (quality and treatment requirements),
b) soil type and cropping system (need for drainage requirements and general requirements of the crop),
c) application system (e.g. trickle, flood, spray irrigation), and
d) specific requirements of irrigation system (determination of peak water demand - show relevant calculations)
2. Installation requirements for your irrigation project including:
a) the details of suitable pump and its capacity based on pump performance data,
b) a list of all of the components used in the installation of the system (as a minimum: pump, pipe, valves, and emitters),
c) details of installation procedures for various components,
d) details of checking procedures use to ensure operational effectiveness whenever the system is running, and
e) periodic checking procedures to evaluate the efficiency and effectiveness of the irrigation system.
3. Evaluation standards and strategic management of your irrigation system:
a) provide examples of techniques used for evaluating irrigation system performance and
b) provide details of the strategy of when and how you will undertake the evaluation of the irrigation system.
4. Provide a suggested irrigation schedule, which is a guide for correct application rates. This should use estimated evapotranspiration figures, which should be summarized in the report, with detailed calculations included in an appendix.
The Irrigation Plan will be in the format of a report (1500-2000 words), which includes an introduction, aims, main body addressing point listed above, conclusions and references.

Assessment Due Date
Review/Exam Week Friday (8 June 2018) 5:00 pm AEST

Return Date to Students

Grades will be returned within 10 working days of submission.

Weighting
20%

Minimum mark or grade
50% of the marks.

Assessment Criteria
The marking rubric and exemplar will be provided in week 1 and posted in the Unit Moodle site. Marks are awarded for:
1. Introduction
2. The quality of the background review
3. The discussion of this information in context of the task
4. The clarity of English expression, spelling, and grammar
5. Accuracy of referencing and style,
6. Use of figures and tables, appropriate length.

Referencing Style

- American Psychological Association 6th Edition (APA 6th edition)

Submission
Online

Learning Outcomes Assessed

- Determine the feasibility of using or upgrading irrigation systems.
- Develop and evaluate an appropriate irrigation plan.

Graduate Attributes

- Communication
- Problem Solving
- Critical Thinking
- Information Technology Competence

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