



University of Oxford Department of Mathematics
Final Honour School of Mathematics, 2009
Part C
First Notice to Candidates

This circular contains information about:

1. standardised marks (USMs) and classification;
2. the format of papers in Part C;
3. the use of calculators and tables.

The full Regulations for the Part C examination are contained in the Examination Decrees and Regulations (the Grey Book). Full particulars about the syllabus and other information can be found in the Undergraduate Handbooks and Supplement for Matriculation 2005, issued by the Mathematical Institute.

The timetable for the examination will be set by the Examination Schools and they will send it to you. Timetabling is an extremely complicated process and once the timetable is published it cannot be changed. 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. Please do not ask the Examiners as they are powerless in such matters.

Candidates offering a dissertation will receive a separate notice relating to arrangements for submission.

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

Audrey Curnock

Chairman of Examiners
Mathematical Institute
6th March 2009

FHS 2008 Mathematics Part C

The formal procedures determining the conduct of examinations are established and enforced by the University Proctors. For the Department of Mathematics the examination conventions are set out in the course handbook and in additional supplements. These conventions are a guide to the examiners and candidates but the regulations set out in the Examination Regulations have precedence. The examiners are nominated by the Nominating Committee of the Mathematics Department and those nominations are submitted for approval by the Vice-Chancellor and the Proctors. Formally, examiners are independent of the Department and of those who lecture courses. However, for written papers in Mathematics, examiners are expected to consult with course lecturers in the process of setting questions.

The paragraphs below give an indication of the conventions to which the examiners usually adhere, subject to the guidance of the appointed external examiners, and other bodies such as the Teaching Committee in the Department of Mathematics, the Mathematical, Physical and Life Sciences Division, the Education Committee and the Proctors who may offer advice or make recommendations to examiners. It must be stressed that to preserve the independence of the examiners, candidates are not allowed to make contact directly about matters relating to the content or marking of papers. Any communication must be via the Senior Tutor of your college, who will, if he or she deems the matter of importance, contact the Proctors. The Proctors in turn communicate with the Chairman of Examiners.

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

- 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 Pass performance (on that paper) is indicated by a mark of 30 to 39;
- a Fail performance (on that paper) is indicated by a mark below 30.

In order to arrive at such standardised 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 full unit and half unit papers taken in Part C and they may recalibrate the raw marks to arrive at University standardised Marks reported to candidates. The papers are designed so that the raw marks

on a full unit sum to 100 and the raw marks on a half unit sum to 50. The USMs on both full units and half units will be out of 100. However, 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 FHS 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 USMs awarded to a candidate for papers in Part C will be used to arrive at a classification for Part C of the MMath.

Classification

Successful candidates for the 4-year degree will receive a classification for Part C of the MMaths degree based on Part C alone. Denoting by AvUSM-Part C , the mean USM for the papers at Part C, rounded up to the nearest integer, the formulae for classification for candidates taking Part C are as follows:

- **First Class:** $\text{AvUSM-Part C} \geq 70$;
- **Upper Second Class:** $70 > \text{AvUSM-Part C} \geq 60$;
- **Lower Second Class:** $60 > \text{AvUSM-Part C} \geq 50$;
- **Third Class:** $50 > \text{AvUSM-Part C} \geq 40$.

A 'Pass' will not be awarded for Part C. Candidates achieving an $\text{AvUSM-Part C} < 40$ may supplicate for a BA.

[Note that half unit papers count as half a paper when determining the average AvUSM-Part C .]

The examiners aim to ensure that all papers are fairly and equally rewarded, but if in any case a paper appears to have been problematical, then the examiners, in their classification, will give special consideration to candidates taking that paper. The examiners will take particular care in assigning classes to those candidates whose marks fall near each Class boundary.

Candidates leaving after four years who satisfy the Examiners may supplicate for an MMaths degree in Mathematics, with two associated classifications; one for Years 2 and 3 together, and one for Year 4.

Format of Examination Papers

Mathematics papers C1.1 – C12.2 (excluding C7.4)

*****Read this carefully as there are changes this year.*****

These are whole unit papers, and each contains **three questions** on Michaelmas Term work and **three questions** on Hilary Term work. Each question is marked out of 25. Most of these papers may also be taken as half unit papers either on Michaelmas Term work (three questions) or on Hilary Term work (three questions).

The whole unit papers last for 3 hours, and the rubric states “You may submit answers to as many questions as you wish. The best two answers in each section will count for the total marks for this paper.” The whole unit papers are C1.1, C2.1, C3.1, ..., C12.1; also C1.2, C6.3, and C12.2.

The half unit papers last for **1.5 hours**, and the rubric states “You may submit answers to as many questions as you wish. The best two answers will be count for the total marks for this paper”. The half unit papers are labelled C1.1a, C1.1b, ...C12.1a, C12.1b, where the suffix ‘a’ denotes the MT course and ‘b’ the HT course.

Note that C6.1a, C6.2b, C7.1b and C7.2b are available as half units only.

Candidates from Physics taking C7.2b should note that no Physics formula sheet will be available to candidates but any relevant formulae will be made available in the examination paper.

Dissertations on Mathematical Topics (half unit or whole unit)

USM marks will be assigned to Dissertations with the same meaning as regards class boundaries as in the Mathematics papers. In arriving at these marks, the relative weights attached to content, mathematics and presentation will be 1/4, 1/2 and 1/4, respectively. (See the Part C Synopses for further clarification.)

The attention of candidates is drawn to the requirement to submit their own original work and to complete a Declaration of Authorship when submitting their essays. Passages quoted or closely paraphrased from another person’s work must be identified as quotations or paraphrases, and the source of the quoted or paraphrased material must be clearly acknowledged. Failure to set a high standard in this respect could lead to a charge of plagiarism, with serious disciplinary consequences. Equally, if a student summarises another person’s ideas, judgements, figures, software or diagrams, a reference to that person or the source should be made in the text and the source included in the bibliography. Candidates should consult the Notice relating to dissertations for further details.

Physics Unit

The C7.4 paper is assessed by the Physics department. This paper is known as C6, Theoretical Physics in the Physics department. Candidates are advised to consult the Physics web site for a copy of the Physics formula sheet available to candidates in this examination.

This course is assessed by an examination of 3 hours duration.

There are 8 questions on the examination paper each worth 25 marks, and the rubric states “You should submit answers to four questions”.

Statistical Half units

Statistics papers MS1b, MS2a, MS2b, and MS3b

The courses MS1b (Statistical Data Mining), MS2a (Bioinformatics and Computational Biology), MS2b (Stochastic Models in Mathematical Genetics), and MS3b (Lévy Processes and Finance) are half units.

MS1b and MS2a are examined by mini-project.

MS2b and MS3b are examined by a **1.5 hour paper**, with **three questions**. The rubric states that candidates may answer all questions, with the best two counting for the total mark for the paper.

Computer Science Half units

Computer Science papers CCS1a, CCS3b and CCS4b

Candidates are advised to consult the Computer Science Course Handbook for further details regarding the courses CCS1a (Categories, Proofs and Processes), CCS3b (Quantum Computer Science) and CCS4b (Automata, Logics and Games). The USMs for these units are awarded by the Computer Science Examiners.

Each half unit is assessed by a mini-project. Each is handed out to candidates in week 8 of the term in which the subject is being taught, and must be submitted to the Examination Schools by noon on Monday of week 1 of the following term.

Philosophy unit: Rise of Modern Logic

This paper will be marked by the Philosophy examiners and assessors and assigned USMs by them.

Calculators

The use of calculators is generally not permitted for written papers in this examination, although it may be permitted for certain exceptional papers.

Calculators will not be permitted on the Mathematics papers except for C8.1, and C9.1. Nor are they permitted for Computer Science or Philosophy examinations.

Calculators will not be permitted on any Statistics paper. For the Physics paper C7.4 calculators are permitted but candidates should check with the Physics Department regarding the models allowed.

Candidates' attention is drawn to the type of calculator we now permit. Only calculators on the list below may be taken into the examination hall.

For the papers **C8.1, C9.1** basic scientific calculators which have features such as exp and log, but which are Non programmable, will be allowed. For these papers **any** of the following will be permitted:

CASIO fx-82;
CASIO fx-83 (with any suffix, such as ES, MS);
CASIO fx-85 (with any suffix, such as ES, MS);
CASIO fx_992 S.

HEWLETT-PACKARD hp 9s;
HEWLETT-PACKARD hp 10s;
HEWLETT-PACKARD hp 30s.

SHARP EL-530 LB;
SHARP EL-520;
SHARP EL-531 (with any suffix).

TEXAS INSTRUMENTS TI 30X (and any suffix);
TEXAS INSTRUMENTS TI 36X (and any suffix).

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

Statistical Tables will not be required this year for any of the Statistics papers.

The Examiners
6th March 2009