

# MAST90062 Probability & Mathematical Statistics I

<b>Credit Points:</b>	12.50
<b>Level:</b>	9 (Graduate/Postgraduate)
<b>Dates &amp; Locations:</b>	2011, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
<b>Time Commitment:</b>	Contact Hours: 36 hours comprising 2 one-hour lectures per week and 1 one-hour practice class per week. Total Time Commitment: 3 contact hours and 7 hours private study per week.
<b>Prerequisites:</b>	None
<b>Corequisites:</b>	None
<b>Recommended Background Knowledge:</b>	It is recommended that students have completed a third year subject in probability and statistical inference (equivalent to 620-323 Probability and Statistical Inference).
<b>Non Allowed Subjects:</b>	None
<b>Core Participation Requirements:</b>	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: <a href="http://www.services.unimelb.edu.au/disability/">http://www.services.unimelb.edu.au/disability/</a>
<b>Coordinator:</b>	Prof Richard Huggins
<b>Contact:</b>	Email: <a href="mailto:rhuggins@unimelb.edu.au">rhuggins@unimelb.edu.au</a> ( <a href="mailto:rhuggins@unimelb.edu.au">mailto:rhuggins@unimelb.edu.au</a> )
<b>Subject Overview:</b>	This subject first reviews the distributions of univariate and multivariate random variables extending the results encountered in previous probability courses. Principles of data reduction including the sufficiency and likelihood principles are discussed along with methods of finding and evaluating estimators and hypothesis tests. Methods of finding interval estimates are given. Decision theory is introduced and Bayes estimators and tests are discussed.
<b>Objectives:</b>	After completing this subject students should gain: <ul style="list-style-type: none"> <li>• an understanding of the theory of statistics and some of its important principles and applications; and</li> <li>• the ability to pursue further studies in this and related areas.</li> </ul>
<b>Assessment:</b>	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).
<b>Prescribed Texts:</b>	None
<b>Recommended Texts:</b>	Casella, G., Berger, R.L. Statistical inference. 2nd edition. Duxbury (2002)
<b>Breadth Options:</b>	This subject is not available as a breadth subject.
<b>Fees Information:</b>	Subject EFTSL, Level, Discipline & Census Date, <a href="http://enrolment.unimelb.edu.au/fees">http://enrolment.unimelb.edu.au/fees</a>
<b>Generic Skills:</b>	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: <ul style="list-style-type: none"> <li>* problem-solving skills: the ability to engage with unfamiliar problems and identify relevant solution strategies;</li> <li>* 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;</li> <li>* collaborative skills: the ability to work in a team;</li> </ul>

	* time-management skills: the ability to meet regular deadlines while balancing competing commitments
<b>Related Course(s):</b>	Master of Science (Mathematics and Statistics)