2 November 2007

MSc and Diploma in Applied Statistics 2007: Examiners' Report

Part I

A STATISTICS

(1) Numbers and percentages in each category

MSc in Applied Statistics

Category	Number				Percentage			
	2006/07	2005/06	2004/05	2003/04	2006/07	2005/06	2004/05	2003/04
Distinction	6	5	3	3	13	16	11	11
Pass	35	22	22	23	78	71	81	85
Awarded Diploma	0	2	0	0	0	7	0	0
Fail	1	1	1	0	2	3	4	0
Did not complete	3	1	1	1	7	3	4	4

Six candidates were awarded a distinction in the MSc. There was one candidate who failed the MSc.

Resit Candidates
Three candidates, who had failed the examinations in 2006, sat both written papers. Two were found to have sufficient understanding to be awarded a Diploma. One candidate again was failed.

(2) Vivas

None

(3) Double marking of scripts

All scripts and dissertations were double marked.

B NEW EXAMINING METHODS AND PROCEDURES

Examining methods and procedures were similar to those in 2006 with the exception that only 5 questions in paper II were to be attempted. This change was made in response to the examiners' report from 2006.

C CHANGES TO EXAMINING CONVENTIONS TO BE CONSIDERED

It was recommended to change the examination conventions for 2007/2008 as follows:

In addition to the new pass mark of 50%, an overall pass should require an average of at least 40% in (i) the examination papers combined and (ii) the dissertation.

The level and variation of dissertation marks were much like 2006. There were considerable variations in the marks given by the two assessors, but all marks had been reconciled at the time of the meeting.

There were problems with the assessment criteria sheet in that many categories were overlapping in purpose and descriptions did not fit well to standards required. The criteria would have to be changed anyway for examination in 2008, as the pass mark would increase to 50%. The weightings in the guidance scheme should also be considered. It would be appropriate to put more weight onto basic statistical work.

It was recommended that an information sheet was distributed to supervisors to accompany the dissertation upon submission and assessment. This should contain information such as the number of supervision meetings, how many drafts had been seen and commented on by the supervisor, etc.

D EXAMINATION CONVENTIONS – COMMUNICATION WITH CANDIDATES

Conventions set out in the course handbook were distributed to students in week 0 of Michaelmas Term 2006. A notice to candidates was issued in Trinity Term 2007 (attached).

Part II

A GENERAL COMMENTS ON THE EXAMINATIONS

The overall standard of the candidates was satisfactory. The level and variation of dissertation marks were much like 2006.

B EQUAL OPPORTUNITIES ISSUES AND BREAKDOWN OF THE RESULTS BY GENDER

Category	Male	Female
Distinction	4	2
Pass	13	22
Awarded Diploma	2	0
Fail	1	1
Did not complete	3	0

Figures include the resit candidates.

C DETAILED NUMBERS ON CANDIDATES' PERFORMANCE IN EACH PART OF THE EXAMINATION

Paper I Principles of Statistical Analysis

Candidates were asked to attempt all 6 questions. One candidate answered 4 questions only. One candidate attempted 5 questions. Summary statistics are given below.

Question	Topic	No of answers	Median	IQR
1	Statistical Methods	45	10	8
2	Statistical Methods	44	11	5.25
3	Statistical Theory	45	12	7
4	Statistical Theory	44	7	13.35
5	Time Series	44	16	5
6	Survival Analysis	45	14	6

Paper II Further Statistical Methodology

Candidates were asked to attempt a total of 5 questions including 2 core questions.

One candidate attempted 7 questions and seven candidates 6 questions, although they were only credited for the best 5 answers. Four candidates answered 4 questions and one candidate answered 3 questions.

Question	Topic	No of answers	Median	IQR
1	Computer Intensive Statistics	43	9	7.5
2	MCMC and Applied Bayesian Statistics	42	9	4
3	Further Statistical Methods	17	9	7
4	Infectious Diseases	8	5.5	6.25
5	Mathematical Genetics	18	10.5	6.25
6	Actuarial Science	33	9	5
7	Actuarial Science	33	7	6
8	Statistical Data Mining	10	10.5	10.25
9	Statistical Data Mining	5	14	11
10	Combinatorial Optimisation	19	9	9

D COMMENTS ON PAPERS AND INDIVIDUAL QUESTIONS

Paper I

Questions had been reasonable and were reasonably answered, with several high marks.

Paper II

All candidates attempted at least two core questions as required. Paper II seemed to get quite low marks in general, although some marks were very high. The low marks would be particularly problematic when the pass limit is increased to 50% from 2007.

Dissertations

Dissertations were assessed on the following topics:

Applicability of Non-linear transformation techniques to model highly skewed SF-36 quality of life scores in association with known demographic and clinical risk factors in type-2 diabetes patients
Comparison of linkage disequilibrium structures across populations
Ancestral inference on gene trees from HapMap data
Bayesian approaches to the analysis of fMRI brain imaging data
Diagnosing sporadic Alzheimer's Disease: discriminant analysis of serial neuroimages
A hierarchical Bayesian approach to a two-factor random effects model with interaction
Asset selection and allocation
Predictors of changes in HbA1c and medication taking in the DiGEM trial over one year
Obsolescence calculations in the OPRRA software
Reinsurance price tracking
Pricing exotic options with Variance Gamma Process
Spatial biodiversity of tropical forests
Some statistical techniques for analysing a bipartite network
Cause specific mortality
Analysis of Finnish election data
Large loss modelling in general insurance reserves
Database integration by Weighted Bootstrap
Bias and discrimination in intra-household nutritional status: case study of a rural labour population in Northeast Brazil
Bayesian models with spatially varying coefficients
An analysis of income and class mobility between generations in the UK
An extended multi-state reserving model
Electromyography analysis on work-related musculoskeletal disorders
An extended Potts Model for medieval scribes
Rasch vs IRT measurement modelling: implications for health outcomes research
Predicting the Stock Index using artificial neural networks and support vector machines
Grouping stimuli by neural response
Horse betting to assess subjective probability
Role of education in poverty alleviation: an exploratory analysis based on the Pakistan Social and Living Standards Measurement Survey 2004-2005
Analysis of hurricane landfalls in the North Atlantic Basin
Prediction of Premiership football scores
Investigating the presence of a population expansion of *Bos taurus* in the Neolithic: a Bayesian MCMC approach
Possible ecological biases in caesarean delivery rates
Simulation studies of power and robustness in models for network dynamics
Risk estimates on geographic data
Mortality ratings factors
Model uncertainty in reinsurance pricing process
Investigation of fish mortality in negative control groups of experiments
Use of case-control and nuclear trio designs in genetic association studies
Data uncertainty in pricing reinsurance
Incremental pedigree likelihood calculation
Ancestral inference from HapMap data
Comfort analysis: testing of peak demand-limiting using thermal mass

F EXAMINERS

S L Lauritzen (Chair)
R Boys (External)
P Clifford
C Holmes