

620-159 Data Analysis 1

Credit Points:	12.500
Level:	Undergraduate
Dates & Locations:	2008, This subject commences in the following study period/s: Semester 2, - Taught on campus. Lectures, tutorials and computer laboratory classes.
Time Commitment:	Contact Hours: 36 one-hour lectures (three per week), 11 one-hour tutorials (one per week), 11 one-hour computer laboratory classes (one per week). Total Time Commitment: 120 hours
Prerequisites:	Study score of 25 or more in VCE Mathematical Methods 3/4, or equivalent, or 620-173 Introduction to Mathematics.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students may only gain credit for one of [07]620-152, 620-159, [07]620-160, 620-168 or 316-130. Students who have completed 620-202, 620-270 or 620-272 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 participation are encouraged to discuss this with the subject coordinator and the Disability Liaison Unit.
Coordinator:	A/Prof F Vazquez-Abad
Subject Overview:	<p>This subject lays the foundations for an understanding of the fundamental concepts of probability and statistics required for data analysis. Students should develop expertise in some of the statistical techniques commonly used in the design and analysis of experiments, and will gain experience in the use of a major statistical computing package. They should develop skills in collecting random samples, data description, basic statistical inference including parametric and nonparametric tests to compare population proportions and means, data manipulation and statistical computing. The methods will be illustrated using applications from science, engineering and commerce. Descriptive statistics, data manipulation and the implementation of the statistical procedures covered in lectures will be reinforced in the computer laboratory classes.</p> <p>Sampling; introduction to experimental design; review of simple probability; estimation; confidence intervals; hypothesis testing including types of errors and power; inferences about means and proportions based on single and independent samples; matched pairs designs; introduction to nonparametric methods; contingency tables; regression; and analysis of variance.</p>
Assessment:	Up to 25 pages of written assignments 10% (due during semester); two 45-minute computer laboratory tests 10% (held during semester); a 3-hour written examination 80% (held in the examination period).
Prescribed Texts:	Mind on Statistics (J. M. Utts and R. F. Heckard), 3rd edn, Duxbury, USA, 2007.
Breadth Options:	<p>This subject potentially can be taken as a breadth subject component for the following courses:</p> <ul style="list-style-type: none"> # Bachelor of Arts # Bachelor of Environments # Bachelor of Music

	You should visit learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<p>In addition to learning specific skills that will assist students in their future careers in science, they will have the opportunity to develop generic skills that will assist them in any future career path. These include:</p> <ul style="list-style-type: none"> # 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; # time-management skills: the ability to meet regular deadlines while balancing competing commitments; and # computer skills: the ability to use an appropriate computing package.
Notes:	This subject is available for science credit to students enrolled in the BSc (both pre-2008 and new degrees), BASc or a combined BSc course.
Related Course(s):	Bachelor of Engineering (Mechanical & Manufacturing) & Bachelor of Science