COURSE OUTLINE

PUB361 Epidemiology and Biostatistics

Course Coordinator: Gabrielle Campbell (gcampbell@usc.edu.au) **School:** School of Health and Behavioural Sciences

2021 | Semester 1

Online	ONLINE 1	You can do this course without coming onto campus.

Please go to the USC website 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
ONLINE 1			
Tutorial/Workshop – Technology-enabled (Zoom) workshop online	2hrs	Week 1	10 times
Independent Study/Research – Online self-directed learning	2hrs	Week 1	13 times

1.3. Course Topics

Measures of health

Epidemiological study designs, bias, confounding and concepts of causation

Simple sample size calculations

Analytical techniques in epidemiology, inferential techniques 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 On successful completion of this course, you should be able to...		GRADUATE QUALITIES Completing these tasks successfully will contribute to you becoming...
1	Formulate hypotheses that can be addressed through epidemiological investigations.	Creative and critical thinker
2	Identify and apply techniques to reduce bias and control for confounding at the design and analysis phases of an epidemiological study.	Creative and critical thinker
3	Collect and evaluate information about epidemiological research designs and statistical analysis, to draw conclusions about public health significance.	Empowered
4	Plan and conduct a biostatistical analysis and produce a report.	Empowered
5	Identify and describe characteristics of, define terminology associated with, and calculate measures relevant to, the epidemiological approach.	Knowledgeable

5. Am I eligible to enrol in this course?

Refer to the USC 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

Ongoing support and feedback on project progress will be provided in workshops with formal written feedback on the proposal due end of week 6. You will also be able to check your progress each week with self-check quizzes embedded into learning materials (not assessed).

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	Written Piece	Individual	20%	N/A	Throughout teaching period (refer to Format)	Online Assignment Submission with plagiarism check
All	2	Written Piece	Individual	35%	1200- 1500 words	Week 12	Online Assignment Submission with plagiarism check
All	3	Examination - Centrally Scheduled	Individual	45%	2 hours	Exam Period	Exam Venue

All - Assessment Task 1: Project support activities

GOAL:	To develop your knowledge and skills in applying foundational concepts relevant to epidemiological and biostatistical approaches
PRODUCT:	Written Piece
FORMAT:	Various Submit: Friday 11.59pm weeks 2, 6, 11

CRITERIA:

No.		Learning Outcome assessed
1	Identify and describe characteristics of, define terminology associated with, collect data and calculate measures relevant to, the epidemiological and biostatistical approach	5
2	Plan an epidemiological investigation	3
3	Critically appraise information about epidemiological research designs and statistical analysis, to draw conclusions about public health significance	3

All - Assessment Task 2: Epidemiological study poster

GOAL:	To apply key biostatistical concepts to collect, organise, analyse and communicate data for the research proposal.
PRODUCT:	Written Piece
FORMAT:	A3 poster suitable for a scientific audience. Refer to Blackboard for format and details

CRITERIA:

No.		Learning Outcome assessed
1	Formulate hypotheses that can be addressed through epidemiological investigation	1 2
2	Plan and conduct a biostatistical analysis and produce a scientific poster to communicate the results	3 4

All - Assessment Task 3: Exam

GOAL:	To apply your skills in biostatistics and epidemiology to deconstruct papers and extracts, interpret statistical results, assess epidemiological research designs, as well as identify the foundational concepts relevant to epidemiological; and biostatistical approaches.
PRODUCT:	Examination - Centrally Scheduled
FORMAT:	Open book. Calculator required. Mix of short answer and multiple-choice questions.

CRITERIA:

No.		Learning Outcome assessed
1	Identify and apply techniques to reduce bias and control for confounding at the design and analysis phases of an epidemiological study	2
2	Critically appraise information about epidemiological research designs and statistical analysis, to draw conclusions about public health significance	3
3	Identify and describe characteristics of, define terminology associated with, and calculate measures relevant to, the epidemiological approach	5

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. Directed study hours may vary by location. 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 Blackboard 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	PUBLISHER
Required	Webb, P and Bain, C.	2011	Essential Epidemiology: An introduction for students and health professionals.	Cambridge, Melbourne.
Recommended	Bruce, N., Pope, D. and Stanistreet, D	2008	Quantitative Methods for Health Research: A practical interactive guide to epidemiology and statistics	John Wiley and Sons Ltc
Recommended	Woodward, M.	2004	Epidemiology: study design and data analysis	Chapman & Hall/CRC
Recommended	Peat, J., Barton, B. and Elliott, E.	2008	Statistics Workbook for Evidence-based Health Care	BMJ Books
Recommended	Doi, Suhail	2012	Understanding Evidence in Health Care: using clinical epidemiology	Palgrave MacMillan

8.2. Specific requirements

You need access to a basic calculator.
You need access to IBM SPSS. SPSS is available in most USC computer laboratories. You do not need to purchase SPSS. However, you may find completing the assessment tasks easier if you have access to SPSS on your own personal computer. Unfortunately, student editions of SPSS are no longer available, and the USC licensing arrangements do not allow SPSS to be loaded onto student computers. However, you can access the software online through anywhere.usc.edu.au. You may be able to purchase SPSS from the USC Co-op bookshop. You may also wish to explore purchasing an SPSS license from (for example) www.onthehub.com. (At the time of writing, a six-month licence for IBM SPSS Statistics Base GradPack is about $60.)

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 Blackboard, are electronically checked through SafeAssign. This software allows for text comparisons to be made between your submitted assessment item and all other work that SafeAssign has access to.

10.2. Assessment: Additional Requirements

Eligibility for Supplementary Assessment
Your eligibility for supplementary assessment in a course is dependent of the following conditions applying:
The final mark is in the percentage range 47% to 49.4%
The course is graded using the Standard Grading scale
You have not failed an assessment task in the course due to academic misconduct

10.3. Assessment: Submission penalties

Late submission of assessment tasks may be penalised at the following maximum rate:
- 5% (of the assessment task's identified value) per day for the first two days from the date identified as the due date for the assessment task.
- 10% (of the assessment task's identified value) for the third day - 20% (of the assessment task's identified value) for the fourth day and subsequent days up to and including seven days from the date identified as the due date for the assessment task.
- A result of zero is awarded for an assessment task submitted after seven days from the date identified as the due date for the assessment task. Weekdays and weekends are included in the calculation of days late. To request an extension you must contact your course coordinator to negotiate an outcome.

10.4. 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.

10.5. 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.

10.6. 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.

10.7. 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
- Administration of Central Examinations
- Deferred Examinations
- Student Academic Misconduct
- Students with a Disability

Visit the USC website: http://www.usc.edu.au/explore/policies-and-procedures#academic-learning-and-teaching

10.8. General Enquiries

In person:

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

Tel: +61 7 5430 2890
Email: studentcentral@usc.edu.au