MAST90018 Statistical Inference

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 2, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 36 hours comprising one two-hour lecture per week and one one-hour practical class. Total Time Commitment: Not available
Prerequisites:	None
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	For the purposes of considering requests 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 for 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:	Prof Richard Huggins
Contact:	.
Subject Overview:	Classical statistics is concerned with parametric models, which are idealized versions of reality that allow the development of an elegant mathematical theory of inference. Modern Statistics develops methods that weaken the assumptions of these classical methods. In this course we review classical statistical methods and then consider their generalisation using estimating equations. Topics include: Review of Classical Inference. Properties of Maximum Likelihood Estimators. Hypothesis Testing & Model Selection. Generalized Linear Models. Nonparametric function estimation (density + regression). Bootstrap.
Objectives:	After completing this subject students should gain: # an understanding of the classical theory of statistics and how it has developed into modern statistics; # an understanding of flexible and popular nonparametric methods in statistics; and # the ability to pursue further studies in this and related areas.
Assessment:	Up to 40 pages of written assignments (20%: two assignments worth 10% each, due mid and late in semester), a three-hour written examination (80%, in the examination period).
Prescribed Texts:	None
Recommended Texts:	Davison, A.C. (2003) Statistical Models. Casella, G & Berger, R.L. (2002) Statistical Inference. Wand, M.P & Jones, M.C. (1995). Kernel smoothing. Hall, P. (1992). The bootstrap and Edgeworth expansion Davison, A.C. and Hinkley, D.V. (1997). Bootstrap Methods and their Applications. Efron, B. and Tibshirani, R.J. (1993). An Introduction to the Bootstrap.
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:	Upon completion of this subject, students should gain: # problem-solving skills including engaging with unfamiliar problems and identifying relevant 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 an analysis; and # through interactions with other students, the ability to work in a team.
Related Course(s):	Master of Science (Mathematics and Statistics)