620-168 Experimental Design and Data Analysis

Credit Points:	12.50
Level:	1 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus. Lectures, practice classes and computer laboratory classes.
Time Commitment:	Contact Hours: 36 one-hour lectures (three per week), 11 one-hour practice classes (one per week), 11 one-hour computer laboratory classes (one per week) Total Time Commitment: 120 hours total time commitment.
Prerequisites:	-
Corequisites:	-
Recommended Background Knowledge:	-
Non Allowed Subjects:	Students may only gain credit for one of 620-152 (prior to 2008), *Data Analysis 1*, 620-160 (prior to 2008), *Experimental Design and Data Analysis*, 316-130 Quantitative Methods 1. Students who have completed *Statistics*, 620-270 (prior to 2009) or *Applied Statistics for Optometrists* may not enrol in this subject for credit.
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.
Coordinator:	Assoc Prof Ray Watson
Contact:	-
Subject Overview:	This subject provides an understanding of the fundamental concepts of probability and statistics required for experimental design and data analysis in the health sciences. Initially the subject introduces common study designs, random sampling and randomised trials as well as numerical and visual methods of summarising data. It then focuses on understanding population characteristics such as means, variances, proportions, risk ratios, odds ratios, rates, prevalence, and measures used to assess the diagnostic value of a clinical test. Finally, after determining the sampling distributions of some common statistics, confidence intervals will be used to estimate these population characteristics and statistical tests of hypotheses will be developed. The presentation and interpretation of the results from statistical analyses of typical health research studies will be emphasised. The statistical methods will be implemented using a standard statistical computing package and illustrated on applications from the health sciences.
Objectives:	-
Assessment:	Up to 36 pages of written assignments 15% (due during the semester); a 45-minute computer-based test 5% (held during semester); a 3-hour written examination 80% (held in the examination period).
Prescribed Texts:	M. M. Triola and M. F. Triola, Biostatistics for the Biological and Health Sciences, Boston, Pearson, 2006.
Breadth Options:	This subject is not available as a breadth subject.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees

Generic Skills:	In addition to learning specific skills that will assist students in their future careers in the health sciences, they will have the opportunity to develop, generic skills that will assist them in any future career path. These include: # problem-solving skills: the ability to engage with unfamiliar problems and identify relevant solution strategies; # analytical skills: the ability to construct and express logical arguments and to work in abstract or general terms to increase the clarity and efficiency of analysis; # collaborative skills: the ability to work in a team; and # time-management skills: the ability to meet regular deadlines while balancing competing commitments
Notes:	This subject is only available to students enrolled in the Bachelor of Biomedicine degree or the Bachelor of Biomedical Science (pre-2008 degree)