



DEPARTMENT OF
STATISTICS

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FHS Mathematics and Statistics Part A 2019

First Notice to Candidates Trinity Term 2019

- Full particulars about the syllabus and the examination are contained in the *Examination Decrees and Regulations* together with the *Supplements* (including the Part A synopses) to the *Mathematics and Statistics Undergraduate Handbook*.
- I will write to you again later with information about the examination timetable and practical arrangements, including information about candidate numbers, handing in of scripts, and so on. I am expecting the examination to be held in weeks 8 and 9 in Trinity Term.
- A note about examination conventions relating to the marking of papers in Part A is included. Your marks will be reported to you in the University's standard format which consists of a mark in the range 0-100 for each paper. The full examination conventions for the MMath/BA in Mathematics and Statistics can be found at http://www.stats.ox.ac.uk/current_students/bammath/examinations.
- The examiners are planning to hold their final meeting on Friday 12 July 2019, and hope to distribute results soon afterwards.

Dr Neil Laws
Chairman of Part A Examiners
Department of Statistics
February 2019

cc Senior Maths Tutors
Senior Tutors

University Standardised Marks

Although the Part A Examination is an unclassified examination, marks for each individual examination paper will be reported as University Standardised Marks (USMs). The object of the USMs is to allow direct comparison between the results of examination in different subjects. Raw marks are turned into USMs by scaling, sometimes necessary to ensure that all papers are fairly and equally rewarded. The correspondence between the USM ranges and classes is as follows.

- 70–100: First Class
- 60-69: Upper Second Class
- 50-59: Lower Second Class
- 40-49: Third Class
- 30-39: Pass
- 0-29: Fail

Papers in Part A

In Part A each candidate shall be required to offer the following written papers:

- A0 Linear Algebra (1.5 hours)
- A1 Differential Equations 1 (1.5 hours)
- A2 Metric Spaces and Complex Analysis (3 hours)
- A8 Probability (1.5 hours)
- A9 Statistics (1.5 hours)
- ASO Short Options (1.5 hours)

and **three or four** papers from the Long Options (each 1.5 hours long)

- A3 Rings and Modules
- A4 Integration
- A5 Topology
- A6 Differential Equations 2
- A7 Numerical Analysis
- A10 Fluids and Waves
- A11 Quantum Theory
- A12 Simulation and Statistical Programming

In all papers, each question is worth 25 marks and you may submit as many questions as you wish.

Paper A0 Linear Algebra and A1 Differential Equations I

These are core papers and each paper will contain 3 questions. The best two questions will count towards the total mark for the paper.

Paper A2: Metric Spaces and Complex Analysis

This paper includes 6 questions. The best four questions will count towards the total mark for the paper.

Paper A8: Probability

This paper includes 3 questions. The best two questions will count towards the total mark for the paper.

Paper A9: Statistics

This paper includes 3 questions. The best two questions will count towards the total mark for the paper.

Paper ASO contains a single question on each of the Short Options. The best two questions will count towards the total mark.

Each of the **Long Options** papers contain three questions, with the best two questions counting towards a candidate's total mark for the paper.

Front Cover sheets

You will have a front cover sheet to complete for the ASO examination, where you need to state which answer booklets are submitted.

Marking of Papers

Questions on all papers will be marked out of 25. Mark schemes 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.

This should be regarded as a guide conveying the intentions of the examiners.

University Standardised Marks (USMs)

At the end of the Part A examination, a candidate will be awarded a University standardised mark (USM) for each of the papers offered. The USMs from paper A2 will have twice the weight of the USMs awarded for papers A0, A1, A8, A9, ASO and the Long Options. For candidates who have opted to offer 6 long options, the two lowest scoring long option papers will be given a weight of 0.5.

The Examiners may scale the raw marks to arrive at the USMs reported to candidate. The scaling algorithm used by the examiners is explained in the 2017 examiners' report which can be found at <http://www.stats.ox.ac.uk/student-resources/bammath/examinations/>.

When considering whether to scale the raw marks on a paper the examiners will consider the following:

- the total sum of the marks for all questions on the paper, subject to the rules above on numbers of questions answered
- the relative difficulty of the paper compared to the other Part A papers
- the report submitted by the assessor who set and marked the paper.

Examiners will use their academic judgement to ensure that appropriate USMs are awarded and may use further statistics to check that the marks assigned fairly reflect the students' performances on a paper.

A weighted average of the USMs awarded at Part A, will be carried forward into the final classification awarded at the end of the third year, with this average from the second year papers counting for 40%. **Part A is not classified separately.**

Qualitative Class Descriptors

The average USM ranges used in the classifications reflect the following general Qualitative Class Descriptors agreed by the Teaching Committee:

First Class: 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.

Upper Second Class: 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

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

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

Pass: The candidate shows some limited grasp of at least part of the basic material.

[Note that the aggregation rules in some circumstances allow a stronger performance on some papers to compensate for a weaker performance on others.]

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.

Mitigating Circumstances Notices to Examiners (MCE)

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 mitigating circumstances in an examination is available at

<http://www.ox.ac.uk/students/academic/exams/guidance>.