MAST30025 Linear Statistical Models

Credit Points:	12.5
Level:	3 (Undergraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 3 x one hour lectures per week, 1 x one hour computer laboratory class per week Total Time Commitment: Estimated total time commitment of 170 hours
Prerequisites:	<table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>MAST20005 Statistics</td><td>Semester 2</td><td>12.50</td></tr></table> Plus one of <table><tr><th>Subject</th><th>Study Period Commencement:</th><th>Credit Points:</th></tr><tr><td>MAST10007 Linear Algebra</td><td>Summer Term, Semester 1, Semester 2</td><td>12.50</td></tr><tr><td>MAST10008 Accelerated Mathematics 1</td><td>Semester 1</td><td>12.50</td></tr></table> # MAST10013 UMEP Maths for High Achieving Students
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students may only gain credit for one of # MAST30025 Linear Statistical Models # 620-371 Linear Models (prior to 2010).
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Students Experiencing Academic Disadvantage Policy, academic requirements for this subject are articulated in the Subject Description, Subject Objectives, Generic Skills and Assessment Requirements of this entry.The University is dedicated to provide support to those with special requirements. Further details on the disability support scheme can be found at the Disability Liaison Unit website: http://www.services.unimelb.edu.au/disability/
Coordinator:	Dr Yao-Ban Chan
Contact:	Third Year Coordinator **Email: tycoord@ms.unimelb.edu.au (mailto:tycoord@ms.unimelb.edu.au)**
Subject Overview:	Linear models are central to the theory and practice of modern statistics. They are used to model a response as a linear combination of explanatory variables and are the most widely used statistical models in practice. Starting with examples from a range of application areas this subject develops an elegant unified theory that includes the estimation of model parameters, quadratic forms, hypothesis testing using analysis of variance, model selection, diagnostics on model assumptions, and prediction. Both full rank models and models that are not of full rank are considered. The theory is illustrated using common models and experimental designs.

Learning Outcomes:	On completion of this subject students should be able to # Understand the underlying statistical theory of linear models and the limitations of such models; # Fit linear models to data using a standard statistical computing package and interpret the results.
Assessment:	Two or three written assignments due at regular 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:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2016/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2016/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2016/B-MUS)** 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:	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 # 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; # time-management skills: the ability to meet regular deadlines while balancing competing commitments; # computer skills: the ability to use statistical computing packages.
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 Majors/Minors/ Specialisations:	Discrete Mathematics and Operations Research (specialisation of Mathematics and Statistics major) Environmental Science Environmental Science major Environments Discipline subjects Science-credited subjects - new generation B-SCI and B-ENG. Selective subjects for B-BMED Statistics / Stochastic Processes Statistics / Stochastic Processes Statistics / Stochastic Processes Statistics / Stochastic Processes Statistics / Stochastic Processes (specialisation of Mathematics and Statistics major)