AGRI11007 *Plant and Livestock Breeding Strategies*

Term 2 - 2021

Profile information current as at 12/10/2024 12:27 pm

All details in this unit profile for AGRI11007 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

In this unit, you will be provided with a framework for the development and application of agricultural breeding strategies, and application of modern genetic selection tools. You will be introduced to a broad overview of genetic selection tools, whilst learning how to select, monitor and evaluate a breeding program. Finally, you will consider the ethical and social implications of genetic modification and how this might influence management decisions.

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 - 2021

- 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. **Online Quiz(zes)**
Weighting: 20%
2. **Presentation and Written Assessment**
Weighting: 50%
3. **Portfolio**
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

Take-home practicals complimented the theory components throughout the term

Recommendation

Continue to provide take home practicals where feasible, ensuring that they are relevant to the theory component.

Feedback from Have Your Say

Feedback

Students enjoyed the opportunity to interact with their peers and guest lecturers (in class and during the residential school).

Recommendation

Continue to provide online and face-to-face opportunities for students to interact with peers and guest lecturers. Maintain industry connections where possible.

Unit Learning Outcomes

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

1. Select appropriate tools for a genetic improvement plan
2. Develop a breeding program based on heritability and economic returns
3. Monitor and evaluate a breeding program
4. Critique the social and ethical implications of genetic modification.

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
1 - Online Quiz(zes) - 20%			•	•
2 - Presentation and Written Assessment - 50%	•	•		
3 - Portfolio - 30%			•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes			
	1	2	3	4

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 - Online Quiz(zes) - 20%		•				•				
2 - Presentation and Written Assessment - 50%	•	•	•	•		•				
3 - Portfolio - 30%	•	•	•	•	•	•		•		

Textbooks and Resources

Textbooks

There are no required textbooks.

Additional Textbook Information
Please access the eReading list on Moodle

IT Resources

You will need access to the following IT resources:

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Microsoft Office
- PowerPoint
- Video and Audio recording equipment.

Referencing Style

All submissions for this unit must use the referencing style: Harvard (author-date)
For further information, see the Assessment Tasks.

Teaching Contacts

Jaime Manning Unit Coordinator
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Nicholas Corbet Unit Coordinator
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Schedule

Week 1 - Introduction - 12 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to genetics and breeding in crops and livestock		

Week 2 - Molecular and quantitative genetics - 19 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
Molecular and quantitative genetics		

Week 3 - Phenotypes and traits - 26 Jul 2021

Module/Topic	Chapter	Events and Submissions/Topic
Phenotypes and traits		

Week 4 - Non-Mendelian genetics - 02 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Non-Mendelian genetics		**Online quiz** (Quiz A) Due: Week 4 Friday (6 August. 2021) 5:00 pm AEST

Week 5 - Livestock selection and breeding - 09 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Livestock selection and breeding		**Online quiz** (Quiz B) Due: Week 5 Friday (13 Aug. 2021) 5:00 pm AEST

Vacation Week - 16 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - Genetic modification - 23 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Genetic modification		

Week 7 - Residential school - 30 Aug 2021

Module/Topic	Chapter	Events and Submissions/Topic
Residential school		

Week 8 - Presentations - 06 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic

Development of a breeding program presentation due this week		**Development of a breeding program** (Part A - short presentation) Due: Week 8 Friday (10 Sept. 2021) 9:00 am AEST and presented in class **Practical Portfolio** Due: Week 8 Monday (6 Sept 2021) 5:00 pm AEST

Week 9 - Social and ethical implications - 13 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
Social and ethical implications of genetic modification in crops and livestock		

Week 10 - Modern tools - 20 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
Modern tools in breeding and selection, modelling and simulation		**Online quiz** (Quiz C) Due: Week 10 Friday (24 Sept. 2021) 5:00 pm AEST

Week 11 - Advances in crop breeding - 27 Sep 2021

Module/Topic	Chapter	Events and Submissions/Topic
Advances in crop breeding		

Week 12 - Advances in livestock breeding - 04 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic
Advances in livestock breeding		

Review Week - 11 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic
		Development of a breeding program (Part B - Report) Due: Review week Wednesday (13 Oct. 2021) 5:00 pm AEST

Exam Week - 18 Oct 2021

Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Online quiz

Assessment Type
Online Quiz(zes)

Task Description
There are three (3) quizzes:

- **QUIZ A (5%):** Assessment of content delivered during lectures and tutorials from Week 1 through to Week 3, specifically the terminology used. Due date: Week 4 Friday (6 Aug. 2021) 5:00 pm AEST
- **QUIZ B (5%):** Assessment of Punnet squares and traits. Due date: Week 5 Friday (13 Aug. 2021) 5:00 pm AEST
- **QUIZ C (10%):** Assessment of content delivered during lectures and tutorials up to Week 10. Due date: Week 10 Friday (24 Sept. 2021) 5:00 pm AEST

Quizzes consist of multiple choice and short answer questions and will open on Monday of the corresponding week for five days. You will have 2 hours to complete each quiz once started. Only one attempt is allowed.

Number of Quizzes
3

Frequency of Quizzes
Other

Assessment Due Date

Quiz A due Week 4 Friday (6 Aug. 2021) 5:00 pm AEST; Quiz B due Week 5 Friday (13 Aug. 2021) 5:00 pm AEST; Quiz C due Week 10 Friday (24 Sept. 2021) 5:00 pm AEST

Return Date to Students

Grades will be returned within 10 working days of submission.

Weighting
20%

Assessment Criteria
Marks will be marked based on correct responses to quiz questions.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
All parts of this assessment are due on Moodle

assessmentOutcome

- Monitor and evaluate a breeding program
- Critique the social and ethical implications of genetic modification.

assessmentGradAttribute

- Problem Solving
- Information Technology Competence

2 Development of a breeding program plan

Assessment Type
Presentation and Written Assessment

Task Description
This assessment, “Development of a breeding program plan” compromises of two (2) parts and accounts for 50% of your final mark:

PART A - Short presentation (10%):
You will be required to give a 3-5 minute presentation in-class describing a selected genetic tool to be applied in a genetic improvement plan for a crop or livestock enterprise. Your presentation should discuss the following aspects:

- Introduce your chosen genetic tool that is relevant to an economically important crop or livestock production industry
- Define the current state of knowledge of the selected genetic tool
- Outline and discuss at least one positive and one negative aspect of the selected genetic tool

PART B - Report (40%):
Develop a breeding program plan (livestock or crop) based on sound scientific background and economic returns in the form of a written report. Using the genetic tool you presented on in PART A:

- Evaluate your selected genetic tool
- Define the current state of knowledge of the selected genetic tool
- Describe and discuss how the breeding strategy will be implemented
- Outline how you will monitor and evaluate the success of the breeding strategy both in relation to heritability and economic returns

This assessment will be in the format of an essay (1200-1500 words) and must include an introduction, body, conclusion and references.

The marking rubrics will be available on Moodle.

Assessment Due Date

PART A due Week 8, Friday 10th Sept by 9AM AEST (and presented in class); PART B due Review Week, Wednesday 13th Oct by 5PM AEST

Return Date to Students

Grades will be returned within 10 working days of submission.

Weighting
50%

Minimum mark or grade
50%. A pass is required to pass the unit.

Assessment Criteria
Marks are awarded for:

- Communication and presentation skills
- Introduction and addressing the topic
- Knowledge, content and structure
- Analysis of information
- Discussion of how the breeding strategy will be implemented
- Evaluation of the success of the breeding strategy
- The clarity of English expression, spelling and grammar
- Use of references and accuracy of referencing
- Appropriate timeframe (Part A) and length (Part B)

Detailed marking rubrics will also be available on Moodle.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
All parts of this assessment are due on Moodle

assessmentOutcome

- Select appropriate tools for a genetic improvement plan
- Develop a breeding program based on heritability and economic returns

assessmentGradAttribute

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

3 Practical Portfolio

Assessment Type
Portfolio

Task Description
The practical portfolio relates to practical sessions and the residential school, where you will be required to complete a series of activities or short response questions. A copy of the practical portfolio will be available on Moodle including specific details for each practical session.

Assessment Due Date
Week 8 Monday (6 Sept 2021) 5:00 pm AEST

(Due at the conclusion of the residential school)

Return Date to Students

Grades will be returned within 10 working days of submission.

Weighting
30%

Minimum mark or grade
50%. A pass is required to pass the unit.

Assessment Criteria
Marks are awarded for attendance, participation, completion, correct responses to questions and submission of all practical activities including the residential school.

Referencing Style

- Harvard (author-date)

Submission
Online

Submission Instructions
All parts of this assessment are due on Moodle

assessmentOutcome

- Monitor and evaluate a breeding program
- Critique the social and ethical implications of genetic modification.

assessmentGradAttribute

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

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