## **COURSE SPECIFICATION FORM**

for new course proposals and course amendments

Image MT2320 Co-requisites: - <b>Co-ordinator:</b> - - <b>Aims:</b> 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: 1. demonstrate a familiarity with the theoretical background of the concepts and rethet theory of estimation and hypothesis testing;   2. formulate statistical problems in mathematical terms; 3. demonstrate a breadth of understanding appropriate for an M-level course. <b>Course Content:</b> Estimation: Maximum likelihood, method of moments, Bayes estimators, sufficiency, asymptotic properties of maximum likelihood estimators. Hypothesis testing: Neyman-Pearson framework, uniformly most powerful tests, like ratio tests.   Introduction to decision theory: Formulation, Bayes and minimax rules.   Teaching & Learning Methods: The total number of notional learning hours associated with this course are 150. 3 hours of lectures per week over 11 weeks.   Methods: Statistical Inference – G Casella and R L Berger (Duxbury 2001) Library reference 518.3 RIC John E Freund's Mathematical Statistics – I Miller and M Miller (Prentice Hall 2003) Library reference 518.3 FRE	rtment/School:	Mathematics	Academic Session:	2015-16	
Course Code:   MT4320   (Please status   G100     Availability: (Please status which teaching terms)   Term 2   Status:   Optional Condonable     Pre-requisites:   MT2320   Co-requisites:   -     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:   1. demonstrate a familiarity with the theoretical background of the concepts and re the theory of estimation and hypothesis testing; 2. formulate statistical problems in mathematical terms; 3. demonstrate a breadth of understanding appropriate for an M-level course.     Course Content:   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, like ratio tests. Introduction to decision theory: Formulation, Bayes and minimax rules.     Teaching & Learning Methods:   The total number of notional learning hours associated with this course are 150. 3 hours of lectures per week over 11 weeks. 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. Statistical Inference – G Casella and R L Berger (Duxbury 2006) Library reference 518.3 FRE	se Title:	nference	(UG courses = unit value, PG courses = notional learning	0.5 unit	
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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.