MAST90082 Mathematical Statistics

Credit Points:	12.5
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2016, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: Contact Hours: 36 hours comprising 2 one-hour lectures per week and 1 one-hour practice class per week. Total Time Commitment: Estimated Total Time Commitment -170 hours

Prerequisites:

Subject	Study Period Commencement:	Credit Points:
MAST20005 Statistics	Semester 2	12.50

And any third-year subject in statistics or stochastic processes.

These can include the following subjects:

Subject	Study Period Commencement:	Credit Points:
MAST30001 Stochastic Modelling	Semester 2	12.50
MAST30025 Linear Statistical Models	Semester 1	12.50
MAST30027 Modern Applied Statistics	Semester 2	12.50
MAST30020 Probability for Inference	Semester 1	12.50

Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering request for Reasonable Adjustments under the Disability Standards for Education (Cwth 2005), and Student Support and Engagement Policy, academic requirements for this subject are articulated in the Subject Overview, Learning Outcomes, Assessment and Generic Skills sections of this entry. It is University policy to take all reasonable steps to minimise the impact of disability upon academic study, and reasonable adjustments will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact on meeting the requirements of this subject are encouraged to discuss this matter with a Faculty Student Adviser and Student Equity and Disability Support: http://services.unimelb.edu.au/disability
Coordinator:	Prof Richard Huggins
Contact:	Email: **r.huggins@ms.unimelb.edu.au (mailto:r.huggins@ms.unimelb.edu.au)**
Subject Overview:	The theory of statistical inference is important for applied statistics and as a discipline in its own right. After reviewing random samples and related probability techniques including inequalities and convergence concepts the theory of statistical inference is developed. The principles of data reduction are discussed and related to model development. Methods of finding estimators are given, with an emphasis on multi-parameter models, along with the theory of hypothesis testing and interval estimation. Both finite and large sample properties of estimators are considered. Applications may include robust and distribution free methods, quasi-likelihood and

generalized estimating equations. It is expected that students completing this course will have the tools to be able to develop inference procedures in novel settings.

Learning Outcomes:	After completing this subject students should gain: # a deeper understanding of the principles of mathematical statistics and some of its important applications. # the ability to pursue further studies in this and related areas
Assessment:	Up to 40 pages of written assignments (two assignments worth 10% each) due mid and late semester (20%) Three hour written examination (80%)
Prescribed Texts:	None
Breadth Options:	This subject is not available as a breadth subject.
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; # collaborative skills: the ability to work in a team; # time-management skills: the ability to meet regular deadlines while balancing competing commitments
Related Course(s):	Doctor of Philosophy - Engineering Master of Commerce (Actuarial Science) Master of Philosophy - Engineering Master of Science (Mathematics and Statistics)
Related Majors/Minors/ Specialisations:	Mathematics and Statistics