UNSW Course Outline

PHCM9795 Foundations of Biostatistics - 2024

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General Course Information

Course Code : PHCM9795
Year : 2024
Term : Term 2
Teaching Period : T2
Is a multi-term course? : No
Faculty : Faculty of Medicine and Health
Academic Unit : School of Population Health
Delivery Mode : Multimodal
Delivery Format : Standard
Delivery Location : Kensington
Campus : Sydney
Study Level : Undergraduate, Postgraduate
Units of Credit : 6

Useful Links

Handbook Class Timetable

Course Details & Outcomes

Course Description

This course will introduce you to the quantitative methods that are the cornerstone of public health research and evidence-based public health policy and practice. You will be introduced to basic statistical analysis methods, with hands-on experience analysing health data using

statistical software.

Course Aims

The aim of this course is to apply appropriate statistical technique to analyse and present public health data.

Relationship to Other Courses

This course is a core course of the Master of Public Health, Master of Global Public Health, Master of Infectious Diseases Intelligence and associated dual degrees, comprising six units of credit towards the total required for completion of the program. There are no pre-requisites for this course. This course has been designed to complement and enhance the breadth of courses focused on public health aspects of infectious disease prevention and control being offered to School of Population Health postgraduate coursework students.

Assistance with progression checking:

If you are unsure how this course fits within your program, you can seek guidance on optimising your program structure from staff at the Nucleus Student Hub.

Progression plans for UNSW Medicine and Health programs can be found on the UNSW Medicine & Health website.

Course Learning Outcomes

Course Learning Outcomes
CLO1 : Summarise and visualise data using statistical software.
CLO2 : Demonstrate an understanding of statistical inference by interpreting p-values and confidence intervals.
CLO3 : Apply appropriate statistical tests for different types of variables given a research question, and interpret computer output of these tests appropriately.
CLO4 : Determine the appropriate sample size when planning a research study.
CLO5 : Present and interpret statistical findings appropriate for a public health audience.

Course Learning Outcomes	Assessment Item
CLO1 : Summarise and visualise data using statistical software.	• Quiz • Assignment • Assignment
CLO2 : Demonstrate an understanding of statistical inference by interpreting p-values and confidence intervals.	• Quiz • Assignment • Assignment
CLO3 : Apply appropriate statistical tests for different types of variables given a research question, and interpret computer output of these tests appropriately.	• Quiz • Assignment • Assignment
CLO4 : Determine the appropriate sample size when planning a research study.	• Quiz • Assignment
CLO5 : Present and interpret statistical findings appropriate for a public health audience.	• Assignment • Assignment

Learning and Teaching Technologies

Moodle - Learning Management System | Microsoft Teams

Learning and Teaching in this course

All course materials and course announcements are provided on the course learning management system, Moodle (or Open Access).

Microsoft Teams will be used for online lectures, tutorials and lecture recordings. Details of this will be communicated via Moodle.

By accessing and using the ICT resources provided by UNSW, you are agreeing to abide by the 'Acceptable Use of UNSW ICT Resources' policy particularly on respect for intellectual property

and copyright, legal and ethical use of ICT resources and security and privacy.

The learning and teaching philosophy underpinning this course is centred on student learning and aims to create an environment which interests and challenges students. The teaching is designed to be engaging and relevant in order to prepare students for future careers.

The primary source of information for this course is the written course materials, supplemented by additional resources such as videos, research articles, published reports and discussion posts.

There will be opportunities to learn from the experiences of not only lecturers but also from peers and industry experts through discussion sessions about the real-life projects, practical exercises and online activities.

Assessments

Assessment Structure

Assessment Item	Weight	Relevant Dates
Quiz Assessment Format: Individual	20%	Due Date: Quiz 1: Monday, Week 4; Quiz 2: Monday Week 6; Quiz 3: Monday, Week 10; Quiz 4: Monday, Week 12
Assignment Assessment Format: Individual Short Extension: Yes (2 days)	40%	Start Date: 27/06/2024 12:00 PM Due Date: 11/07/2024 12:00 PM Post Date: 25/07/2024 11:30 PM
	40%	Start Date: 25/07/2024 12:00 PM Due Date: 09/08/2024 12:00 PM Post Date: 23/08/2024 11:30 PM

Assessment Details

Quiz

Assessment Overview

This assessment comprises four multiple-choice quizzes released throughout the term.

Individual feedback is provided at the end of each quiz period.

Course Learning Outcomes

- CLO1 : Summarise and visualise data using statistical software.
- CLO2 : Demonstrate an understanding of statistical inference by interpreting p-values and confidence intervals.
- CLO3 : Apply appropriate statistical tests for different types of variables given a research

question, and interpret computer output of these tests appropriately.
- CLO4 : Determine the appropriate sample size when planning a research study.

Detailed Assessment Description

Detailed information about this assessment will be provided on the course Moodle page.

Submission notes

There are four separate quizzes with separate due dates for this course. Refer to the course Moodle page for submission information.

Assignment submission Turnitin type

Not Applicable

Assignment

Assessment Overview

This is an individual assessment task due at the end of term. You will be asked to analyse data and summarise your results.

Individual feedback will be provided within 10 working days.

Course Learning Outcomes

- CLO1 : Summarise and visualise data using statistical software.
- CLO2 : Demonstrate an understanding of statistical inference by interpreting p-values and confidence intervals.
- CLO3 : Apply appropriate statistical tests for different types of variables given a research question, and interpret computer output of these tests appropriately.
- CLO4 : Determine the appropriate sample size when planning a research study.
- CLO5 : Present and interpret statistical findings appropriate for a public health audience.

Detailed Assessment Description

Detailed information will be posted on Moodle.

Submission notes

Refer to the course Moodle page for submission information.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

Assignment

Assessment Overview

This is an individual assessment task due mid-term. You will be asked to analyse data and summarise your results.

Individual feedback will be provided within 10 working days.

Course Learning Outcomes

- CLO1 : Summarise and visualise data using statistical software.
- CLO2 : Demonstrate an understanding of statistical inference by interpreting p-values and confidence intervals.
- CLO3 : Apply appropriate statistical tests for different types of variables given a research question, and interpret computer output of these tests appropriately.
- CLO5 : Present and interpret statistical findings appropriate for a public health audience.

Detailed Assessment Description

Detailed information will be posted on Moodle.

Submission notes

Refer to the course Moodle page for submission information.

Assignment submission Turnitin type

This assignment is submitted through Turnitin and students can see Turnitin similarity reports.

General Assessment Information

Detailed instructions regarding assessments for this course are provided on the course Moodle page.

For student information on results, grades, and guides to assessment see: https://student.unsw.edu.au/assessment

Turnitin

All written assessment tasks in courses in the School of Population Health use Turnitin. Turnitin is a similarity and generative AI detection software that enables assignments to be checked against the submitted assignments of other students using Turnitin, as well as the internet. If you are unfamiliar with the Turnitin software, a demonstration can be found at: https://student.unsw.edu.au/turnitin

Originality and Generative AI reports

In School of Population Health courses, access to the originality report of your submission through Turnitin is available to you. Students do not have access to the Generative AI report.

In School of Population Health courses, you are permitted to resubmit until the assignment due date (each file uploaded overwrites the previous version). This will help you in self-reviewing and revising your submission until the due date. **No resubmissions will be allowed after the due date and time of the assignment.** Therefore, draft assignments submitted in this way will be regarded as the final version at the due date if you have not uploaded a subsequent, finalised version. **IMPORTANT**: there are delays in the availability of subsequent Originality reports. For more details, see https://www.student.unsw.edu.au/turnitin

Grading and feedback

You will be provided with feedback on your assignment via Moodle. You will be marked according to the marking assessment criteria listed for that specific assessment task. The aim of any academic feedback for an assessment task is not only to grade your work. Importantly, it is also to help you to identify your strengths and weaknesses, and how you can improve and progress in your studies and professional abilities.

In addition to feedback, you will receive a mark that reflects the overall quality of the work you have submitted across the marking criteria. The marking criteria for assessments in this course are provided on Moodle.

Please note these grading criteria are:

- Not intended to be a **rigid formula** for interpreting your result. The descriptive criteria for each grade provides the basis for consistent standards within and across our courses while still embracing academic judgement on how well you have achieved the standard required.
- Applied to **each assessment** task within a course. That is, the grading policy is used with each assessment task specified for a course. Your final grade for a course is dependent on the combined sum of the grades across the number of specified assessment tasks.
- Based on a **criterion-referenced assessment.** That is grades are awarded on how well a student meets the standard required for a particular assessment task, not on how well they do compared to other students in the course.

Feedback on assessment and review of results

If you believe the mark you've received for an assessment task doesn't reflect your performance

you should first check you have grounds to seek a review: https://student.unsw.edu.au/results

In the first instance, you should discuss your performance with your Course Convenor. In your communication, you should clearly outline the reasons you are seeking clarification and do so against the marking criteria for the assessment.

Students may also formally apply to have their results reviewed. An application, which includes a justification for the review must be submitted through The Nucleus (https://student.unsw.edu.au/results) **within 5 days** of receiving the result. A review of results may result in an increase or decrease in marks.

Grading Basis

Standard

Requirements to pass course

In order to pass this course students must:

- Achieve a composite grade of at least 50 out of 100
- Meet any additional requirements specified in the assessment details section and on Moodle

Course Schedule

Teaching Week/Module	Activity Type	Content
Week 1 : 27 May - 2 June	Module	Summarising and presenting data
Week 2 : 3 June - 9 June	Module	Probability and probability distributions
Week 3 : 10 June - 16 June	Module	Precision, standard errors and confidence intervals
Week 4 : 17 June - 23 June	Module	An introduction to hypothesis testing
Week 5 : 24 June - 30 June	Module	Comparing the means of two groups
Week 6 : 1 July - 7 July	Module	Summary statistics for binary data
Week 7 : 8 July - 14 July	Module	Hypothesis testing for categorical data
Week 8 : 15 July - 21 July	Module	Correlation and simple linear regression
Week 9 : 22 July - 28 July	Module	Analysing non-normal data
Week 10 : 29 July - 4 August	Module	An introduction to sample size estimation

Attendance Requirements

Students are strongly encouraged to attend all classes and review lecture recordings.

General Schedule Information

The times and locations of classes can be found on myUNSW under Class Timetable.

Students enrolled in online courses should also refer to Moodle as some classes are not centrally timetabled (e.g., workshops) and will not appear on the timetable website.

The expected engagement for all UNSW 6UOC courses is 150 hours per term. This includes lectures, tutorials, readings, and completion of assessments and exam preparation (if relevant).

Course Resources

Prescribed Resources

Learning resources for this course consist of the following and are available on Moodle:

1. Course notes

2. Course readings (available on Leganto)

3. Lectures recordings and slides

4. Relevant course resources for each Module

5. Other (as required)

In this course, you will be required to use statistical software. You can choose between learning **R** or **Stata**.

- R is free for you to download and install on your own computer. Instructions for installing and using R will be provided on Moodle.
- Stata is a commercial package, which you can access via UNSW myAccess. Alternatively, a student version of Stata is available to purchase for installing on your own computer. More information will be provided on Moodle.

Recommended Resources

There are many excellent biostatistics textbooks. If you wish to supplement the content we provide in this course, we recommend the following text and have aligned appropriate chapters to the Modules in this course (see course notes). The text is available as an e-book through the UNSW library:

- Kirkwood BR, Sterrne JAC (2003). Essential medical statistics, 2nd edition. Blackwell Science. UNSW Library Link

We also recommend the following text which goes into a little more depth than the above reference. The text is available as an e-book through the UNSW library.

- Bland M (2015). An introduction to medical statistics, 4th edition. Oxford University Press. UNSW Library Link

Additional Costs

There are no additional costs associated with this course.

Course Evaluation and Development

Student feedback is taken seriously, and continual improvements are made to the course based, in part, on such feedback.

We use student feedback from myExperience surveys to develop and make improvements to the course each year. We do this by identifying areas of the course that require development from both the rating responses and written comments. Please spare a few minutes to complete the myExperience surveys for this course posted at the top of the Moodle page at the end of term.

Staff Details

Position	Name	Email	Location	Phone	Availability	Equitable Learning Services Contact	Primary Contact
Convenor	Timothy Dobbins		Samuels Building	02 9385 3379	By appointment, requests via email	Yes	Yes
	Katrina Blazek		Samuels Building			No	No

Other Useful Information

Academic Information

As a student of UNSW Medicine & Health you are expected to familiarise yourself with the contents of this course outline and the UNSW Student Code and policies and procedures related to your studies.

Student Code of Conduct

Throughout your time studying at UNSW Medicine & Health, you share a responsibility with us for maintaining a safe, harmonious and tolerant University environment. This includes within the

courses you undertake during your degree and your interactions with the UNSW community, both on campus and online.

The UNSW Student Code of Conduct website provides a framework for the standard of conduct expected of UNSW students with respect to both academic integrity and your responsibility as a UNSW citizen.

Where the University believes a student may have breached the code, the University may take disciplinary action in accordance with the Student Misconduct Procedure.

The Student Conduct and Integrity Office provides further resources to assist you to understand your conduct obligations as a student at UNSW.

Academic Honesty and Plagarism

Academic integrity

UNSW has an ongoing commitment to fostering a culture of learning informed by academic integrity. All UNSW staff and students have a responsibility to adhere to the principle of academic integrity, and ethical scholarship of learning is fundamental to your success at UNSW Medicine & Health.

Plagiarism, contract cheating, and inappropriate use of generative AI undermine academic integrity and are not tolerated at UNSW. For more information see the Academic Integrity and Plagiarism toolkit.

In addition to the information you are required to review in your ELISE training, UNSW Medicine & Health strongly recommends that you complete the Working with Academic Integrity module before submitting your first assessment task.

Referencing

Referencing is a way of acknowledging the sources of information that you use to research your assignments. Preferred referencing styles vary among UNSW Medicine & Health disciplines, so check your course Learning Management System (e.g. Moodle or Open Learning) page for information on preferred referencing styles.

For further information on referencing support and styles, see the Current Student Referencing page.

Academic misconduct and plagiarism

At UNSW, academic misconduct is managed in accordance with the Student Misconduct Procedure. Allegations of plagiarism are generally handled according to the UNSW Plagiarism Management Procedure. Plagiarism is defined in the UNSW Plagiarism Policy and is not tolerated at UNSW.

Use of Generative AI and other tools in your assessment

UNSW has provided guiding statements for the use of Generative AI in assessments. This will differ, depending on the individual assessment task, your course requirements, and the course stage within your program.

Your course convenor will outline if and how you can use Generative AI in each your assessment tasks. Options for the use of generative AI include: (1) no assistance; (2) simple editing assistance; (3) planning assistance; and (4) full assistance with attribution.

You may be required to submit the original generative AI responses, or drafts of your original work. Inappropriate use of generative AI is considered academic misconduct.

See your course Moodle (or Open Learning) page for the full instructions for individual assessment tasks for your course.

Submission of Assessment Tasks

Special Consideration

In cases where illness, misadventure or other circumstances beyond your control will prevent you from submitting your assessment by the due date and you require an extension, you need to formally apply for Special Consideration through myUNSW.

UNSW has a **Fit to Sit/Submit rule**, which means that by sitting or submitting an assessment on the scheduled assessment date, you are declaring that you are fit to do so and cannot later apply for Special Consideration.

Timed online assessment tasks

If you experience a technical or connection problem during a timed online assessment, such as a timed quiz, you can apply for Special Consideration. To be eligible to apply you need to contact the Course Convenor and advise them of the issue immediately. You will need to submit an

application for Special Consideration immediately, and upload screenshots, error messages or other evidence of the technical issue as supporting documentation. Additional information can be found on: https://student.unsw.edu.au/special-consideration

Examinations

Information about the conduct of examinations in your course is provided on your course Moodle page.

Other assessment tasks

Late submission of assessment tasks

UNSW has standard late submission penalties as outlined in the UNSW Assessment Implementation Procedure, with no permitted variation. All late assignments (unless extension or exemption previously agreed) will be penalised by 5% of the maximum mark per calendar day (including Saturday, Sunday and public holidays).

Late submissions penalties are capped at five calendar days (120 hours). This means that a student is not permitted to submit an assessment more than 5 calendar days (120 hours) after the due date for that assessment (unless extension or exemption previously agreed).

Failure to complete an assessment task

You are expected to complete all assessment tasks for your courses. In some courses, there will be a minimum pass mark required on a specific assessment task (a “hurdle task”) due to the need to assure clinical competency.

Where a hurdle task is applicable, additional information is provided in the assessment information on your course Moodle page.

Feedback on assessments

Feedback on your performance in assessment tasks will be provided to you in a timely manner. For assessment tasks completed within the teaching period of a course, other than a final assessment, feedback will be provided within 10 working days of submission, under normal circumstances.

Feedback on continuous assessment tasks (e.g. laboratory and studio-based, workplace-based,

weekly quizzes) will be provided prior to the midpoint of the course.

Any variation from the above information that is specific to an assessment task will be clearly indicated in the course and assessment information provided to you on your course Moodle (or Open Learning) page.

Faculty-specific Information

Additional support for students

The university offers a wide range of support services that are available for students. Here are some links for you to explore.

- The Current Students Gateway: https://student.unsw.edu.au
- Academic Skills and Support: https://student.unsw.edu.au/academic-skills
- Student support: https://www.student.unsw.edu.au/support
- Student Wellbeing, Health and Safety: https://student.unsw.edu.au/wellbeing

Mind Smart Guides are a series of mental health self-help resources designed to give you the psychological flexibility, resilience and self-management skills you need to thrive at university and at work.

- Mind Smart Guides: https://student.unsw.edu.au/mindsmart
- Equitable Learning Services: https://student.unsw.edu.au/els
- Guide to studying online: https://www.student.unsw.edu.au/online-study

Most courses in UNSW Medicine & Health use Moodle as your Learning Management System. Guidance for using UNSW Moodle can be found on the Current Student page. Difficulties with Moodle should be logged with the IT Service Centre.

- Moodle Support: https://student.unsw.edu.au/moodle-support

The IT Service Desk is your central point of contact for assistance and support with remote and

on-campus study.

- UNSW IT Service Centre: https://www.myit.unsw.edu.au/services/students

Course evaluation and development

At UNSW Medicine & Health, students take an active role in designing their courses and their overall student experience. We regularly seek feedback from students, and continuous improvements are made based on your input. Towards the end of the term, you will be asked to participate in the myExperience survey, which serves as a source of evaluative feedback from students. Your input to this quality enhancement process is valuable in helping us meet your learning needs and deliver an effective and enriching learning experience. Student responses are carefully considered, and the action taken to enhance educational quality is documented in the myFeedback Matters section of your Moodle (or Open Learning) course page.

School-specific Information

Additional Resources

Additional resources are available on the SPH website: https://sph.med.unsw.edu.au/current-students/student-resources

Subject guides

Use these guides as a quick and easy pathway to locating resources in your subject area. These excellent guides bring together the core web and print resources in one place and provide a one click portal into the online resources.

UNSW Library Subject Guides: http://subjectguides.library.unsw.edu.au/subjectguides

Public Health Subject Guide: http://subjectguides.library.unsw.edu.au/publichealth

Recording of lectures, tutorials and other teaching activities

Lectures, tutorials and other teaching activities *may* be recorded. Students should be advised that they are consenting to the recording by their enrolment in the course or participation in the activity. The purpose of audio and video recordings is to enhance the student experience by supporting engaged learning in an online teaching environment and ensure equitable access to

all course resources for our students. If you have concerns about accessing course recordings, or being recorded, please contact the Course Convenor.

School Contact Information

School guidelines on contacting staff:

Course questions

All questions related to course content should be posted on Moodle or as directed by your Course Convenor.

In cases where email communication with course convenors is necessary, we kindly request the following:

- Use your official email address for any correspondence with teaching staff.
- We expect a high standard of communication. All communication should avoid using short-hand or texting language.
- Include your full name, student ID, and your course code and name in all communication.

Our course convenors are expected to respond to emails during standard working hours of Monday to Friday, 9am-5pm.

Administrative questions

If you have an administrative question about your program of study at the School please submit your enquiry online at UNSW Ask Us.

Complaints and appeals

Student complaints and appeals: https://student.unsw.edu.au/complaints

If you have any grievances about your studies, we invite you to address these initially to the Course Convenor. If the response does not meet your expectations, you may then contact the School Grievance Officer, A/Prof Timothy Dobbins (t.dobbins@unsw.edu.au).