

MAST30015 Statistics for Mechanical Engineers

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus. Lectures and practice classes.
Time Commitment:	Contact Hours: 3 x one hour lectures per week, 1 x one hour practice class per week Total Time Commitment: 120 hours total time commitment.
Prerequisites:	One of # 620-113 Applied Mathematics Advanced Plus (prior to 2008) # 620-123 Applied Mathematics Advanced (prior to 2008) # 620-143 Applied Mathematics (prior to 2009) # 620-193 Applied Mathematics (prior to 2006)
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	It is not possible to gain credit for 620-370 Statistics for Mechanical Engineers and any of the following subjects: # 620-201 Probability (/view/2010/620-201) # 620-205 Probability for Statistics (/view/2010/620-205) # 620-202 Statistics (/view/2010/620-202) # 620-272 Applied Statistics for Optometrists (/view/2010/620-201) # 620-298 Data Analysis 2 (prior to 2010) # 620-270 Applied Statistics (prior to 2009)
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:	Third Year Coordinator Email: tycoord@ms.unimelb.edu.au (mailto:tycoord@ms.unimelb.edu.au)
Subject Overview:	This subject provides an understanding of the fundamental concepts of probability and statistics required for data analysis and quality management in engineering. Topics covered include: probability theory and probability models; random variables, distributions and applications; descriptive statistics and exploratory data analysis; estimation and confidence intervals; hypothesis testing and control charts; inference for normal populations; design and analysis of experiments; linear regression and prediction.
Objectives:	On completion of the subject, students should be able to: # analyse standard data sets, interpreting the results of such analysis and presenting the conclusions in a clear and comprehensible manner; # deal with non-standard data sets in a sensible way;

	<ul style="list-style-type: none"> # understand a range of standard statistical methods which can be applied to engineering problems, particularly in relation to quality management; # solve a range of statistical problems that are applicable in engineering.
Assessment:	Ten written assignments due at weekly intervals during semester amounting to a total of up to 50 pages (20%), and a 3-hour written examination in the examination period (80%).
Prescribed Texts:	None
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 (https://handbook.unimelb.edu.au/view/2010/B-ARTS) # Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2010/B-COM) # Bachelor of Environments (https://handbook.unimelb.edu.au/view/2010/B-ENVS) # Bachelor of Music (https://handbook.unimelb.edu.au/view/2010/B-MUS) <p>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.</p>
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Generic Skills:	<p>In addition to learning specific statistical skills, students will have the opportunity to develop generic skills that will assist them in any 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.
Notes:	<p>Students in the combined degree BE/BSc and students wishing to have access to all third year level statistics subjects are advised to enrol in both</p> <ul style="list-style-type: none"> # 620-201 Probability (/view/2010/620-201) # 620-202 Statistics (/view/2010/620-202) <p>instead of 620-370 Statistics for Mechanical Engineers.</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>
Related Course(s):	<p>Bachelor of Engineering (Mechanical and Manufacturing Engineering) Bachelor of Engineering (Mechatronics) and Bachelor of Computer Science Bachelor of Engineering(Mechanical & Manufacturing) and Bachelor of Laws</p>