

200-level SUBJECT HANDBOOK ENTRY 2008 – New Generation Subjects

Subject Code	620-205
Title of the subject	Probability for Statistics
Credit points	12.5
Coordinator	Karen Baker
Semester of offer	1
Prerequisites	620-155 and 620-156; or 620-158.
Mode of delivery	Lectures, tutorials and computer laboratory classes
Contact hours	36 one-hour lectures (three per week), 11 one-hour tutorials (one per week), 11 one-hour computer laboratory classes (one per week)
Estimated total time commitment	120 hours
Description	<p>This subject develops the probability theory that is necessary to understand statistical inference. Properties of probability are reviewed, random variables are introduced, and their properties are developed and illustrated through common univariate probability models. Models for the joint behaviour of random variables are introduced, along with conditional probability and Markov chains. Methods for obtaining the distributions of functions of random variables are considered along with techniques to obtain the exact and approximate distributions of sums of random variables. These methods will be illustrated through some well-known normal approximations to discrete distributions and by obtaining the exact and approximate distributions of some commonly used statistics. Computer packages are used for numerical and theoretical calculations but no programming skills are required.</p>
Assessment	Up to 50 pages of written assignments 20% (due during semester), a 45-minute computer laboratory test 10% (held during semester), a 3-hour written examination 70% (in the examination period).
Prescribed texts	Hogg and Tanis, <i>Probability and Statistical Inference</i> . Seventh Edition.
Notes	<p>Students may only gain credit for one of 620-201, 620-205, [07]620-370 or 431-325.</p> <p>Students taking this subject must achieve a mark of H2B or above in the subject to proceed to 620-301</p> <p>Students undertaking Actuarial Studies must take 620-201 Probability instead of 620-205 Probability for Statistics.</p>
Subject objectives	
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.
- Become familiar with a major statistical computing package.