MAST20005 Statistics

Credit Points:	12.5
Level:	2 (Undergraduate)
Dates & Locations:	2015, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 3 x one hour lectures per week, 1 x one hour practice class per week, and 1 x one-hour computer laboratory class per week Total Time Commitment: Estimated total time commitment of 170 hours
Prerequisites:	One of

Subject	Study Period Commencement:	Credit Points:
MAST20004 Probability	Semester 1	12.50
MAST20006 Probability for Statistics	Semester 1	12.50

Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Passing this subject (MAST20005 Statistics) precludes subsequent credit for either of

Subject	Study Period Commencement:	Credit Points:
MAST10010 Data Analysis 1	Semester 2	12.50
MAST10011 Experimental Design and Data Analysis	Semester 1, Semester 2	12.50

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 Davide Ferrari
Contact:	Second Year Coordinator **Email: sycoord@ms.unimelb.edu.au (mailto:sycoord@ms.unimelb.edu.au)**
Subject Overview:	This subject introduces the theory underlying modern statistical inference and statistical computation. In particular, it demonstrates that many commonly used statistical procedures arise as applications of a common theory. Both classical and Bayesian statistical methods are developed. Basic statistical concepts including maximum likelihood, sufficiency, unbiased estimation, confidence intervals, hypothesis testing and significance levels are discussed. Applications include distribution free methods, goodness of fit tests, correlation and regression; the analysis of one-way and two-way classifications.
Learning Outcomes:	Students completing this subject should # be familiar with the basic ideas of estimation and hypothesis testing

	# be able to carry out many standard statistical procedures using a statistical computing package. # develop the ability to fit probability models to data by both estimating and testing hypotheses about model parameters.
Assessment:	Three written assignments due at regular intervals during semester amounting to a total of up to 50 pages (20%), a 45-minute computer laboratory test held at the end of semester (10%), and a 3-hour written examination in the examination period (70%).
Prescribed Texts:	Hogg and Tanis, Probability and Statistical Inference. 8th Edition, Prentice Hall, 2010.
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # **Bachelor of Arts (https://handbook.unimelb.edu.au/view/2015/B-ARTS)** # **Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2015/B-COM)** # **Bachelor of Environments (https://handbook.unimelb.edu.au/view/2015/B-ENVS)** # **Bachelor of Music (https://handbook.unimelb.edu.au/view/2015/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 should progressively acquire generic skills from this subject 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; # collaborative skills: the ability to work in a team; # 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. Students undertaking this subject are required to regularly use computers with the computer algebra system Maple and statistics package R installed. Students undertaking this subject are not assumed to have any special computer skills at the beginning. They will learn the basic skills of using Maple and R in the subject.
Related Majors/Minors/ Specialisations:	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
Related Breadth Track(s):	Mathematics for Economics