

## 620-370 Statistics for Mechanical Engineers

<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 hours of lectures (three per week) and 11 hours of tutorials (one per week) Total Time Commitment: 120 hours
<b>Prerequisites:</b>	One of [07]620-113, [07]620-123, [08]620-143 or [05]620-193.
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	None
<b>Non Allowed Subjects:</b>	It is not possible to gain credit for both 620-370 and any of the following subjects: 620-201, 620-202, 620-205, 620-270, 620-272.
<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 R Watson
<b>Subject Overview:</b>	This subject introduces the fundamental concepts of probability and statistical inference. Students should develop the ability to use simple probability models in applications to standard situations and to carry out standard statistical analyses. This subject shows the breadth of application of statistics and the important role statistics has in quality improvement, and covers the following topics: basic probability theory; simple probability models (including Bernoulli trials, Poisson processes, sampling models); random variables and descriptions of their probability distributions; simple distribution theory, including binomial, Poisson and normal distributions; mean and variance: the importance of variance in quality management, engineering practice and decision-making under uncertainty; quality checking: acceptance sampling; exploratory data analysis; random sampling and properties of random samples; introduction to statistical inference: estimation, confidence intervals and hypothesis testing in standard situations based in the binomial, Poisson and normal distributions; quality management: control charts; analysis of variance; linear regression and prediction; multiple regression and polynomial regression; and quality improvement: the principles of experimental design and the analysis of some simple designed experiments, including factorial designs and Taguchi methods.
<b>Assessment:</b>	Up to 50 pages of written weekly homework during the semester (20%); a 3-hour written examination in the examination period (80%).
<b>Prescribed Texts:</b>	None
<b>Breadth Options:</b>	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. This subject or an equivalent will be available as breadth in the future. 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. 2009 subjects to be offered as breadth will be finalised before re-enrolment for 2009 starts in early October.
<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>	<p>Students in the combined degrees BE/BSc or BE/BCom, and students wishing to have access to all 300-level statistics subjects, are advised to enrol in both 620-201 and 620-202 instead of 620-370.</p> <p>This subject is only available to engineering students. Combined science/engineering students should speak to an engineering course adviser before enrolling in this subject as it may be recommended that they complete mathematics and statistics subjects which earn science credit instead.</p> <p>This subject is not available for science credit points.</p>
<b>Related Course(s):</b>	<p>Bachelor of Engineering (Biomedical) Biomechanics Bachelor of Engineering (Mechanical &amp; Manufacturing) and Bachelor of Arts Bachelor of Engineering (Mechanical and Manufacturing Engineering) Bachelor of Engineering (Mechatronics) and Bachelor of Computer Science Bachelor of Engineering (Mechanical &amp; Manufacturing) and Bachelor of Laws</p>