

200-level SUBJECT HANDBOOK ENTRY 2008 – New Generation Subjects

Subject Code	620-202
Title of the subject	Statistics
Credit points	12.5
Coordinator	Karen Baker
Semester of offer	2
Prerequisites	620-201 or 620-205
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: (including non-contact time)	120 hours
Description	<p>This subject introduces the theory necessary to understand modern statistical inference and statistical computation. It demonstrates how many commonly used statistical procedures arise as applications of a common theory.</p> <p>Students will develop the ability to fit probability models to data by both estimating and testing hypotheses about model parameters. This subject demonstrates the importance of the underlying mathematical theory of statistics and the use of modern computer software.</p> <p>Random samples and sample characteristics; desirable properties of estimators; methods for the estimation of parameters of probability distributions, including maximum likelihood estimation; confidence intervals and prediction intervals; theory and application of hypothesis tests; introduction to distribution free methods and goodness of fit tests, correlation and regression; the analysis of one-way and two-way classifications. 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% (held in the examination period).
Prescribed texts	Hogg and Tanis, <i>Probability and Statistical Inference</i> . Seventh Edition.
Notes	Passing 620-202 precludes subsequent credit for 620-159 or 620-168.
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;
- computer skills: the ability to use an appropriate computing package.