



# STAT11048 *Essential Statistics*

## Term 2 - 2024

Profile information current as at 29/07/2024 03:11 pm

All details in this unit profile for STAT11048 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 introduces you to the concepts and applications of probability and statistical modelling involving questions of estimation, inference, regression, and correlation. Topics covered include descriptive statistics, measures of central tendency and dispersion, probability and probability distributions (binomial, Poisson, normal), confidence intervals, one and two-sample hypothesis tests, one-way analysis of variance, chi-square tests, linear regression, and correlation. The use of a calculator and a statistical/spreadsheet computer package for data analysis are covered.

### 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 - 2024

- Bundaberg
- Mackay
- Online
- 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: 40%

#### 2. **Examination**

Weighting: 60%

### 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 Unit evaluations.

##### Feedback

Video resources were favourably commented on by students.

##### Recommendation

Continue to enhance and expand video resources.

#### Feedback from Units evaluations and unit coordinator reflection

##### Feedback

Online students made extensive use of the tutorial materials.

##### Recommendation

Continue to ensure tutorial questions and solutions meet students' needs and support their learning.

## Unit Learning Outcomes

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

1. Apply the concepts of elementary statistics to analyse data
2. Demonstrate knowledge of introductory probability theory to predict the likelihood of occurrence of an event
3. Formulate solutions to statistics problems using statistical analysis and sampling theory
4. Identify an appropriate probability distribution for a given scenario and use its properties to calculate probabilities
5. Draw statistical conclusions about a population based on a sample of data using one sample, two sample, and ANOVA tests
6. Use a calculator and computer software to perform statistical calculations.

This unit is designed to provide a foundation in statistical thinking as applied to decision making in life.

## 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
1 - Online Quiz(zes) - 40%	•	•	•	•		•
2 - Examination - 60%	•	•	•	•	•	•

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
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) - 40%	•	•	•	•		•				
2 - Examination - 60%		•	•	•		•				

## 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)
- Access to a printer (for printing assessment and tutorial materials)
- Access to a webcam, speaker and microphone or a headset. (To participate in Zoom lectures and tutorials.)

## Referencing Style

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

## Teaching Contacts

**Jia Wang** Unit Coordinator  
[j.wang@cqu.edu.au](mailto:j.wang@cqu.edu.au)

## Schedule

### Week 1 - 08 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Statistics	Study Guide - Chapter 1 Selvanathan Textbook - Chapters 1 & 3, plus Chapter 2 (Sections 2.1 & 2.2 only)	Watch lecture videos and do tutorial exercises for Week 1.

### Week 2 - 15 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Data Distributions	Study Guide - Chapter 2 Selvanathan Textbook - Chapter 4 (Section 4.1 only)	Watch lecture videos and do tutorial exercises for Week 2.

### Week 3 - 22 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Central Tendency and Dispersion	Study Guide - Chapter 3 Selvanathan Textbook - Chapter 5 (all Sections except 5.5)	Watch lecture videos and do tutorial exercises for Week 3. <b>Quiz 1:</b> due Friday, 26 July at 11.45 pm.

### Week 4 - 29 Jul 2024

Module/Topic	Chapter	Events and Submissions/Topic
Counting Principles and Probability	Study Guide - Chapter 4 Selvanathan Textbook - Chapter 6 (all Sections except 6.5)	Watch lecture videos and do tutorial exercises for Week 4.

### Week 5 - 05 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
Discrete Probability Distributions	Study Guide - Chapter 5 Selvanathan Textbook - Chapter 7 (all Sections except 7.4 & 7.5)	Watch lecture videos and do tutorial exercises for Week 5. <b>Quiz 2:</b> due Friday, 9 August at 11.45 pm.

### Vacation Week - 12 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
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### Week 6 - 19 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
Continuous Probability Distributions	Study Guide - Chapter 6 Selvanathan Textbook - Chapter 8 (all Sections except 8.4)	Watch lecture videos and do tutorial exercises for Week 6.

### Week 7 - 26 Aug 2024

Module/Topic	Chapter	Events and Submissions/Topic
Sampling and Sampling Distributions	Study Guide - Chapter 7 Selvanathan Textbook - Chapter 2 (Sections 2.3 to 2.5), plus Chapter 9 (Sections 9.1 to 9.4 & 9.6)	Watch lecture videos and do tutorial exercises for Week 7. <b>Quiz 3:</b> due Friday, 30 August at 11.45 pm.

### Week 8 - 02 Sep 2024

Module/Topic	Chapter	Events and Submissions/Topic
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Estimation	Study Guide - Chapter 8 Selvanathan Textbook - Chapter 10 (all Sections)	Watch lecture videos and do tutorial exercises for Week 8.
<b>Week 9 - 09 Sep 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Hypothesis Tests for a Population Mean or Proportion	Study Guide - Chapter 9 Selvanathan Textbook - Chapter 12 (all Sections except 12.5)	Watch lecture videos and do tutorial exercises for Week 9. <b>Quiz 4:</b> due Friday, 13 September at 11.45 pm.
<b>Week 10 - 16 Sep 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Hypothesis Tests for Two or More Population Means	Study Guide - Chapter 10 Selvanathan Textbook - Chapter 13 (Sections 13.1 & 13.2 only)	Watch lecture videos and do tutorial exercises for Week 10.
<b>Week 11 - 23 Sep 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Linear Regression and Correlation	Study Guide - Chapter 12 Selvanathan Textbook - Chapter 4 (Section 4.3 only), plus Chapter 15 (Sections 15.1 to 15.3, & read parts of 15.4 & 15.6)	Watch lecture videos and do tutorial exercises for Week 11.
<b>Week 12 - 30 Sep 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
Chi-Square Tests	Study Guide - Chapter 11 Selvanathan Textbook - Chapter 14 (all Sections)	Watch lecture videos and do tutorial exercises for Week 12.
<b>Review/Exam Week - 07 Oct 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>
<b>Exam Week - 14 Oct 2024</b>		
<b>Module/Topic</b>	<b>Chapter</b>	<b>Events and Submissions/Topic</b>

## Term Specific Information

For any queries, please contact the unit coordinator: Dr Jia Wang (j.wang@cqu.edu.au)

## Assessment Tasks

### 1 Quizzes

#### Assessment Type

Online Quiz(zes)

#### Task Description

There are four quizzes and each quiz is worth 10%. These quizzes are available on the STAT11048 Moodle site, along with the due dates for each. The purpose of these quizzes is to monitor your progress throughout the term, allowing you to identify any concepts that require further review. The quizzes also provide a basis for communication between you and your Lecturer/Unit Coordinator.

#### Number of Quizzes

4

#### Frequency of Quizzes

#### Assessment Due Date

Due date for each quiz and be found in the unit schedule. Full details about the quizzes are available on the STAT11048 Moodle website.

### **Return Date to Students**

Results will be available to students two weeks after the submission date. Consequently extension requests greater than 14 days will be denied except under exceptional circumstances.

### **Weighting**

40%

### **Assessment Criteria**

There are 4 quizzes and each quiz is worth 10%. Marks will be awarded for finding the correct answer.

### **Referencing Style**

- [Harvard \(author-date\)](#)

### **Submission**

Online

### **Submission Instructions**

See the STAT11048 Moodle website for details about assignment submission.

### **Learning Outcomes Assessed**

- Apply the concepts of elementary statistics to analyse data
- Demonstrate knowledge of introductory probability theory to predict the likelihood of occurrence of an event
- Formulate solutions to statistics problems using statistical analysis and sampling theory
- Identify an appropriate probability distribution for a given scenario and use its properties to calculate probabilities
- Use a calculator and computer software to perform statistical calculations.

### **Graduate Attributes**

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

## **Examination**

### **Outline**

Complete an invigilated examination.

### **Date**

During the examination period at a CQUniversity examination centre.

### **Weighting**

60%

### **Length**

180 minutes

### **Minimum mark or grade**

Minimum percentage of examination marks required to pass unit - 40% (or 24 of the 60 marks available on the exam)

### **Exam Conditions**

Closed Book.

### **Materials**

Dictionary - non-electronic, concise, direct translation only (dictionary must not contain any notes or comments).  
Calculator - all non-communicable calculators, including scientific, programmable and graphics calculators are authorised

## 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