

Module Details	
Module Title:	Epidemiology and Biostatistics
Module Code:	NUR7048-B
Academic Year:	2019-20
Credit Rating:	20
School:	School of Nursing and Healthcare Leadership
Subject Area:	Nursing
FHEQ Level:	FHEQ Level 7 (Masters)
Pre-requisites:	
Co-requisites:	

Contact Hours	
Type	Hours
Lectures	30
Tutorials	20
Laboratory	10
Directed Study	140

Availability	
Occurrence	Location / Period
	University of Bradford / Semester 2 (Feb - May)

Module Aims
To enable the student to develop the theoretical knowledge base and practical skills required to interpret research evidence from quantitative study designs, with a focus on epidemiological research, and to undertake statistical analyses for relatively simple study designs.

Outline Syllabus
Epidemiology - definition & example landmark studies (e.g. Doll & Hill on smoking, Framingham heart study). Introduction to the philosophy of science - nature of 'evidence', uncertainty and impossibility of 'proof'. Association & Causation. Hierarchy of research evidence & characteristics of study designs (Meta-analyses, RCT's, cohort studies, case-control studies, surveys (cross-

sectional studies), ecological studies, diagnostic accuracy studies. Bias, confounding, stratification and effect modification. Descriptive and graphical methods - measures of central tendency, dispersion, proportions; histograms, box-and-whisker plots, scatterplots (including linear and non-linear associations); transforming data. Inferential statistics - hypothesis testing (and limitations), interpretation of p-values (Fisher and Neymann-Pearson), effect size estimation - point estimates and confidence intervals. Analysis methods for quantitative and categorical data (independent and dependent (paired/matched) samples). Statistical significance v. clinical importance. Principles of sample size estimation.

Learning Outcomes

1	Understand the fundamental principles of epidemiological study design and statistical data analysis.
2	Critically appraise published epidemiological research.
3	Interpret statistical analyses reported in published research.
4	Undertake simple data management tasks and statistical data analysis on primary research data.
5	Communicate effectively within your peer group in order to contribute to collective decisions

Learning, Teaching and Assessment Strategy

Lectures & seminars will be used to introduce the fundamental concepts of epidemiology and statistical data analysis. Tutorials and computer-based practical sessions will enable practical application of the skills developed, through critical appraisal and discussion of published research articles and through hands-on analysis of relevant data sets. Directed study will involve further such examples to enable students to develop their skills further through private study. In the tutorials and practical sessions, students will be encouraged to work collectively and collaboratively in small groups and feed back to the class and tutors. Formative feedback from tutors and peers will be integral to this experience. Assessment will be based upon structured questions relating to one or more published epidemiological research articles and will assess both their critical appraisal skills and their ability to understand and perform statistical data analyses.

Mode of Assessment

Type	Method	Description	Length	Weighting
Summative	Examination - closed book	Closed book exam on applied epidemiology and biostatistics	2 hours	100%

Reading List

To access the reading list for this module, please visit <https://bradford.rl.talis.com/index.html>.

Please note:

This module descriptor has been published in advance of the academic year to which it applies. Every effort has been made to ensure that the information is accurate at the time of publication, but minor changes may occur given the interval between publishing and commencement of teaching. Upon commencement of the module, students will receive a handbook with further detail about the module and any changes will be discussed and/or communicated at this point.