FHS Mathematics and Statistics Part C 2017

Second Notice to Candidates
Trinity Term 2017

This notice contains information about:

1. Classification conventions and marking schemes
2. The format of papers in Part C
3. Factors affecting performance
4. The use of calculators.

A further notice will be sent out later with information about practical arrangements in the Examination Schools, including candidate numbers, handing in of scripts and other such matters.

The timetable for the examination will be set by the Examination Schools and will be made available to you through Student Self Service. If you are unable to take a paper at the stipulated time for a religious or other compelling reason, you should ask your college to make the appropriate application on your behalf.

The full regulations for the Part C examination are contained in the Examination Decrees and Regulations at http://www.admin.ox.ac.uk/examregs/2016-17/hsomathandstat/studentview/

Full particulars about the syllabus and other information can be found in the Mathematics and Statistics Undergraduate Handbook and Supplements (available at
http://www.stats.ox.ac.uk/current_students/bammath/course_handbooks.

The examining conventions for Mathematics and Statistics (which are summarised in this notice) are given in full in the Examination Conventions (available at
http://www.stats.ox.ac.uk/current_students/bammath/examinations).

Professor Geoff Nicholls
Chair of Examiners
Department of Statistics
March 2017

Classification Conventions and Marking Schemes

Marking of Mathematics and Statistics Papers

The majority of mathematics and statistics examinations are marked by a single assessor or examiner according to a pre-agreed mark scheme which is strictly adhered to. Marking schemes for written papers will aim to ensure that the following qualitative criteria hold.

- **20–25 marks**: A completely, or almost completely, correct answer, showing excellent understanding of the concepts and skill in carrying through the arguments and/or calculations; minor slips or omissions only.
- **13–19 marks**: A good though not complete answer, showing understanding of the concepts and competence in handling the arguments and/or calculations. Such an answer might consist of an excellent answer to a substantial part of the question, or a good answer to the whole question which nevertheless shows some flaws in calculation or in understanding or in both.
- **7–12 marks**: Standard material has been substantially and correctly answered with some possible minor progress on to other parts of the question.
- **0–6 marks:** Some progress has been made with elementary, accessible material.

University Standardised marks

The University instructs all examiners to adopt a uniform system of reporting marks. This means that each candidate will receive a numerical mark (USM) on each paper in the range 0-100 such that

- a First Class performance (on that paper) is indicated by a mark of 70 or over
- an Upper Second Class performance (on that paper) is indicated by a mark of 60 to 69
- a Lower Second Class performance (on that paper) is indicated by a mark of 50 to 59
- a Third Class performance (on that paper) is indicated by a mark of 40 to 49
- a Fail performance (on that paper) is indicated by a mark below 40.

In order to arrive at such standardized marks for each paper, the Examiners will mark and assess papers in the way described below.

The Board of Examiners in Part C will assign USMs for papers taken in Part C and they will recalibrate the raw marks to arrive at USMs. The unit papers are designed so that the raw marks on a unit sum to 50, and the USMs will be in the range 0-100. The examiners will take into account the relative difficulty of papers when assigning USMs; in order to achieve this, examiners may use information on candidates' performances on earlier parts of the Final Honour School when recalibrating the raw marks. They may also use other statistics to check that the USMs assigned fairly reflect the students' performances on a paper. The scaling algorithm used by the mathematics examiners is explained in detail in the 2016 examiners' report which can be found on WebLearn at
https://weblearn.ox.ac.uk/x/ZA4DnE.

In order to ensure fair treatment, Examiners may exercise individual consideration in assigning USMs for candidates whose marks lie outside the standard pattern, or when assigning USMs to papers where the number of candidates involved is small or untypical. The Examiners may also adjust USMs to take account of any special circumstances affecting individual candidates.

Classification

The USMs awarded to a candidate for papers in Part C will be used to arrive at a classification for Part C of the MMath. The dissertation has a weight of 3 and each unit has a weight of 1. Let AvUSMC denote the weighted average USM for the papers at Part C, rounded symmetrically. Part C classifications are determined as follows:

- First Class: AvUSMC $\geq$ 70

- Upper Second Class: $60 \leq$ AvUSMC < 70

- Lower Second Class: $50 \leq$ AvUSMC < 60

- Third Class: $40 \leq$ AvUSMC < 50

A 'Pass' will not be awarded for Part C.
Candidates achieving AvUSMC < 40 may supplicate for a BA.
The Examiners will take particular care in assigning classes to those candidates whose marks fall near each class boundary.

Candidates satisfying the Examiners for Parts A, B and C may supplicate for an MMath in Mathematics and Statistics, with two associated classifications: one classification for years 2 and 3 together, and one classification for year 4.

Note that successful candidates can only supplicate for one degree – either a BA or an MMath. The MMath has two classifications associated with it, but a candidate will not be awarded both a BA degree and an MMath degree.

Qualitative descriptors
The qualitative descriptions of the classes are as follows:

Class I   The candidate shows excellent skills in reasoning, deductive logic and problem-solving. He/she demonstrates an excellent knowledge of the material, and is able to use that in unfamiliar contexts.

Class IIi   The candidate shows good or very-good skills in reasoning, deductive logic and problem-solving. He/she demonstrates a good or very good knowledge of much of the material.

Class IIii   The candidate shows adequate basic skills in reasoning, deductive logic and problem-solving. He/she demonstrates a sound knowledge of much of the material.

Class III   The candidate shows reasonable understanding of at least part of the basic material and some skills in reasoning, deductive logic and problem-solving.

Fail   Little evidence of competence in the topics examined; the work is likely to show major misunderstanding and confusion, coupled with inaccurate calculations; the answers to the questions attempted are likely to be fragmentary only.

Format of Examination Papers

Statistics units

The Statistics exam papers are:
- SC1 Stochastic Models in Mathematical Genetics
- SC2 Probability and Statistics for Network Analysis
- SC4 Data Mining and Machine Learning
- SC5 Advanced Simulation Methods
- SC6 Graphical Models
- SC7 Bayes Methods

The papers SC1, SC2, SC4, SC5, SC6 and SC7 each last for 1 hour and 45 minutes. They each contain 3 questions. Each question is marked out of 25. Candidates may hand in as many answers as they wish, but only the best 2 answers will count for a candidate's total mark in each paper.

[For C8.4 Probabilistic Combinatorics, which counts as a statistics unit for Mathematics and Statistics candidates, see under Mathematics papers below.]

Dissertation on a statistical topic: see the First Notice to Candidates.

Mathematics Unit Papers: C1.1-C8.4

Each unit paper in Part C will last for 1 hour and 45minutes and consist of 3 questions, each marked out of 25. Candidates may submit answers to as many questions as they wish, but only the best 2 answers will count for a candidate's total mark.

Factors affecting performance

The board of examiners will use the following procedure for the consideration of medical and other special circumstances transmitted to them via the Examinations and Assessments Section:

(a)   A subset of the board will meet to discuss the individual applications and band the seriousness of each application on a scale of 1-3 with 1 indicating minor impact, 2 indicating moderate impact, and 3 indicating very serious impact. When reaching this decision, examiners will take into consideration the severity and relevance of the circumstances, and the strength of the evidence. Examiners will also note whether all or a subset of papers were affected being aware that it is possible for circumstances to have different levels of impact on different papers.

(b)   The banding information will be used at the final board of examiners meeting to adjudicate on the merits of candidates.

(c)   A brief, formal record will be kept confirming (i) the fact that information about special circumstances has been considered by the examiners, (ii) how that information has been considered, and (iii) the outcome of the consideration with the reasons for the decisions reached.

Further information on how to make an application for consideration of factors affecting performance in an examination is available at

Calculators and Statistical tables

The use of calculators is **generally not permitted** for written papers in this examination, although it may be permitted for certain exceptional papers . For paper **C6.2 only,** basic scientific calculators which have features such as exp and log, but which are **non-programmable**, will be allowed.

For this paper any of the following will be permitted:

Casio fx-83 series
Casio fx-85 series
Sharp EL-531 series.

Candidates should note that no calculators will be available in the examination room.

Statistical tables will not be required for any of the Statistics papers.