PBHL20003 *Epidemiology and Statistics*
Term 1 - 2024

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 the 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 - 2024

- 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. **Written Assessment**
Weighting: 50%
2. **Written Assessment**
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 Unit Coordinator

Feedback
Assessment structure

Recommendation
Recommended revision of the Assessment structure has been implemented to a) replace the current summative A1 with a formative quiz assessment including substantial feedback; and a structured report requirement for A3 (replacing the current literature review) to focus on current issues in Epidemiology and Statistics.

Feedback from Unit coordinator

Feedback
Strengthened contextualisation of epidemiology and statistics within public health.

Recommendation
Recommend to increase class activity work to address this, in addition to existing course content.

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

Alignment of Assessment Tasks to Learning Outcomes

Assessment Tasks	Learning Outcomes					
	1	2	3	4	5	6
1 - Written Assessment - 50%	●	●	●			●
2 - Written Assessment - 50%			●	●	●	●

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 K.
World Health Organisation
Geneva
ISBN: 978 92 4 154707 9
Binding: Website Link
PBHL20003

Prescribed

The New Public Health
Edition: Fourth (2016)
Authors: Fran Baum
OUP
Melbourne , Vic , Australia
ISBN: 9780195588088
Binding: eBook

Additional Textbook Information
Prescribed textbooks, as well as recommended supplementary materials and readings are all available electronically via the Moodle e-Reading list.

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

- CQUniversity Student Email
- Internet
- Unit Website (Moodle)
- Word processing and Spreadsheet applications

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

Schedule

Week 1 - 04 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic

Introduction. Why epidemiology and statistics?
• Teaching, learning and assessment structure
• Epidemiology and statistics intro and concepts
• Differentiating social epi from traditional epidemiology

See weekly Learning Activities and e-Reading list in Moodle.

In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content.

Week 2 - 11 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Epidemiology basics 1 • Measures of frequency. Prevalence and incidence. • Surveillance: types and application • Why social determinants matter in epidemiology and statistics	See weekly Learning Activities and e-Reading list in Moodle.	In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content.

Week 3 - 18 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Epidemiology basics 2 • Measures of mortality and morbidity • Measures of association. Risk.	See weekly Learning Activities and e-Reading list in Moodle.	In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content.

Week 4 - 25 Mar 2024

Module/Topic	Chapter	Events and Submissions/Topic
Introduction to Statistics • Key statistical concepts and terms • Types of statistical methods and their application • Measures of frequency and spread • Probability distributions and sampling • Visualising data - bar charts, histograms and boxplots	See weekly Learning Activities and e-Reading list in Moodle.	In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content. Moodle Quiz 1 activity in class.

Week 5 - 01 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Epidemiology in action: Applying your knowledge to a food outbreak investigation • Steps of an epidemiologic investigation • Investigating the outbreak	See weekly Learning Activities and e-Reading list in Moodle.	In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content. Outbreak exercise using Microsoft Excel Moodle Quiz 2 activity

Vacation Week - 08 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic

Week 6 - 15 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Epidemiology: introduction to study types • Understanding the research process • Defining the Research question • Study types: descriptive vs analytic, observational vs intervention	See weekly Learning Activities and e-Reading list in Moodle.	In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content.

Week 7 - 22 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Epidemiology: can we believe it? error and bias; study validity • Internal and external validity • Error, bias and confounding in epidemiological research • Understanding why this matters in public health • How this knowledge can be applied to critically review the literature	See weekly Learning Activities and e-Reading list in Moodle.	In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content.

Week 8 - 29 Apr 2024

Module/Topic	Chapter	Events and Submissions/Topic
Assessment 2 [Short answer questions] in class	See Assessment details in Moodle.	Assessment 1 Epidemiology and Statistics short answer questions in class DUE this week. *(Unit coordinator will contact distance students regarding assessment format).* **Short answer questions** Due: Week 8 Friday (3 May 2024) 11:55 pm AEST

Week 9 - 06 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Reviewing the evidence • Screening overview • Sensitivity and specificity • [Preparation for Assessment 2]	See weekly Learning Activities and e-Reading list in Moodle.	In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content.

Week 10 - 13 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Searching the literature and Reviewing the evidence • Evidence synthesis reviews • Searching the literature 2 • Workshop exercise – reviewing the literature • [Applying what you have learnt to your Assessment 2 Report – in class]	See weekly Learning Activities and e-Reading list in Moodle.	In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content.

Week 11 - 20 May 2024

Module/Topic	Chapter	Events and Submissions/Topic
Ethics in epidemiology. Data sovereignty in Indigenous health. • Challenges of measurement and analysis in epidemiology • Importance of data sovereignty in relation to First Nation peoples	See weekly Learning Activities and e-Reading list in Moodle.	In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content.

Week 12 - 27 May 2024

Module/Topic	Chapter	Events and Submissions/Topic

Epidemiology in practice: informing policy • Examples of healthy public policy in an epidemiology context • Significance of the Health in All Policies approach • Unit review	See weekly Learning Activities and e-Reading list in Moodle.	In addition to online lectures and resources, tutorials provide the opportunity to complete individual and group activities; and build your skills and knowledge base related to Unit content. Assessment 2 Written report DUE this week. **Written report** Due: Week 12 Friday (31 May 2024) 11:55 pm AEST

Review/Exam Week - 03 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic

Exam Week - 10 Jun 2024

Module/Topic	Chapter	Events and Submissions/Topic

Assessment Tasks

1 Short answer questions

Assessment Type
Written Assessment

Task Description
Determines how well you understand fundamental epidemiological and statistical concepts and their applications in public health. As such, the assessment covers course material from Weeks 1-7, and includes questions about eg epidemiological measures of frequency, mortality & morbidity and association, surveillance, interpreting population data and visualisations in a public health context, epidemiological investigations, study types and validity, and applications in public health.
It is an individual assessment. Refer to Moodle for detailed instructions, including the marking rubric to help guide your preparation.

Assessment Due Date
Week 8 Friday (3 May 2024) 11:55 pm AEST
Submit via Moodle

Return Date to Students
Week 10 Friday (17 May 2024)

Weighting
50%

Minimum mark or grade
50%

Assessment Criteria

- Summarise data and present findings (30%)
- Interpret population health data (30%)
- Describe appropriate study designs (20%)
- Appropriate language and structure (10%)
- Correct referencing (10%)

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.

2 Written report

Assessment Type
Written Assessment

Task Description
You are working at the state government public health unit, and have been asked to write a briefing report for the Minister of Health on an important emerging public health issue. In your capacity as the public health advisor, you will need to:

1. Review the literature on this issue, including burden, risk factors, and initiatives/strategies to address the issue
2. Refer to relevant data to support your briefing arguments, including reference to government sources eg Australian Bureau of Statistics (ABS) and Australian Institute of Health and Welfare (AIHW).
3. Use the Report template provided, completing each section based on the information you have found through steps 1) and 2).

Word count: 1,800 words (+/- 10%) excluding references. The number of references should ensure you cover the relevant background information to the topic, which would typically require a minimum of five references. Referencing style: Harvard (author-date)
Refer to Moodle for detailed instructions, including topic choice, report template and marking rubric to help guide your work.

Assessment Due Date
Week 12 Friday (31 May 2024) 11:55 pm AEST
Submit via Moodle

Return Date to Students

Weighting
50%

Minimum mark or grade
50%

Assessment Criteria

- Provide an Executive Summary (15%)
- Provide background to the public health issue (15%)
- Review and analyse available evidence to support a policy initiative or change (25%)
- Address considerations and strategies for different stakeholders including higher risk population/s (10%)
- Present findings using the report template, incorporating data and figures, recommendations and conclusion (15%)
- Appropriate language and structure (10%)
- Correct referencing (10%)

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