

PUB361

Epidemiology and Biostatistics

School: School of Health - Public Health

2025 | Semester 1

UniSC Sunshine Coast
UniSC Moreton Bay

BLENDED
LEARNING

You can do this course without coming onto campus, unless your program has specified a mandatory onsite requirement.

Please go to usc.edu.au for up to date information on the teaching sessions and campuses where this course is usually offered.

1. What is this course about?

1.1. Description

In this course, you will be introduced to the disciplines of epidemiology and biostatistics. You will design epidemiological studies to answer research questions, and use basic statistical concepts and methods to collect and analyse quantitative data. You will develop practical skills in applying epidemiological and biostatistical concepts, and in evaluating epidemiological research findings relevant to your professional area.

1.2. How will this course be delivered?

ACTIVITY	HOURS	BEGINNING WEEK	FREQUENCY
BLENDED LEARNING			
Learning materials – 2 hours of independent structured learning materials	2hrs	Week 1	13 times
Tutorial/Workshop 1 – 2-hour workshop - on-campus	2hrs	Week 1	13 times

1.3. Course Topics

Measures of health and disease

Epidemiological study designs, bias, confounding, and concepts of causation

Analytical techniques used in epidemiology, including inferential statistics for categorical variables, non-parametric statistics, and regression

2. What level is this course?

300 Level (Graduate)

Demonstrating coherence and breadth or depth of knowledge and skills. Independent application of knowledge and skills in unfamiliar contexts. Meeting professional requirements and AQF descriptors for the degree. May require pre-requisites where discipline specific introductory or developing knowledge or skills is necessary. Normally undertaken in the third or fourth full-time study year of an undergraduate program.

3. What is the unit value of this course?

12 units

4. How does this course contribute to my learning?

COURSE LEARNING OUTCOMES	GRADUATE QUALITIES MAPPING	PROFESSIONAL STANDARD MAPPING *
On successful completion of this course, you should be able to...	Completing these tasks successfully will contribute to you becoming...	International Union for Health Promotion and Education
1 Calculate and interpret measures of disease occurrence, and measures of association between exposures and disease.	Knowledgeable Problem solving Information literacy	6.3, 6.4, 6.5, 9.4
2 Identify epidemiological study designs and critically appraise epidemiological studies.	Creative and critical thinker Communication Problem solving Applying technologies Information literacy	B.8, 4.1, 4.2, 6.2, 6.3, 6.7, 9.1, 9.4
3 Conduct, present, and interpret epidemiological data.	Empowered Communication Problem solving Applying technologies Information literacy	B.8, 4.1, 4.4, 6.2, 6.3, 6.4, 9.1, 9.4

* Competencies by Professional Body

CODE	COMPETENCY
INTERNATIONAL UNION FOR HEALTH PROMOTION AND EDUCATION	
B.8	The evidence base and research methods, including qualitative and quantitative methods, required to inform and evaluate health promotion action
4.1	Use effective communication skills including written, verbal, nonverbal, and listening skills
4.2	Use information technology and other media to receive and disseminate health promotion information
4.4	Use interpersonal communication and groupwork skills to facilitate individuals, groups, communities and organisations to improve health and reduce health inequities.
6.2	Use a variety of assessment methods including quantitative and qualitative research methods
6.3	Collect, review and appraise relevant data, information and literature to inform health promotion action
6.4	Identify the determinants of health which impact on health promotion action
6.5	Identify the health needs, existing assets and resources relevant to health promotion action
6.7	Identify priorities for health promotion action in partnership with stakeholders, based on best available evidence and ethical values.
9.1	Identify and use appropriate health promotion evaluation tools and research methods
9.4	Use research and evidence-based strategies to inform practice

5. Am I eligible to enrol in this course?

Refer to the [UniSC Glossary of terms](#) for definitions of “pre-requisites, co-requisites and anti-requisites”.

5.1. Pre-requisites

SCI110

5.2. Co-requisites

Not applicable

5.3. Anti-requisites

Not applicable

5.4. Specific assumed prior knowledge and skills (where applicable)

Basic mathematical and statistical skills are assumed.

6. How am I going to be assessed?

6.1. Grading Scale

Standard Grading (GRD)

High Distinction (HD), Distinction (DN), Credit (CR), Pass (PS), Fail (FL).

6.2. Details of early feedback on progress

Weekly in-class practice activities will be used to provide you with early feedback to support your preparation for all tasks. You will also be able to check your progress each week with activities embedded into learning materials.

6.3. Assessment tasks

DELIVERY MODE	TASK NO.	ASSESSMENT PRODUCT	INDIVIDUAL OR GROUP	WEIGHTING %	WHAT IS THE DURATION / LENGTH?	WHEN SHOULD I SUBMIT?	WHERE SHOULD I SUBMIT IT?
All	1	Artefact - Technical and Scientific	Individual	20%	10 multiple choice; 5 short answer questions	Week 5	Online Assignment Submission with plagiarism check
All	2	Report	Individual	35%	Written critique (completion of a template)	Week 9	Online Assignment Submission with plagiarism check
All	3	Artefact - Technical and Scientific	Individual	45%	1000 words	Week 13	Online Assignment Submission with plagiarism check

All - Assessment Task 1: Multiple choice and short answer questions

GOAL:	To apply your knowledge and skills in epidemiology to deconstruct extracts, assess epidemiological research designs, perform calculations, and identify the foundational concepts relevant to epidemiological approaches.		
PRODUCT:	Artefact - Technical and Scientific		
FORMAT:	Multiple choice and short answer questions related to the application of core epidemiological concepts. Further details on how to approach and complete the multiple choice and short answer questions will be available on Canvas.		
CRITERIA:	No.		Learning Outcome assessed
	1	Application of concepts of epidemiology, including the strengths and weaknesses of different study designs.	1
	2	Accuracy of routine epidemiological calculations.	1
	3	Accuracy of interpretation of epidemiological data and study findings.	3
GENERIC SKILLS:	Problem solving, Information literacy		

All - Assessment Task 2: Article critique

GOAL:	To apply your knowledge and skills in epidemiology to critique an epidemiological study published in the peer-reviewed literature.		
PRODUCT:	Report		
FORMAT:	Individually, you will use the knowledge and skills gained throughout the course to critically assess an allocated published peer-reviewed epidemiological article. The critical appraisal checklist and template, as well as further details on how to approach and complete the article critique will be available on Canvas.		
CRITERIA:	No.		Learning Outcome assessed
	1	Accuracy of the identification of the epidemiological characteristics of a study	2
	2	Application of epidemiological concepts to critically assess and interpret the effects of potential bias, confounding and error	2
	3	Quality of communication of the findings of an article critique.	2
GENERIC SKILLS:	Communication, Problem solving, Information literacy		

All - Assessment Task 3: Public health report

GOAL:	To demonstrate your knowledge and skills in health data analysis and interpretation to inform evidence-based public health practice.		
PRODUCT:	Artefact - Technical and Scientific		
FORMAT:	Using an open-source data set provided to you in class, you will plan and conduct a biostatistical analysis and produce a report. Details on how to approach and complete the public health report will be provided in Canvas.		
CRITERIA:	No.		Learning Outcome assessed
	1	Application of statistical software to summarise features of descriptive data in an appropriate format.	3
	2	Accuracy in the identification and application of appropriate statistical tests for different types of data	3
	3	Accuracy in the interpretation of descriptive and inferential statistics	3
	4	Quality of communication	3
GENERIC SKILLS:	Communication, Problem solving, Applying technologies, Information literacy		

7. Directed study hours

A 12-unit course will have total of 150 learning hours which will include directed study hours (including online if required), self-directed learning and completion of assessable tasks. Student workload is calculated at 12.5 learning hours per one unit.

8. What resources do I need to undertake this course?

Please note: Course information, including specific information of recommended readings, learning activities, resources, weekly readings, etc. are available on the course Canvas site– Please log in as soon as possible.

8.1. Prescribed text(s) or course reader

Please note that you need to have regular access to the resource(s) listed below. Resources may be required or recommended.

REQUIRED?	AUTHOR	YEAR	TITLE	EDITION	PUBLISHER
Recommended	Webb, P., Bain, C., and Page, A.	2020	Essential epidemiology: An introduction for students and health professionals	4	Cambridge University Press

8.2. Specific requirements

Access to a basic calculator.

Access to statistical software, such as jamovi (recommended) or IBM SPSS Statistics (commonly called SPSS). You only need access to one of these programs.

- jamovi is available as a free download from <https://www.jamovi.org/>. We advise downloading the solid version (rather than the current version) as it is likely to be more stable.
- SPSS is available in most UniSC computer laboratories, and through USCAnywhere (anywhere.usc.edu.au) on any internet-enabled device. You do not need to purchase SPSS.

9. How are risks managed in this course?

Health and safety risks for this course have been assessed as low. It is your responsibility to review course material, search online, discuss with lecturers and peers and understand the health and safety risks associated with your specific course of study and to familiarise yourself with the University's general health and safety principles by reviewing the [online induction training for students](#), and following the instructions of the University staff.

10. What administrative information is relevant to this course?

10.1. Assessment: Academic Integrity

Academic integrity is the ethical standard of university participation. It ensures that students graduate as a result of proving they are competent in their discipline. This is integral in maintaining the value of academic qualifications. Each industry has expectations and standards of the skills and knowledge within that discipline and these are reflected in assessment.

Academic integrity means that you do not engage in any activity that is considered to be academic fraud; including plagiarism, collusion or outsourcing any part of any assessment item to any other person. You are expected to be honest and ethical by completing all work yourself and indicating in your work which ideas and information were developed by you and which were taken from others. You cannot provide your assessment work to others. You are also expected to provide evidence of wide and critical reading, usually by using appropriate academic references.

In order to minimise incidents of academic fraud, this course may require that some of its assessment tasks, when submitted to Canvas, are electronically checked through Turnitin. This software allows for text comparisons to be made between your submitted assessment item and all other work to which Turnitin has access.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment

Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:

- (a) The final mark is in the percentage range 47% to 49.4%; and
- (b) The course is graded using the Standard Grading scale

10.3. Assessment: Submission penalties

Late submissions may be penalised up to and including the following maximum percentage of the assessment task's identified value, with weekdays and weekends included in the calculation of days late:

- (a) One day: deduct 5%;
- (b) Two days: deduct 10%;
- (c) Three days: deduct 20%;
- (d) Four days: deduct 40%;
- (e) Five days: deduct 60%;
- (f) Six days: deduct 80%;
- (g) Seven days: A result of zero is awarded for the assessment task.

The following penalties will apply for a late submission for an online examination:

Less than 15 minutes: No penalty

From 15 minutes to 30 minutes: 20% penalty

More than 30 minutes: 100% penalty

10.4. SafeUniSC

UniSC is committed to a culture of respect and providing a safe and supportive environment for all members of our community. For immediate assistance on campus contact SafeUniSC by phone: [07 5430 1168](tel:0754301168) or using the [SafeZone](#) app. For general enquires contact the SafeUniSC team by phone [07 5456 3864](tel:0754563864) or email safe@usc.edu.au.

The SafeUniSC Specialist Service is a Student Wellbeing service that provides free and confidential support to students who may have experienced or observed behaviour that could cause fear, offence or trauma. To contact the service call [07 5430 1226](tel:0754301226) or email studentwellbeing@usc.edu.au.

10.5. Study help

For help with course-specific advice, for example what information to include in your assessment, you should first contact your tutor, then your course coordinator, if needed.

If you require additional assistance, the Learning Advisers are trained professionals who are ready to help you develop a wide range of academic skills. Visit the [Learning Advisers](#) web page for more information, or contact Student Central for further assistance: +61 7 5430 2890 or studentcentral@usc.edu.au.

10.6. Wellbeing Services

Student Wellbeing provide free and confidential counselling on a wide range of personal, academic, social and psychological matters, to foster positive mental health and wellbeing for your academic success.

To book a confidential appointment go to [Student Hub](#), email studentwellbeing@usc.edu.au or call 07 5430 1226.

10.7. AccessAbility Services

Ability Advisers ensure equal access to all aspects of university life. If your studies are affected by a disability, learning disorder mental health issue, injury or illness, or you are a primary carer for someone with a disability or who is considered frail and aged, [AccessAbility Services](#) can provide access to appropriate reasonable adjustments and practical advice about the support and facilities available to you throughout the University.

To book a confidential appointment go to [Student Hub](#), email AccessAbility@usc.edu.au or call 07 5430 2890.

10.8. Links to relevant University policy and procedures

For more information on Academic Learning & Teaching categories including:

- Assessment: Courses and Coursework Programs
- Review of Assessment and Final Grades
- Supplementary Assessment
- Central Examinations
- Deferred Examinations
- Student Conduct
- Students with a Disability

For more information, visit <https://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching>

10.9. Student Charter

UniSC is committed to excellence in teaching, research and engagement in an environment that is inclusive, inspiring, safe and respectful. The [Student Charter](#) sets out what students can expect from the University, and what in turn is expected of students, to achieve these outcomes.

10.10. General Enquiries

In person:

- **UniSC Sunshine Coast** - Student Central, Ground Floor, Building C, 90 Sippy Downs Drive, Sippy Downs
- **UniSC Moreton Bay** - Service Centre, Ground Floor, Foundation Building, Gympie Road, Petrie
- **UniSC SouthBank** - Student Central, Building A4 (SW1), 52 Merivale Street, South Brisbane
- **UniSC Gympie** - Student Central, 71 Cartwright Road, Gympie
- **UniSC Fraser Coast** - Student Central, Student Central, Building A, 161 Old Maryborough Rd, Hervey Bay
- **UniSC Caboolture** - Student Central, Level 1 Building J, Cnr Manley and Tallon Street, Caboolture

Tel: +61 7 5430 2890

Email: studentcentral@usc.edu.au