M3/M4S3 STATISTICAL THEORY II

COURSE DETAILS

<u>Lectures</u>
The course comprises 30 lectures; lecture times are

Tuesday 2.00, room 408
Wednesday 11.00, room 408
Friday 9.00, room 408

<u>Office Hour</u>: Friday, 10.00, room 523.

<u>Course Assessment</u>

Summer examination: One two-hour paper, five questions.
Assessed coursework: Two pieces of assessed work.

The assessed worksheet questions will be representative of the format and level of difficulty of the questions that will appear in the exam.

Assessed coursework marks carry up to the equivalent of approximately half of one exam question.

SYLLABUS

The course will be divided into three main sections

1. **Asymptotic Theory**: Large sample theory, convergence and approximation. Modes of convergence. Metrics and Divergences. Laws of Large Numbers. Central Limit Theorems. Empirical Processes. Asymptotics in likelihood theory.

2. **Likelihood and Extensions**: Efficient estimation. Nuisance Parameters and conditioning. Profile likelihood. Quasi Likelihood. Pseudo likelihood. Estimating equations.

3. **Bayesian Theory**: Inference, Representation Theorems, Nonparametrics

<u>Recommended Texts</u>
T.S Ferguson, *A Course in Large Sample Theory*
E. L. Lehmann, *Elements of Large-Sample Theory*
J. Shao, *Mathematical Statistics.*
D.R Cox and D.V Hinkley, *Theoretical Statistics*

Course WWW page:

http://stats.ma.ic.ac.uk/∼das01/M3S3/

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