Unit Outline (Higher Education)

Institute / School:	Institute of Health and Wellbeing
Unit Title:	Biostatistics
Unit ID:	HEAPH6003
Credit Points:	15.00
Prerequisite(s):	(HEAPH6001 and HEAPH6002 and HEAPH6007 and HEAPH7001)
Co-requisite(s):	Nil
Exclusion(s):	Nil
ASCED:	061399

Description of the Unit:

This unit will increase the ability of the students to apply the basic principles and methods used in biostatistics including application to public health studies. It is essential for health professionals to understand biostatistics in order to design, questionnaire development, conduct surveys, and interpret public health-related research. Students will learn how to describe, summarise, analyse and interpret health-related data. This includes the technical qualifications, such as use of SPSS and MS Excel, necessary for analysing and interpreting data on a descriptive, bivariate and multivariate level.

Grade Scheme:	Graded (HD, D, C, P, MF, F, XF)

Work Experience:

No work experience

Placement Component:	No

Supplementary Assessment: Yes

Where supplementary assessment is available a student must have failed overall in the Unit but gained a final mark of 45 per cent or above, has completed all major assessment tasks (including all sub-components where a task has multiple parts) as specified in the Unit Description and is not eligible for any other form of supplementary assessment.

Course Level:

Level of Unit in Course	AQF Level of Course					
	5	6	7	8	9	10
Introductory						
Intermediate					✔	
Advanced						

Learning Outcomes:

Knowledge:

K1. Understand key concepts in biostatistics and the way in which both descriptive and inferential statistics are used to measure, describe and predict health and illness;

K2. Understand how and when to use different types of inferential statistics;

K3. Understand how to present data using relevant tables, graphical displays, and summary statistics, quantify uncertainty in study results

Skills:

S1. Formulate research hypotheses into a statistical context in public health studies and evaluate hypothesis with appropriate statistical methods;

S2. Analyse data using specific software packages e.g. SPSS, MS Excel Calculate basic epidemiological measures

S3. Critically appraise and accurately interpret statistical methods and results reported in clinical and public health publications

Application of knowledge and skills:

A1. Apply key concepts of biostatistics, including; sampling, hypothesis testing, validity and reliability, statistical significance;

A2. Apply key concepts of biostatistics for evaluation of clinical and epidemiological interventions;

A3. Contribute in developing health policies by providing evidence based research data to the policy makers in health.

Unit Content:

Classification of health data/variables. Summarising data using simple statistical methods and graphical presentation. Sampling distributions. Quantifying uncertainty in results from a sample. Working with statistical distributions. Comparing two or more groups/methods using confidence intervals (CIs) and hypothesis tests (p values). Choosing right statistical tests, assessing the association between an outcome and an exposure using the chi-squared test. Using risk comparisons (RR and OR). Predicting an event or identifying risk factors for an event of interest where the event is measured on a continuous scale or a binary scale (yes/no).

FEDTASKS

Federation University Federation recognises that students require key transferable employability skills to prepare them for their future workplace and society. FEDTASKS (**T**ransferable **A**ttributes **S**kills and **K**nowledge) provide a targeted focus on five key transferable Attributes, Skills, and Knowledge that are be embedded within curriculum, developed gradually towards successful measures and interlinked with cross-discipline and Co-operative Learning opportunities. *One or more FEDTASK, transferable Attributes, Skills or Knowledge must be evident in the specified learning outcomes and assessment for each FedUni Unit, and all must be directly assessed in each Course.*

FEDTASK attribute and descriptor		Development and acquisition of FEDTASKS in the Unit	
		Learning Outcomes (KSA)	Assessment task (AT#)
FEDTASK 1 Interpersonal	Students at this level will demonstrate an advanced ability in a range of contexts to effectively communicate, interact and work with others both individually and in groups. Students will be required to display high level skills in-person and/or online in: • Using and demonstrating a high level of verbal and non-verbal communication • Demonstrating a mastery of listening for meaning and influencing via active listening • Demonstrating and showing empathy for others • High order skills in negotiating and conflict resolution skills\\ • Demonstrating mastery of working respectfully in cross-cultural and diverse teams.	Not applicable	Not applicable
FEDTASK 2 Leadership	Students at this level will demonstrate a mastery in professional skills and behaviours in leading others. • Creating and sustaining a collegial environment • Demonstrating a high level of self -awareness and the ability to self-reflect and justify decisions • Inspiring and initiating opportunities to lead others • Making informed professional decisions • Demonstrating initiative in new professional situations.	Not applicable	Not applicable
FEDTASK 3 Critical Thinking and Creativity	Students at this level will demonstrate high level skills in working in complexity and ambiguity using the imagination to create new ideas. Students will be required to display skills in: • Reflecting critically to generate and consider complex ideas and concepts at an abstract level • Analysing complex and abstract ideas, concepts and information • Communicate alternative perspectives to justify complex ideas • Demonstrate a mastery of challenging conventional thinking to clarify complex concepts • Forming creative solutions in problem solving to new situations for further learning.	Not applicable	Not applicable
FEDTASK 4 Digital Literacy	Students at this level will demonstrate the ability to work competently across a wide range of tools, platforms and applications to achieve a range of tasks. Students will be required to display skills in: • Mastering, exploring, evaluating, managing, curating, organising and sharing digital information professionally • Collating, managing complex data, accessing and using digital data securely • Receiving and responding professionally to messages in a range of professional digital media • Contributing competently and professionally to digital teams and working groups • Participating at a high level in digital learning opportunities.	Not applicable	Not applicable
FEDTASK 5 sustainable and Ethical Mindset	Students at this level will demonstrate a mastery of considering and assessing the consequences and impact of ideas and actions in enacting professional ethical and sustainable decisions. Students will be required to display skills in: • Demonstrate informed judgment making that considers the impact of devising complex solutions in ambiguous global economic environmental and societal contexts • Professionally committing to the promulgation of social responsibility • Demonstrate the ability to evaluate ethical, socially responsible and/or sustainable challenges and generating and articulating responses • Communicating lifelong, life-wide and life-deep learning to be open to the diverse professional others • Generating, leading and implementing required actions to foster sustainability in their professional and personal life	Not applicable	Not applicable

Learning Task and Assessment:

Learning Outcomes Assessed	Assessment Tasks	Assessment Type	Weighting
K1, K2, K3, S1, S2, S3, A1, A2, A3	Structured quiz	Online quiz	10% - 30%
K1, K2, K3, S1, S2, S3, A1, A3	Developing a quantitative survey protocol and design a questionnaire on health issue.	Written report	20% - 40%
K1, K2, K3, S1, S2, S3, A1, A3	Summarising data and evaluation of advanced research hypotheses	Written report	40% -60%

Adopted Reference Style:

APA ()

Refer to the library website for more information

Fed Cite - referencing tool