

In Progress

Please note that this Unit Profile is still in progress. The content below is subject to change.



BIOL12105 *Scientific Analysis and Statistics*

Term 2 - 2022

Profile information current as at 18/05/2022 06:39 am

All details in this unit profile for BIOL12105 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

An understanding of experimental design, statistical methods, ethics and the ability to critically analyse scientific reports is essential for graduates in the sciences. In this unit, you will study experimental design, ethics and commonly used statistical procedures. You will be introduced to hypothesis testing and experimental design, parametric and non-parametric analyses, one, two and multi sample analyses (including one way, two way, and nested ANOVA designs, as well as multivariate analyses), correlation and regression, and data transformation. The learning and teaching strategy uses a clear, conceptual approach, which assumes that you have little or no statistical background.

Details

Career Level: *Undergraduate*

Unit Level: *Level 2*

Credit Points: 6

Student Contribution Band: 7

Fraction of Full-Time Student Load: 0.125

Pre-requisites or Co-requisites

Prerequisite: SCIE11023 Scientific Research Fundamentals or ESSC11004 Study and Research Skills for Health Science or SCIE11024 Science Investigation

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

- Online

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. **Written Assessment**

Weighting: 25%

2. **Practical Assessment**

Weighting: 25%

3. **Online Quiz(zes)**

Weighting: 50%

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 feedback

Feedback

One student commented that no timely feedback or responses were provided, and that communication from the lecturer was slow.

Recommendation

This comment is perplexing given the weekly additional live Zoom sessions run through term, and the focus on fast return of marked work with individual feedback (longest period from submission to return was 7 days). All feedback is considered toward continual improvement of timely communication and feedback.

Feedback from Moodle feedback Email

Feedback

Students expressed their appreciation for the format of the lectures being in shorter 'bite-sized' units of information that they could learn from before building upon with the subsequent lecture.

Recommendation

Retain this format of content delivery for future offerings.

Unit Learning Outcomes

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

1. Describe the uses, pitfalls and limitations of parametric and non-parametric statistical tests
2. Choose an appropriate statistical test for a set of data
3. Correctly use software programs for analysing scientific data
4. Know when experiments require ethical clearance and explain the basic principles of ethical experimentation
5. Critique scientific reports and research proposals in terms of the quality of their experimental design
6. Design realistic experiments with appropriate control and replicates
7. Explain the rationale behind statistical testing and probability levels.

Alignment of Learning Outcomes, Assessment and Graduate Attributes



Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes						
	1	2	3	4	5	6	7
1 - Written Assessment - 25%	•			•	•		
2 - Practical Assessment - 25%		•	•				
3 - Online Quiz(zes) - 50%	•	•		•	•	•	•

Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes						
	1	2	3	4	5	6	7
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 - Written Assessment - 25%	•	•	•	•				•		
2 - Practical Assessment - 25%	•	•	•			•				
3 - Online Quiz(zes) - 50%	•	•	•					•		

Textbooks and Resources

Textbooks

BIOL12105

Prescribed

Statistics Explained

Edition: 2nd (2012)

Authors: Steve McKillup

Cambridge University Press

Cambridge , UK

ISBN: 978-0-521-18328-4

Binding: Paperback

Additional Textbook Information

This book is available to read online through the Library website. If you would like your own copy, you can purchase either paper or eBook copies at the CQUni Bookshop here: <http://bookshop.cqu.edu.au> (search on the Unit code).

[View textbooks at the CQUniversity Bookshop](#)

IT Resources

You will need access to the following IT resources:

Academic Integrity Statement

Information for Academic Integrity Statement has not been released yet.

This unit profile has not yet been finalised.