



AGRI11001 Soil and Irrigation Management

Term 1 - 2019

Profile information current as at 18/05/2024 02:54 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 - 2019

- 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 site - student feedback

Feedback

Lack of details in assessment information

Recommendation

An unanticipated change of unit coordinator mid term resulted in significant disruption of unit delivery. It also hindered the replacement unit coordinator ability to rectify or modify issues related with assessments and resources.

Feedback from Moodle site - student feedback

Feedback

Need for improved feedback

Recommendation

An unanticipated change of unit coordinator mid term resulted in significant disruption of unit delivery. It also hinder the replacement unit coordinator ability to rectify or modify issues related with assessments and resources. CQUniversity staff will continue to work with the partner organisation to ensure appropriate feedback is provided to students

Feedback from Moodle site - student feedback

Feedback

Unit content and alignment with assessments

Recommendation

CQUniversity staff will continue to work with the partner organisation to ensure appropriate content and its alignment with assessments.

Feedback from Moodle site - student feedback

Feedback

Unit delivery and content

Recommendation

CQUniversity staff will continue to work with the partner organisation to ensure appropriate content and its alignment with assessments.

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.

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

Shahla Hosseini Bai Unit Coordinator
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Schedule

Week 1 - 11 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to soils in agriculture and soil physics		Lab Practical. Zoom session with QATC Field Trip.

Week 2 - 18 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
Soil Chemistry		Lab Practical. Measuring soil physical properties. The practical will train students to undertake standard soil tests for several physical properties.

Week 3 - 25 Mar 2019

Module/Topic	Chapter	Events and Submissions/Topic
Soil Biology		Lab Practical. Measuring soil chemical properties. Hands on soil tests for several soil chemical properties.

Week 4 - 01 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
Soil management		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 - 08 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Soil constraints and land degradation

Field Trip (combined)

Assessment 1A: Unknown soil examination report used learning from week 1-3 (10%)

Vacation Week - 15 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Week 6 - 22 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Soil and water relationships

No prac.

Assessment 1B: Quiz from lectures, tutorials and practical sessions between week 1 and week 5 (10%)

Week 7 - 29 Apr 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Soils in context

Lab Practical. Evaluation suitability of land for agricultural production on the case study farm

Field Trip. Revisiting the site visited in week 1

Assessment 2. Soil research report (40%)

Week 8 - 06 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Irrigation planning

Lab Practical. Irrigation activity, assemble basic irrigation system (e.g. calculate application rates, distribution uniformity, evaluate efficiency).

Week 9 - 13 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Irrigation systems

No prac.

Week 10 - 20 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Irrigation futures

Lab Practical. Irrigation activity, assemble basic irrigation system (e.g. calculate application rates, distribution uniformity, evaluate efficiency).

Field Trip. Revisit field site visited in week 1

Assessment 1C: Oral presentation (10%)

Week 11 - 27 May 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Water, soil and plant relations

Lab Practical.

Assessment 1D: Irrigation report week 8-10 (10%)

Week 12 - 03 Jun 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Innovation/Trivia week

Lab Practical. Interactive learning

Field Trip. (combined)

Assessment 3. Develop and evaluate an irrigation plan (20%)

Review/Exam week - 10 Jun 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Review/Exam Week - 10 Jun 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Exam Week - 17 Jun 2019

Module/Topic	Chapter	Events and Submissions/Topic
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Assessment Tasks

1 Assessment 1

Assessment Type

Portfolio

Task Description

The portfolio is made up of **four tasks** related to the different activities of this Unit (e.g. lectures, field trips, pracs, tutorials) and one quiz.

Tasks include:

Assessment 1A: Written report - Due date week 5 (10%): Unknown soil samples will be provided for students in week 4 and students need to examine soil physical and chemical properties of the samples and prepare a short report. The instruction to prepare the report will be provided in Moodle in week 4.

Assessment 1B: Quiz - Due date week 6 (10%): Assessment of content delivered during lectures, field trips, pracs and tutorials from week 1 through to week 5 inclusive. Topics include soil chemical and physical properties, soil biology, prac and field activities.

Assessment 1C: Oral presentation - Due date week 10 (10%) - An oral presentation to assess a farm in your area based on your learning from field visits, lectures and tutorial between weeks 1 and 9. The presentation will be 10 minutes for each student and include introduction (a short literature review and background), method (farm description, farm design and management practices over cropping system) and results and discussion (a visual examination and report of visual inspection of soil, and irrigation system), conclusion and recommendations.

Assessment 1D: Practical report for irrigation planning - Due date week 11 (10%). Data will be provided for students to calculate and design an irrigation systems. The instruction to prepare the report will be provided in Moodle in week 10.

Assessment Due Date

Return Date to Students

Marks 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:

Assessment 1A and 1D:

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.

Assessment 1B:

1. The quality and details of the information provided in the quiz.

Assessment 1D:

1. The quality of background and literature review.
2. The quality and details of the information collected from farm,
3. The discussion of this information.
4. The clarity of English expression, spelling, and grammar,
5. Use of figures, diagrams, drawings and pictures.
6. Overall structure of the presentation and keeping presentation within the allocated time (8 minutes presentation + 2 minutes questions).

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 Assessment 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. Use published data and historical records, describe a particular soil chemical and a physical properties that are optimal to grow a crop in 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 up to maximum 2000 words and include an introduction, aims, main body addressing point listed above, conclusions and references.

Assessment Due Date

Return Date to Students

Marks 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 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 Assessment 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.

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 used 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 to 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 up to maximum 2000 words, which includes an introduction, aims, main body addressing point listed above, conclusions and references.

Assessment Due Date**Return Date to Students**

Marks 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