

COURSE SPECIFICATION FORM

DEPARTMENT OF: Mathematics				Academic Session: 2015-16	
Course Code:	MT3320	Course Value:	0.5	Status: <i>(ie:Core, or Optional)</i>	Core for G1G3, optional for others
Course Title:	Inference			Availability: <i>(state which teaching terms)</i>	Term 2
Prerequisites:	MT2320			Recommended:	
Co-ordinator:					
Course Staff					
Aims:	To provide the theory underlying the main principles and methods of statistics, in particular, to provide an introduction to the theory of parametric estimation and hypotheses.				
Learning Outcomes:	<p>On completion of the course, students should be able to</p> <ul style="list-style-type: none"> • demonstrate a familiarity with the theoretical background of the concepts and results in the theory of estimation and hypothesis testing; • formulate statistical problems in mathematical terms. 				
Course Content:	<p>Estimation: Maximum likelihood, method of moments, Bayes estimators, sufficiency, unbiasedness, efficiency, asymptotic properties of maximum likelihood estimators. Hypothesis testing: Neyman-Pearson framework, uniformly most powerful tests, likelihood ratio tests. Introduction to decision theory: Formulation, Bayes and minimax rules.</p>				
Teaching & Learning Methods:	<p>33 hours of lectures and examples classes. 117 hours of private study, including work on problem sheets and examination preparation. This may include discussions with the course leader if the student wishes.</p>				
Key Bibliography:	<p>Statistical Inference – G Casella and R L Berger (Duxbury 2001) <i>Library reference 518.1 CAS</i> Mathematical Statistics and Data Analysis – J A Rice (Duxbury 2006) <i>Library reference 518.3 RIC</i> John E Freund's Mathematical Statistics – I Miller and M Miller (Prentice Hall 2003) <i>Library reference 518.3 FRE</i> Probability and Statistical Inference – R V Hogg and A T Tanis (Prentice Hall 2005) <i>Library reference 518.1 HOG</i></p>				
Formative Assessment & Feedback:	Formative assignments in the form of 8 problem sheets. The students will receive feedback as written comments on their attempts.				
Summative Assessment:	<p>Exam (%) A two-hour paper: 100%</p> <p>Coursework (%) None</p>				

Updated Nov 2015

The information contained in this course outline is correct at the time of publication, but may be subject to change as part of the Department's policy of continuous improvement and development. Every effort will be made to notify you of any such changes.