MAST90057 Elements of Probability

Credit Points:	12.50
Level:	9 (Graduate/Postgraduate)
Dates & Locations:	2010, Parkville This subject commences in the following study period/s: Semester 1, Parkville - Taught on campus.
Time Commitment:	Contact Hours: 36 hours: 3 x one-hour lectures per week, 1 x one-hour practice classes per week, and 1 x one-hour computer laboratory classes per week. Total Time Commitment: 120 hours
Prerequisites:	620-155 Calculus 1 or equivalent.
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	Students who have previously taken second year level subjects in Probability or Probability for Statistics or their equivalents may not gain credit for this subject.
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.
Coordinator:	Dr Guoqi Qian
Contact:	Email: qguoqi@unimelb.edu.au
Subject Overview:	Randomness is inherent in biological data and the analysis of data arising in both Bioinformatics and Biostatistics requires knowledge of sophisticated probability models and statistical techniques. This subject develops the underlying probability theory that is necessary to understand these models and techniques. Computer packages are used for numerical and theoretical calculations but no programming skills are required. Elements of Probability will be co-taught with 620-205 Probability.
Objectives:	At the completion of the subject, students are expected to have: # Developed a systematic understanding of probability, random variables, probability distributions and probability models, and their relevance to statistical inference; # Be able to formulate standard probability models from biological applications and critically assess them; # Be able to apply the properties of probability distributions, to analyse common random variables and probability models; and # Be able to use a computer package to perform algebraic and computational tasks in probability analyses.
Assessment:	50 pages of written assignments due during the semester (20%); a 45-minute computer laboratory test held during the semester (10%); a 3-hour written examination in the examination period (70%).
Prescribed Texts:	Hogg and Tanis, Probability and Statistical Inference. Seventh Edition, Prentice Hall, 2005.
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:	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.
become familiar with a major statistical computing package.