

## 620-270 Applied Statistics

<b>Credit Points:</b>	12.500
<b>Level:</b>	Undergraduate
<b>Dates &amp; Locations:</b>	2008, This subject commences in the following study period/s: Semester 2, - Taught on campus.
<b>Time Commitment:</b>	Contact Hours: 36 lectures (three per week), 11 one-hour tutorials (one per week) and 11 one-hour computer laboratory classes (one per week) Total Time Commitment: 120 hours
<b>Prerequisites:</b>	One of [07]620-131, [07]620-152 or [07]620-160.
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	None
<b>Non Allowed Subjects:</b>	Students may only gain credit for one of 620-270, 620-272 or 620-370. Students who have completed 620-371 or 620-372 may not enrol in this subject for credit.
<b>Core Participation Requirements:</b>	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.
<b>Coordinator:</b>	A/Prof A Xia
<b>Subject Overview:</b>	<p>This subject demonstrates the importance of statistical methods for interpreting data, the role of exploratory and formal data analysis and the importance of experimental design. Students should learn to examine data to determine underlying structures, formulate statistical models for a range of practical situations and check the assumptions of the model in specific situations. They should also learn to use the computer to carry out standard statistical analyses and to express conclusions in scientifically useful terms.</p> <p>Introduction to statistical inference topics include estimation; confidence intervals; hypothesis testing including the power of tests; and determination of sample size using the width of confidence intervals and power. Correlation and regression topics include assumptions; method of least squares; interpretation; hypothesis testing; confidence and prediction intervals; residuals; regression diagnostics; transformations; collinearity; model selection; and polynomial regression. Analysis of variance models (one-way and two-way with equal numbers of observations per cell) topics include model; assumptions; estimation and hypothesis testing; interaction and its interpretation; transformations; residuals; and diagnostics. Design of experiments topics include randomisation; replication; blocking; standard designs including completely randomised, randomised block and Latin square designs; factorial experiments: analysis; interpretation; and introduction to confounding. Analysis of covariance topics include detailed treatment of the case with one factor and one covariate; and extension to more complex situations. Contingency tables topics include tests for association; odds ratios, including confidence intervals; and introduction to loglinear models.</p>
<b>Assessment:</b>	Up to 50 pages of written assignments due during the semester (25%); a 3-hour written examination in the examination period (75%).
<b>Prescribed Texts:</b>	None
<b>Breadth Options:</b>	<p>This subject is a level 2 or level 3 subject and is not available to new generation degree students as a breadth option in 2008.</p> <p>This subject or an equivalent will be available as breadth in the future.</p> <p>Breadth subjects are currently being developed and these existing subject details can be used as guide to the type of options that might be available.</p> <p>2009 subjects to be offered as breadth will be finalised before re-enrolment for 2009 starts in early October.</p>

<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Notes:</b>	This subject is available for science credit to students enrolled in the BSc (pre-2008 degree only), BAsc or a combined BSc course.
<b>Related Course(s):</b>	Bachelor of Arts