



# PBHL20003 *Epidemiology and Statistics*

## Term 1 - 2023

Profile information current as at 29/04/2024 04:03 am

All details in this unit profile for PBHL20003 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 foundation subject introduces you to essential knowledge required in your career as clinician, community health worker, health service administrator or public health practitioner. It introduces epidemiology and statistics concepts and skills that are the cornerstone of public health and evidence-based policy. Epidemiology is the study of the distribution and determinants of health-related states or events in specified populations, and the application of this study to control of health conditions. It addresses the 5Ws: what, who, where, when and why of health-related states (not just diseases!) in populations. We examine health states/events (what), people (who), place/s (where), time (when), and causes, risk factors, and modes of transmission (why/how). The unit provides a foundation for the analysis and interpretation of public health quantitative data and literature. You will learn essential statistical procedures to help understand the nature of disease incidence and prevalence, which forms the basis for public health practice and policy. Data and statistics related to the social determinants of health will be examined, with a focus on ethical principles related to Indigenous Data Sovereignty. You will be introduced to knowledge translation frameworks, and consider their utility in guiding the effective dissemination of epidemiological findings to guide policy and improve health outcomes. Developing these skills will support your future work, whether in clinical, public health, community or policy settings.

### Details

Career Level: *Postgraduate*

Unit Level: *Level 8*

Credit Points: 6

Student Contribution Band: 8

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 - 2023

- Melbourne
- Online
- Sydney

### 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 Postgraduate 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. **Written Assessment**

Weighting: 40%

#### 3. **Written Assessment**

Weighting: 40%

### 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 coordinator reflection

##### **Feedback**

(T1 2022) Separate tutorials for on-campus and off-shore/distance students

##### **Recommendation**

It is recommended to implement separate tutorials for on-campus and (Zoom-hosted) off-shore/distance students to better support student engagement and individual support.

#### Feedback from SUTE

##### **Feedback**

(T1 2022) Use more examples or elaboration

##### **Recommendation**

It is recommended to incorporate more real world public health-specific examples into the course content.

#### Feedback from SUTE

##### **Feedback**

(T1 2022) Useful feedback

##### **Recommendation**

In addition to existing feedback process, add drop-in sessions for students to review assessment.

## Unit Learning Outcomes

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

1. Demonstrate a foundation level knowledge of epidemiology and statistics and their application in public health.
2. Explain and apply the range of basic statistics essential in epidemiology to understand the patterns of the occurrence of disease, including prevalence and incidence and their use in public health contexts.
3. Critically appraise epidemiological studies at a foundational level, demonstrating an ability to critique study designs, interpret study methods, results and conclusions.
4. Distinguish social epidemiology from traditional epidemiology to understand and explain its contribution to public health practice by focusing on social determinants of health.
5. Apply ethical principles related to Indigenous Data Sovereignty that reflects an awareness of the rights and different ways of knowing of First Nations Peoples when using, collecting, analysing and interpreting epidemiological data.
6. Evaluate and interpret routinely used data in epidemiology and their relevance in the context of public health policy and practice.

Not applicable

## Alignment of Learning Outcomes, Assessment and Graduate Attributes

 N/A Level	 Introductory Level	 Intermediate Level	 Graduate Level	 Professional Level	 Advanced Level
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### Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - Online Quiz(zes) - 20%	•	•	•			
2 - Written Assessment - 40%	•	•	•			•
3 - Written Assessment - 40%			•	•	•	•

### Alignment of Graduate Attributes to Learning Outcomes

Graduate Attributes	Learning Outcomes					
	1	2	3	4	5	6
1 - Knowledge	○	○	○	○	○	○
2 - Communication	○	○	○	○	○	○
3 - Cognitive, technical and creative skills	○	○	○			○
4 - Research		○	○	○	○	
5 - Self-management			○		○	
6 - Ethical and Professional Responsibility	○	○	○	○	○	○
7 - Leadership		○				○
8 - Aboriginal and Torres Strait Islander Cultures						

## Textbooks and Resources

### Textbooks

PBHL20003

#### Prescribed

##### Basic Epidemiology

Edition: 2nd (2006)

Authors: Bonita, R., Beaglehole, R., & Kjellstrom, T.

World Health Organisation

Binding: eBook

PBHL20003

#### Prescribed

##### The New Public Health 4th

Edition: 4th (2015)

Authors: Fran Baun

Oxford University Press

ISBN: 9780195588088

Binding: eBook

#### Additional Textbook Information

See Study Guide for supplementary materials and weekly readings.

### IT Resources

**You will need access to the following IT resources:**

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Wordprocessing, spreadsheeting and powerpoint software

## Referencing Style

All submissions for this unit must use the referencing style: [Harvard \(author-date\)](#)

For further information, see the Assessment Tasks.

## Teaching Contacts

**Geraldine Vaughan** Unit Coordinator

[g.a.vaughan@cqu.edu.au](mailto:g.a.vaughan@cqu.edu.au)

## Schedule

### Week 1 - 06 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Introduction. Why epidemiology and statistics?</b>		
• Teaching, learning and assessment structure	See weekly Learning Activities and e-Reading list in Moodle.	
• Epidemiology and statistics intro and concepts		
• Differentiating social epi from traditional epidemiology		

### Week 2 - 13 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Epidemiology basics 1</b> <ul style="list-style-type: none"> <li>Measures of frequency. Prevalence and incidence.</li> <li>Surveillance: types and application</li> <li>Why social determinants matter in epidemiology and statistics</li> </ul>	See weekly Learning Activities and e-Reading list in Moodle.	

### Week 3 - 20 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Epidemiology basics 2</b> <ul style="list-style-type: none"> <li>Measures of mortality and morbidity</li> <li>Measures of association. Risk.</li> </ul>	See weekly Learning Activities and e-Reading list in Moodle.	

### Week 4 - 27 Mar 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Introduction to Statistics</b> <ul style="list-style-type: none"> <li>Key statistical concepts and terms</li> <li>Types of statistical methods and their application</li> <li>Measures of frequency and spread</li> <li>Probability distributions and sampling</li> <li>Visual data - bar charts, histograms and boxplots</li> </ul>	See weekly Learning Activities and e-Reading list in Moodle.	Quiz 1

### Week 5 - 03 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Epidemiology: introduction to study types</b> <ul style="list-style-type: none"> <li>Understanding the research process</li> <li>Study types: descriptive vs analytic, observational vs intervention</li> <li>Research questions</li> <li>Error, bias and confounding in epidemiological research – intro</li> </ul>	See weekly Learning Activities and e-Reading list in Moodle.	Quiz 2  <b>Assessment 1: Quizzes 1 and 2</b> Due: Week 5 Friday (7 Apr 2023) 11:59 pm AEST

### Vacation Week - 10 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
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### Week 6 - 17 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Applying your knowledge to the literature review 1</b> <ul style="list-style-type: none"> <li>Types of evidence synthesis reviews</li> <li>Developing your research question</li> <li>Searching the literature</li> <li>Synthesising and presenting your findings</li> </ul>	See weekly Learning Activities and e-Reading list in Moodle.	

### Week 7 - 24 Apr 2023

Module/Topic	Chapter	Events and Submissions/Topic
<b>Epidemiology - Screening</b> <ul style="list-style-type: none"> <li>Screening</li> <li>Sensitivity and specificity</li> <li>Predictive values</li> </ul>	See weekly Learning Activities and e-Reading list in Moodle.	

### Week 8 - 01 May 2023

Module/Topic	Chapter	Events and Submissions/Topic
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**Assessment 2 [Short answer questions] in class**

See Assessment details in Moodle.

Assessment 3 short answer questions in class (unit coordinator will contact offshore and distance students regarding assessment format)

**Assessment 2: Short answer questions** Due: Week 8 Friday (5 May 2023) 11:59 pm AEST

**Week 9 - 08 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Applying your knowledge to the literature review 2</b> <ul style="list-style-type: none"><li>• Synthesising and presenting your findings</li><li>• Writing your review</li><li>• Literature review examples</li></ul>	See weekly Learning Activities and e-Reading list in Moodle.	

**Week 10 - 15 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Literature review 3</b> <ul style="list-style-type: none"><li>• Workshop exercise - critiquing reviews</li></ul>	See weekly Learning Activities and e-Reading list in Moodle.	

**Week 11 - 22 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Collecting and interpreting data in social epidemiology. Data sovereignty in Indigenous health</b> <ul style="list-style-type: none"><li>• Challenges of measurement and analysis particular to social epidemiology</li><li>• Importance of data sovereignty in relation to First Nation peoples</li></ul>	See weekly Learning Activities and e-Reading list in Moodle.	

**Week 12 - 29 May 2023**

Module/Topic	Chapter	Events and Submissions/Topic
<b>Epidemiology in practice: informing policy</b> <ul style="list-style-type: none"><li>• Examples of healthy public policy</li><li>• Significance of the Health in All Policies approach</li><li>• Unit review</li></ul>	See weekly Learning Activities and e-Reading list in Moodle.	Assessment 3 Literature review <b>Assessment 3: Literature Review</b> Due: Week 12 Friday (2 June 2023) 11:59 pm AEST

## Assessment Tasks

### 1 Assessment 1: Quizzes 1 and 2

**Assessment Type**

Online Quiz(zes)

**Task Description**

Tests your epidemiology and statistics knowledge and skills from Weeks 1-3 (Quiz 1) and Weeks 1-4 (Quiz 2).

**Number of Quizzes**

2

**Frequency of Quizzes**

Other

**Assessment Due Date**

Week 5 Friday (7 Apr 2023) 11:59 pm AEST

**Return Date to Students**

Week 6 Friday (21 Apr 2023)

**Weighting**

20%

**Minimum mark or grade**

50%

**Assessment Criteria**

This assessment comprises questions related to your epidemiology and statistics course material covered in weeks 1-3 (Quiz 1) and 1-4 (Quiz 2). The two multiple choice Quizzes are completed online individually in Moodle. The assessment tests your ability to:

- Given relevant data, interpret measures of disease frequency and association and other population health data, and their relevance in epidemiological contexts (40%)
- Given relevant data, interpret types of statistical methods and their application (40%)
- Select appropriate study designs to investigate public health events (10%)
- Adhere to conventions related to academic integrity (10%)

Download and refer to the Assessment marking criteria rubric for more detail.

**Referencing Style**

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

**Submission**

Online

**Submission Instructions**

Online Quiz - submission in Moodle

**Learning Outcomes Assessed**

- Demonstrate a foundation level knowledge of epidemiology and statistics and their application in public health.
- Explain and apply the range of basic statistics essential in epidemiology to understand the patterns of the occurrence of disease, including prevalence and incidence and their use in public health contexts.
- Critically appraise epidemiological studies at a foundational level, demonstrating an ability to critique study designs, interpret study methods, results and conclusions.

## 2 Assessment 2: Short answer questions

**Assessment Type**

Written Assessment

**Task Description**

Determines how well you understand epidemiology and statistics concepts and their application in public health.

**Assessment Due Date**

Week 8 Friday (5 May 2023) 11:59 pm AEST

**Return Date to Students**

Week 9 Friday (12 May 2023)

**Weighting**

40%

**Minimum mark or grade**

50%

**Assessment Criteria**

This assessment comprises questions related to your epidemiology and statistics course material weeks 1-7. It is a short answer, open book format. You will complete the Assessment in class (off-shore and distance students will be contacted by the unit coordinator).

The assessment tests your ability to:

- Use Microsoft Excel to summarise features of data graphically and numerically and interpret summaries: (30%)
- Given the relevant data, interpret measures of disease frequency and association and other population health data, and their relevance in epidemiological contexts: (30%)
- Describe appropriate study designs to investigate causal factors for health events (20%)



- Adhere to conventions related to referencing, writing structure and presentation, and academic integrity (20%)

Download and refer to the Assessment marking criteria rubric for more detail.

### Referencing Style

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

### Submission

Online

### Learning Outcomes Assessed

- Demonstrate a foundation level knowledge of epidemiology and statistics and their application in public health.
- Explain and apply the range of basic statistics essential in epidemiology to understand the patterns of the occurrence of disease, including prevalence and incidence and their use in public health contexts.
- Critically appraise epidemiological studies at a foundational level, demonstrating an ability to critique study designs, interpret study methods, results and conclusions.
- Evaluate and interpret routinely used data in epidemiology and their relevance in the context of public health policy and practice.

## 3 Assessment 3: Literature Review

### Assessment Type

Written Assessment

### Task Description

The literature review explores the topic that you have chosen from the list available in Moodle for this term, summarising broad trends in the literature and their application from a public health perspective.

The review task includes:

1. Outlining the relevant social, environmental and economic contexts that relate to your condition and discuss the factors that influence those contexts.
2. Critiquing previous national and international epidemiological data and research with a particular emphasis on the gaps that may exist in our understanding of the impact of social factors on your condition.
3. Considering the relevance of the reported statistics and findings to advocating for health promotion and disease prevention in public health practice.

This is an INDIVIDUAL assignment: you may not work together with your classmates to write the review.

The Literature Review is due in the last week of Term. However, your preparation should commence at Week 1 to choose your topic, familiarize yourself with the Library and its academic databases, how to conduct literature searches, select material and structure your Review. The University library and CQU Student Learning Support provide online guides and individual sessions (see, for example <https://libguides.library.cqu.edu.au/training>) ; and workshops on academic writing, academic integrity and referencing. You also have access to resources such as Studiosity.

### Assessment Due Date

Week 12 Friday (2 June 2023) 11:59 pm AEST

### Return Date to Students

Exam Week Friday (16 June 2023)

### Weighting

40%

### Minimum mark or grade

50%

### Assessment Criteria

The assessment tests your ability to demonstrate an ability to:

- Select relevant, current and appropriate items from the scholarly literature (20%)
- Provide a thorough and accurate summary and critique of the selected literature (20%)
- Discuss social, economic, and environmental contexts and the factors that influence them, including (where relevant) a consideration of the rights and different ways of knowing of First Nations Peoples when collecting, analysing and interpreting epidemiological data (20%)
- Present various views represented in the literature and discussion of their strengths and weaknesses 20%
- Adhere to conventions related to literature review protocol, referencing, writing structure and presentation, and academic integrity (20%)

Download and refer to the Assessment marking criteria rubric for more detail.

## Referencing Style

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

## Submission

Online

## Learning Outcomes Assessed

- Critically appraise epidemiological studies at a foundational level, demonstrating an ability to critique study designs, interpret study methods, results and conclusions.
- Distinguish social epidemiology from traditional epidemiology to understand and explain its contribution to public health practice by focusing on social determinants of health.
- Apply ethical principles related to Indigenous Data Sovereignty that reflects an awareness of the rights and different ways of knowing of First Nations Peoples when using, collecting, analysing and interpreting epidemiological data.
- Evaluate and interpret routinely used data in epidemiology and their relevance in the context of public health policy and 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