Mathematics and Statistics Parts A, B & C Examination Conventions 2026-27 Department of Statistics

1 Introduction

This document sets out the examination conventions for the Parts A, B and C Examination in Mathematics and Statistics. Examination conventions are the formal record of the specific assessment standards for the course or courses to which they apply. The first part of this document is written explicitly for candidates and explains how your work will be marked and how these marks will be used to derive your final classification for Parts A and B, and for Part C. The second part of the document contains additional information for assessors and examiners but may also be of interest to you. So if you want to know what criteria are used in deciding the marking scheme for each examination question, then see appendix C.2. The qualitative class descriptors tell you what level of performance is required in order to get a particular class and can be found in appendix H. You might also find the checklist used by question setters useful, see appendix C.1, and the note about the recalibration of marks, see appendix G.

The Teaching Committee of the Department of Statistics directs that the examinations for which it is responsible are conducted in accordance with these conventions. The Board of Examiners may only make minor deviations from these conventions in exceptional circumstances and only after the consent of the Statistics Teaching Committee or the Proctors. This document is in all ways subsidiary to the *University's Examination Regulations* and *Examinations and Assessment Framework.*

2 Progression through university examinations

To qualify for your BA or MMath in Mathematics and Statistics you must pass a First and Second Public Examination. The First Public Examination is the Preliminary Examination in Mathematics and is taken at the end of the first year. You must pass the Preliminary Examination before you can be admitted to the Second Public Examination.

The Second Public Examination has three parts: Part A taken at the end of the second year, Part B taken at the end of the third year and Part C taken at the end of the fourth year. You cannot enter for Part B until you have completed the Part A exams*. In order to proceed to Part C, a candidate must achieve an upper second class standard or better in Part B alone i.e. a weighted average of 59.5 or above in their Part B assessments. Candidates who satisfy the examiners in Part A and Part B only, qualify for the award of BA in Mathematics and Statistics; candidates who satisfy the examiners for all three parts qualify for the award of MMath in Mathematics and Statistics with two associated classifications.

**Completing Part A means that you have sat all of the Part A exams and have not technically failed two or more papers. See 4.1 for an explanation of technical failure.*

3 Examination papers

3.1 Part A

In Part A, there are five core papers A0, A1, A2, A8 and A9, eight papers A3-A7 and A10-A13 relating to the long options and paper ASO relating to the short options. Paper A2 is of three hours' duration, whilst the remaining papers are 1.5 hours' duration.

In all papers, each question is worth 25 marks and candidates may submit answers to as many questions as they wish. Details are given below of which questions count towards a candidate's total mark.

Candidates are required to offer Papers A0, A1, A2, A8, A9 and ASO and *three or four* of Papers A3-A7/A10-A13.

Papers A0 Linear Algebra, A1 Differential Equations 1, A8 Probability and A9 Statistics

These are core papers; each paper contains three questions with the best two questions counting towards a candidate's total mark for the paper.

Paper A2 Metric Spaces and Complex Analysis

This core paper is divided into two sections: each section contains three questions and the best two questions of each section count towards a candidate's total mark for the paper.

The Long Options

Papers A3-A7/A10-A13 examine the long options as below:

- 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
- A13 Geometry

Each paper contains three questions with the best two questions counting towards a candidate's total mark for the paper.

If a candidate offers 3 long options then each paper's USM (see Section 8) will count as a single unit towards the candidate's weighted Part A average.

If a candidate offers 4 long options, then the best 2 USMs will have the weight of a unit, and the worst 2 USMs will count half a unit each. Thus these 4 papers will overall still have the weight of 3 units. The results from all 4 papers will appear on the student's exam transcript.

The aim of the above scoring system is to ensure that anyone taking on an extra option will not do so lightly (all marks will be reported and all count to some extent), but also that no-one will be disadvantaged with a lower weighted average USM for having taken on the extra workload.

Paper ASO Short Options

This paper contains a single question on each of the short options below:

• Number Theory

• Group Theory

• Integral Transforms

• Calculus of Variations

• Graph Theory

• Mathematical Modelling in Biology.

The best two questions count towards a candidate's total mark for the paper.

3.2 Part B

Students are assessed on the equivalent of 8 units. See Part B Supplement for core and option units.

Each mathematics and statistics paper will examine one unit, except SB1.

For all papers except SB1: these units will be assessed by a closed book exam. These will be of 1 hour and 45 minutes duration and will consist of 3 questions, each worth 25 marks. You may hand in as many answers as you wish, but only your best 2 answers will count towards the final mark for the paper.

SB1 is a double-unit and will be examined via a 2 ½ hour closed book paper plus assessed practical assignments. The paper will consist of 2 questions on SB1.1 and 2 questions on SB1.2. You may hand in as many answers as you wish, but only your best 3 answers will count towards your final mark. Each question will be marked out of 22 and the assessed practical component will be marked out of 34.

Questions will be broadly similar in style to previous Part B questions with an easy start examining material explicitly covered in the course, followed by a part which tests understanding. Each question will be set so that a sound student can produce a complete answer within 35- 40 minutes.

Each question should be divided into two to four parts and an indication of the raw marks available for each part of each question should be given on the question paper.

3.3 Part C

Students are assessed on the equivalent of 8 (this is the minimum number of units required), 9 or 10 units (2 of these units will be the dissertation). Further, you are required to offer at least 4 units which are assessed by written invigilated examination. See Part C Supplement for core and option units.

Written Examinations

Each mathematics and statistics paper will examine one unit. These units will be assessed by a closed book exam of 1 hour and 45 minutes duration. They will consist of three questions, each worth 25 marks. You may submit answers to as many questions as you wish, but only the best two answers will count towards the final mark for the paper.

In all papers the questions set should, as a whole, be fairly spread across the syllabus.

Questions will be broadly similar in style to previous Part C questions with an easy start examining material explicitly covered in the course, followed by a part which tests understanding. Each question will be set so that a sound student can produce a complete answer within 35- 40 minutes.

Each question should be divided into two to four parts and an indication of the raw marks available for each part of each question should be given on the question paper.

Dissertation

Dissertations have a weighting of two units. The word limit for dissertations is 7,500 words and there is an absolute page limit of 50 pages (excluding program code in an appendix and all other appendices).

USM marks will be assigned to dissertations with the same meaning as regards class boundaries as in the written papers. In arriving at these marks, the relative weights attached to mathematics/statistics, content and presentation will be 50%, 25% and 25%, respectively.

Students will need to self-certify the word length of their project, and must submit their dissertation in both .pdf and .tex file formats. The department will use TeXcount to conduct word count checks on a randomly selected subset of submitted work and therefore would encourage students to use TeXcount to confirm their word count prior to submission. Guidance on how to count words in a latex document can be found on the Maths Institute website: https://www.maths.ox.ac.uk/members/it/faqs/latex/word-count.

There is a strict page limit of 50 pages. Assessors are instructed to stop reading once this limit is reached, and any material beyond the 50-page mark will not be assessed. As stated above, the length of a typical dissertation is 25-30 pages so this page count should be considered an extreme and is likely only to be a matter of concern for a few dissertations (e.g. ones involving a lot of tables or diagrams). This page count includes all the dissertation content except program code. Further guidance on dissertations can be found in the dissertation guidance handbook:

https://www.maths.ox.ac.uk/members/students/undergraduate-courses/teaching-and-learning/part-c-students/teaching-and-learning/dissertations

The examiners will penalise overlong dissertations in line with the below penalty table.

Word Count Penalty	**Penalty, % point reduction**
7501-8000	1%
8001-8500	5%
8501-9000	10%
9001-9500	20%
9501-10000	30%
10001-10500	40%
10501+	50%

Table 1 Word Count Penalty for Dissertation

Mini-projects

Some units are assessed by mini-projects and have a weighting of one unit. USM marks will be assigned to mini-projects with the same meaning as regards class boundaries as in the written papers and with reference to the qualitative descriptors in Appendix F.

3.4 Examination paper queries and errors

Attendance of assessors will not be possible in the examination. If a candidate believes there is an error in the examination paper, they should state their assumption of the exam question within their exam script. This will then enable the Exam Board to investigate and if necessary, take the error into consideration in the normal way.

4 Examination conduct

You will receive advice from the Examiners before each part of your finals examination. These notices provide information on the conduct of the examinations, including the use of calculators and how to complete and submit answer booklets.

4.1 Penalties for non-attendance

Rules governing non-attendance at examinations and any consequent penalties are set out in full in the Examination Regulations (Regulations for the Conduct of University Examinations, Part 14).

If you will be prevented by illness or other urgent cause from attending one of your examinations you should contact your college office or college tutor as soon as possible.

In Part A: In cases where the Proctors do not believe there are satisfactory reasons for non-attendance or an application to the Proctors has not been submitted, this will result in the technical failure of that exam paper. The examiners will award a mark of 0 for that paper. A student with a technical fail on one paper may enter to resit that paper on at most one subsequent occasion, at the time of taking their Part B examinations. The University Standardised Mark for the resit of the exam paper will be capped at 40. A student with a technical fail on two or more papers will be considered not to have completed Part A and will have to resit all of the Part A exam papers before proceeding to Part B. The marks of a student resitting all papers will not be capped.

In Part B, or Part C: In cases where the Proctors do not believe there are satisfactory reasons for non-attendance or an application to the Proctors has not been submitted, this will result in failure of the whole of Part B, or Part C. In such a case, the examiners will award a fail for each of the Part B, or Part C, assessments.

In Part C: Please note that the non-attendance policy applies to all units, including those in excess of the minimum 8 units required. If you wish to drop an optional unit, you must submit a change of option request online here: https://www.oxforduniversitystores.co.uk/product-catalogue/academic-records-office-exam-schools.

5 Penalties for late submission of coursework

The Examination Regulations stipulate specific dates for submission of coursework to the examiners. This includes SB1 practical reports, Part B extended essays (in mathematics), BSP projects, Part C dissertations and mini-projects. Rules governing late submission and any consequent penalties are set out in full in the Examination Regulations (Regulations for the Conduct of University Examinations, Part 14).

If you will be prevented by illness or other urgent cause from submitting your coursework on time you should contact your college office or college tutor as soon as possible. Your college is able to submit an application for an extension of time to the Proctors on your behalf. Students can also apply directly for an extension of 7 calendar days via Student Self Service. Applying for an extension via self-certification does not require the provision of independent evidence. Further information is available at https://www.ox.ac.uk/students/academic/exams/problems-completing-your-assessment#:~:text=If%20you%20couldn't%20submit,14%20days%20of%20your%20deadline.

The scale of penalties agreed by the board of examiners in relation to late submissions of assessed items, without an accepted reason, is set out below.

Lateness	**Penalty, % point reduction**
Up to 4 hours	1%
4-24 hours	10%
24-48 hours	20%
48-72 hours	30%
72 hours – 14 days	35%
More than 14 days late	Fail

Table 2: Late Submission Tariff for Coursework

Note: The penalty will be a percentage reduction of the maximum total mark available for the work. For example, if a 10% penalty is applied to an assessment given a USM out of 100 then 10 marks would be deducted. The final mark awarded after application of the penalty cannot be below 0.

Failure to submit a required element of assessment in Part B, or Part C, without an accepted reason, will result in the failure of the whole of Part B, or Part C. In such a case, the examiners will award a fail for each of the Part B, or Part C, assessments.

6 Plagiarism

You are reminded of the importance of avoiding any plagiarism, please see http://www.ox.ac.uk/students/academic/guidance/skills/plagiarism for further guidance. Depending on their severity, cases of suspected plagiarism may be referred to the Proctors for investigation or may be dealt with by the board of examiners. If dealt with by the board of examiners as a case of poor academic practice, the examiners may deduct marks (for lack of adequate referencing, poor use of citation conventions etc) of up to 10% of the marks available for the assessment. Where the consequence of the marks deduction would result in failure of the assessment and of the programme the case must be referred to the Proctors.

We will reserve the right to conduct follow-up viva voce exams to check candidates' understanding of the examined material, even where these are not currently specified in the Examination Regulations.

The policy for students on the use of generative AI in summatively assessed work is available via: https://canvas.ox.ac.uk/courses/298231/files/8944922?module_item_id=3194167

7 Marking of examinations

All mathematics and statistics written examinations are marked by a single assessor or examiner according to a pre-agreed mark scheme which is strictly adhered to. The examination scripts are then checked by an independent checker to ensure that all work has been marked, and that the marks have been correctly totalled and recorded.

Part C dissertations are independently double-marked, normally by the dissertation supervisor and one other assessor. Using a standard form, the supervisor is asked to comment on the performance of the candidate throughout the project and on how much assistance was given. The second marker will see this form before submitting their marks. The form will also be available to the examiners. When the two marks for a dissertation are no more than 10 USMs apart, the two marks are averaged. In the other cases there is a discussion between the two assessors concerned, after which it is normally possible for a mark to be agreed. In any exceptional cases a third assessor will normally read the dissertation before a mark is agreed.

Mini-projects are also independently double-marked, normally by the course lecturer and one other assessor (and, if necessary, reconciled in a similar way to dissertations to give the final mark). The exception to this is that mini-projects which have pre-agreed model solutions and marking scheme are marked by a single assessor. The mini-projects are then checked by an independent checker to ensure that all work has been marked, and that the marks have been correctly totalled and recorded. In the case of C5.4, moderated marking will be used as per the guidance in the EAF Section 11.2. Each submission will be marked by a first assessor, with a second assessor (moderator) reviewing a sample of submissions to ensure consistency and fairness in the application of the marking criteria. The sample will include:

- all fails
- borderline marks
- a representative range of marks (normally at least 10% of each first marker's allocation).

If the moderator is satisfied that the marking is consistent, the original marks awarded will stand. If discrepancies are identified, moderation will be extended to all submissions, with any necessary adjustments made consistently across the cohort.

8 University Standardised Marks

Marks for each individual assessment will be reported as University Standardised Marks (USMs). The object of the USMs is to allow direct comparison between the results of examinations in different subjects. Raw marks may be turned into USMs by scaling, sometimes necessary to ensure that all papers are fairly and equally rewarded.

In Parts A and B, 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

In Part C, the correspondence between the USM ranges and classes is as follows:

• 70-100: Distinction

• 65-69: Merit

• 50-64: Pass

• 0-49: Fail

These marks reflect the qualitative descriptors given in appendix H.

9 Analysis of marks

At the end of each of the Part A, B and C examinations, a candidate will be awarded a University Standardised Mark (USM) for each of the assessments taken. The Examiners may scale the raw marks to arrive at the USMs reported to candidates. Past examiners' reports which can be found on the Maths and Stats Canvas site: https://canvas.ox.ac.uk/courses/295122.

The examiners may choose to scale marks where in their academic judgement:

- a paper was more or less difficult than other papers taken by students in a given year, and/or
- a paper has generated a spread of marks which are not a fair reflection of student performance on the University's standard scale for the expression of agreed final marks, i.e. the marks do not reflect the qualitative marks descriptors.

Such scaling is used to ensure that all papers are fairly and equally rewarded.

When scaling the raw marks on a paper the examiners will consider the following:

- (in Part A) 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 papers in that Part;
- 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. Examiners may also review a sample of papers either side of the classification borderlines to ensure that the outcome of scaling is consistent with the qualitative marks descriptors.

9.1 Part A

The USMs awarded to a candidate for the papers offered in Part A will be carried forward into a classification as described below. Paper A2 will have twice the weight of Papers A0, A1, A3–A12 and ASO in this calculation. For candidates who have opted to offer 4 long options (papers A3–A7/A10–A12), the two lowest scoring long option papers will be given a weight of 0.5. **Part A is not classified separately.**

9.2 Aggregation of marks for the award of the classification the successful completion of Part A and B

All successful candidates will be awarded a classification after the Part B Examination. This classification will be based on the following rules, which include a *Strong Paper Rule*.

Every candidate must offer:

- 10 units at Part A (counting A2 as a double-unit and, for candidates offering 4 long options, two of the long options papers as half-units)
- 8 units (or the equivalent) at Part B.

The relative weightings of the Parts is as follows:

- the weighting of Part A is 40%
- the weighting of Part B is 60%.

Your weighted average university standardised mark, AvUSM, is computed using these weights and your standardised marks on each unit (AvUSM is symmetrically rounded [62.49 will be rounded down and 62.50 will be rounded up]).

This split is equivalent to a weight of 4 per Part A unit (10 × 4 = 40) and a weight of 7.5 per Part B unit (8 × 7.5 = 60). If a candidate has marks for fewer than 10+8 units in Parts A+B, then their weighted average is calculated using 4s and 7.5s as the weights.

To satisfy the *n*th class strong paper rule:

- you need at least 6 units (or the equivalent) to have a mark of the nth class standard or above,
- and you also need at least 2 of these units (or the equivalent) to be in Part B.

(For the strong paper rule: the exam and essay papers of the double unit B01.1 receive separate USMs and count separately; whereas the double unit SB1 receives a USM which counts as two units.)

For example, to satisfy the First class strong paper rule you need at least 6 units (or the equivalent) with marks of 70 or above, with at least 2 of these units (or the equivalent) being in Part B.

Classifications are determined as follows:

- First Class: AvUSM $\geqslant$ 70 and the first class strong paper rule is satisfied.
- Upper Second Class: EITHER AvUSM $\geqslant$ 70 and the first class strong paper rule is not satisfied

  OR 60 $\leqslant$ AvUSM < 70 and the upper second strong paper rule is satisfied.
- Lower Second Class: EITHER 60 $\leqslant$ AvUSM < 70 and the upper second strong paper rule is not satisfied

  OR 50 $\leqslant$ AvUSM < 60 and the lower second strong paper rule is satisfied.

- Third Class: EITHER $40 \leqslant$ AvUSM < 50

  OR $50 \leqslant$ AvUSM < 60 and the lower second strong paper rule is not satisfied.

- Pass: $30 \leqslant$ AvUSM < 40.

- Fail: AvUSM < 30.

BA in Mathematics and Statistics

Any candidate who satisfies the Examiners for Parts A and B (and who does not subsequently enter for and achieve Honours for Part C) may supplicate for the Honours degree of the Bachelor of Arts in Mathematics and Statistics with the classification as described above, provided that they have fulfilled all the conditions for admission to a degree of the University. Note that a Pass degree is not an Honours degree.

MMath in Mathematics and Statistics

In order to proceed to Part C, a candidate must satisfy the progression requirement given in Section 2.

Candidates successfully completing Part C will receive a separate classification based on their University Standardised Marks in Part C papers.

Note that successful candidates may only supplicate for one degree – either a BA or an MMath. The MMath has two classifications associated with it but a successful candidate will only be awarded an MMath degree.

9.3 Part C

Let AvUSMC denote the weighted average of the dissertation (which is a double unit) plus the 6 other best USMs achieved (symmetrically rounded, 62.49 will be rounded down and 62.50 will be rounded up), at least 4 of which will have been assessed by written examination.

Let *WE* denote the number of units assessed by written invigilated examination in which the candidate has achieved a mark of 50 USM or higher contributing to the *AvUSM*.

The classification criteria are as follows.

Distinction: *AvUSM* ≥ 70 and *WE* ≥ 2;
Merit: 70 > *AvUSM* ≥ 65 and *WE* ≥ 2;
Pass: 65 > *AvUSM* ≥ 50 and *WE* ≥ 2;
Fail: 50 > *AvUSM* or *WE* < 2.

Note: *Students who fail one paper or more contributing to AvUSM will not be eligible for a distinction, and students who fail two or more papers contributing to AvUSM will not be eligible for a merit.*

Candidates so classified may supplicate for the MMath degree with the above associated classification for Part C; additionally their transcript will show the classification for Parts A and B previously assigned by the Part B examiners.

Candidates achieving

AvUSM < 50 or *WE* < 2,

should be eligible to supplicate for the BA and be awarded the appropriate class as determined by performance on Parts A and B.

10 Resits

10.1 Part A

Part A shall be taken on one occasion only (there will be no resits).

10.2 Part B

A candidate who obtains only a pass or fails to satisfy the examiners in Parts A & B may retake Part B on at most one subsequent occasion. Candidates who retake Part B are not permitted to continue to Part C. The Part B assessments would be retaken the following Trinity term.

10.3 Part C

A candidate who fails to satisfy the examiners at Part C (AvUSMC < 50 or passing fewer than two units assessed by written invigilated examination) may retake Part C on at most one subsequent occasion. The Part C assessments would be retaken the following Trinity term.

11 Alternative examination arrangements and mitigating circumstances notices to examiners

A candidate in any University Examination with specific learning difficulties or disability/illness may apply through the Senior Tutor of their college for alternative examination arrangements relating to their condition. Please see https://www.ox.ac.uk/students/academic/exams/examination-adjustments for further information on the process.

Candidates who would like the examiners to be aware of any mitigating circumstances that may have affected their performance before or during an examination are advised to discuss their circumstances with their college and consult the Examination Regulations (Part 13). The candidate's college will submit the mitigating circumstances notice to examiners for forwarding to the relevant chair of examiners.

A candidate's final outcome will first be considered using the classification rules/final outcome rules as described above. The exam board will then consider any further information they have on individual circumstances.

Where a candidate or candidates have made a submission, under Part 13 of the Examination Regulations, that unforeseen circumstances may have had an impact on their performance in an examination, a subset of the board (the 'Mitigating Circumstances Panel') will meet to discuss the individual applications. The Panel will evaluate, on the basis of the information provided to it, the relevance of the circumstances to examinations and assessment, the strength of the evidence provided in support and the extent of the impact. The Panel 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. The board of examiners will separately consider whether and how to adjust a candidate's results as a result of the mitigating circumstances, taking into account both the Panel's considerations of the notice(s) and the scripts/submissions and marks.

12 Declared to have Deserved Honours (DDH)

In Part B, or Part C: Candidates who have indicated they wish to be considered for DDH will first be considered for a classified degree, taking into account any individual Mitigating Circumstances Notices to Examiners. If that is not possible and they meet the DDH eligibility criteria, they will be awarded DDH. Further details can be found here: https://www.ox.ac.uk/students/academic/declared-awards.

13 Examiners

The Mathematics & Statistics examiners for Parts A, B and C this year are listed below.

It must be stressed that to preserve the independence of the examiners, you should not contact directly with them about matters relating to the content or marking of papers. communication must be via the Senior Tutor of your college, who will, if they deem the matter importance, contact the Proctors. The Proctors in turn communicate with the Chair of Examiners.

- Part A:

  Dr Neil Laws (Chair)
  Prof James Martin
  Dr Richard Earl
  Prof James Newton
  Prof Vidit Nanda
  Prof Andrea Mondino
  Dr Stephen Connor (external examiner, University of York)
  Prof Ali Taheri (external examiner, University of Sussex)

- Part B:

  Dr Neil Laws (Chair)
  Prof Christina Goldschmidt
  Prof Alain Goriely
  Prof Dominic Joyce
  Prof Christopher Jewell (external examiner, University of Lancaster)
  Dr Philipp Thomas (external examiner, Imperial College London)

- Part C:

  Prof David Steinsaltz (Chair)
  Prof François Caron
  Prof Alan Lauder
  Prof Massimiliano Gubinelli
  Prof Ioanna Manolopoulou (external examiner, University College London)
  Prof Rosemary Dyson (external examiner, University of Birmingham)

14 Appendices

A Paperwork for examiners

The internal examiners should ensure they are equipped with the following documents. External examiners will also, where appropriate, be provided with copies of these documents.

- The Examination Regulations.
- The Examinations and Assessment Framework.
- The Course Handbook, including the Lecture Synopses.
- The examination papers from the preceding two years.
- The Examiners' Reports on these examinations.
- The External Examiners' reports for the previous year.
- Any responses to these agreed by the Teaching Committee, and any additional decisions of the Teaching Committee.
- Class percentage figures for the last two years as published in the Examiners' Reports and the Mathematics Teaching Committee's guidance for examiners on percentages in each class.

When there are new examinations, material from previous years will not be directly applicable, but there may be specimen examination papers produced by the Teaching Committee.

B Protocol for setting examination papers

Each statistics paper should be drafted by the appropriate lecturer and checked by some other qualified person nominated by the examiners. (The setting of mathematics papers is handled by the Mathematics Examiners). Examiners and assessors are reminded that throughout the examination process security is very important. Examination papers must be passed via the secure online system.

C Form of questions

Each question will be marked out of 25 and should be divided into two to four parts. An indication of the raw marks available for each part of each question should be given on the question paper.

C1 Checklist for setters and checkers

The examiners should provide assessors drafting papers with the following checklist of important considerations.

1. Is the question on the syllabus (as in the Examination Regulations or Course Handbook including the Lecture Synopses)?

2. Is the mathematics correct?

3. Is the notation and terminology standard/obvious/defined? (Standard usage from the course is acceptable without explanation but phrases such as 'as in the lectures' should be avoided.)

4. Is the question unambiguous? Is it clear what may be assumed, what detail is required, and what would constitute a complete answer?

5. Is the form of presentation familiar/inviting/readable?

6. Does each question have an easy start, worth around 10 marks, which might be readily and routinely completed? This should not wholly be testing memory of previous material explicitly seen.

7. Is there material designed to differentiate at the class borderlines?

(a) To achieve a USM of 60, is there a part that tests understanding of standard concepts/techniques (whilst still being rather straightforward) which tests whether a candidate can do any more than merely reproduce the bookwork verbatim?

(b) To achieve a USM of 70, is there a part for which a full solution requires truly excellent understanding and skill?

8. Would a candidate with a USM of 60 on average achieve around 13/25 marks for the question? Is a mark of 20+ unlikely to be achieved by a significant number of candidates who are not of first-class standard?

9. Is it the case that only exceptional first-class students are capable of gaining full marks? Note that a USM of under 50 on a paper means an academic fail of that paper at Part C. This alone will not entail overall failure at Part C but a student who fails one paper may not be awarded a distinction or merit overall.

10. Is each question overall of a straightforward character?

11. Are the questions as a whole fairly spread across the syllabus?

12. Are the questions of comparable difficulty to one another?

13. Are the questions sufficiently different from those set in recent years?

14. Is the question formatted using the oxmathexam.cls file?

15. Where possible, does the question, adequately spaced, fit on a single page?

C2 Marking schemes and model solutions

Assessors setting questions should be asked to provide complete model solutions indicating everything that a candidate would be expected to write to answer the question fully. The model solutions and marking scheme need to be sufficiently clear and comprehensive to be meaningful to an external examiner. Those setting questions should be aware the solutions may be released to students in the future.

The model solution for each question should be accompanied by a marking scheme out of 25. The marking scheme should aim to ensure that the following qualitative criteria hold (see also the class descriptors given in appendix H):

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, and some evidence of problem-solving ability. 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.

Assessors should classify the parts of each question under the headings:

B: bookwork/routine material; either explicitly seen before, or easily synthesized from such.

S: similar to material seen before;

N: new, demanding good command of concepts and/or methods.

C3 Approval of papers and marking schemes

The papers and marking schemes are reviewed by the examiners, including the external examiner (see further below). Minor edits may be made during the setting and checking process in consultation with the setter. Once approved a camera ready copy of the paper should be produced. Assessors should be asked to check carefully and sign-off the camera ready copy of their paper.

C4 Review by external examiners

The external examiner should be consulted according to an agreed timetable, and provided with stable draft papers, full annotated solutions indicating what is bookwork, and with the proposed marking scheme. Comments from the external examiners on each paper will be sent to each respective setter. The examiners should not finalise any paper without taking into account the comments of the external examiners. External examiners should be informed of action taken in response to their comments.

D Marking and checking scripts

D1 Marking

The examiners should provide each assessor with the marking scheme approved by the examining board. Letters to assessors in previous years are good models to use, the following points must be made:

Marking Schemes

It is the responsibility of markers to use the final approved marking scheme, discarding earlier drafts. Marking schemes should be applied consistently. However, should it become clear while marking that the allocation of marks should be changed, please ensure that this is done consistently, and advise the examiners of the changes made.

Marking

The Examiners will want to review at least some of the scripts during the classification process. They will not re-mark (since they cannot do so consistently across all candidates). They will want to be able to see quickly where marks have been gained. They will also want to be sure that all of a candidate's work has been taken into consideration. Markers are therefore asked to mark as follows.

- Indicate on the mark sheets, using whole numbers, the available marks awarded for each part of a question.

- Include the total mark awarded for each question in the highlighted sections of the marksheet, enter the integral numerical mark for each question, taking care to distinguish between an attempt scoring zero marks (enter "0") and a non-attempt (enter "–").

- Not write comments in the questions section, but, if necessary write on the second tab of the mark sheets provided.

Mark sheets will be supplied.

In entering into the electronic mark sheets the integral numerical mark for each question care must be taken to distinguish between 0 marks for an attempt and – for a non-attempt.

Assessors are asked to compute the check-sum for each candidate, which is the last two digits of the candidate number (taken as a two digit number) plus the sum of raw marks.

Assessors will be asked to return the marksheet electronically through the marking site.

Reports

Assessors should provide the Examiners with a brief report on the performance of the candidates on the questions they have marked. The Examiners will consider this report in their deliberations on mark rescaling. In particular, markers are invited to suggest where class boundaries could be drawn.

D2 Checking the marks

The Examiners should ensure that their procedures allow for:

- an independent arithmetic check of the correctness of the addition of the partial marks for each question
- an independent check of the marks entered into the database for each candidate
- an audit trail for these checks.

Graduate research students are employed to carry out such checks, overseen by the Examiners.

E Dissertations

The examiners should pay careful attention to what candidates have been told about the assessment of dissertations in the Examination Regulations and the Course Handbook/Dissertation Guidance Notes. The marking procedure and the mark reconciliation procedure are described in Section 7.

Dissertations will be assessed with reference to the following qualitative descriptors.

90–100 Work of potentially publishable standard, as evidenced by originality or insight. The work should show depth and accuracy, and should have a clear focus. It is likely to go beyond the normal level for part C. The standard one sees in winners of one of the examination prizes.

80–89 Work in this range will be at the level of a strong candidate for a DPhil applicant. The project will be an easy choice as a winner of a college essay prize. It will have depth, accuracy and a clear focus. It will show a strong command of material at least at the level of part C. It is likely to contain original material, which may take the form of new mathematical propositions, new examples, new calculations, or new statistical approaches, for example.

70–79 The work submitted is of a generally high order, with depth, clarity and accuracy, but may have minor errors in content and/or deficiencies in presentation. It may contain original material, at least in the sense of new examples, calculations or applications.

60–69 The candidate shows a good grasp of their subject, but without the command and clarity required for first class marks. Presentation, referencing and bibliography should be good, and the mathematics should have no more than minor errors.

50–59 The work shows an adequate grasp of the subject, but is likely to be marred by having material at too low a level or a lack of independent engagement with the material, by serious or frequent errors, a high proportion of indiscriminate information, or poor presentation and references.

40–49 The candidate shows reasonable understanding of parts of the basic material, but reveals an inadequate competence with others. The material may be at too low a level. There are likely to be high levels of error or irrelevance, muddled or superficial ideas, or very poor writing style.

30–39 The candidate shows some limited grasp of at least part of the material.

0–29 Little evidence of understanding of the topic. The work is likely to show major misunderstanding and confusion.

F Mini-Projects

Mini-projects will be assessed with reference to the following qualitative descriptors.

70–100 The candidate has demonstrated an excellent understanding of almost all of the material covered with a commensurate quality of presentation and has completed almost all of the assignment satisfactorily, further subdivided by:

> 90–100 The candidate has shown considerable originality and insight going well beyond the straightforward completion of the task set.
>
> 80–89 The work submitted shows a near-perfect completion of the task at hand, but does not meet the additional requirements above, or does but has some defects in presentation.
>
> 70–79 The work submitted is of a generally high order, but may have minor errors in content and/or deficiencies in presentation.

60–69 The candidate has demonstrated a good or very good understanding of much of the material, and has completed most of the assignment satisfactorily, without showing the level of excellence expected of the above USM range.

50–59 The candidate has demonstrated an adequate understanding of the material and an adequate ability to apply their understanding, without showing the level of understanding expected of the above USM range.

40–49 The work submitted, while sufficient in quantity, suffers from sufficient defects to show a lack of adequate understanding or ability to apply results.

30–39 The candidate, while attempting a significant part of the mini-project, has displayed a very limited knowledge or understanding at the level required.

0–29 The candidate has either attempted only a fragment of a mini-project or has shown an inadequate grasp of basic material.

G Recalibration of marks

Examination marks will be reported to candidates in the form of University Standardised Marks. The object of the USM is to allow direct comparison between the results of examination in different subjects. Examiners may recalibrate raw marks to arrive at the USMs reported to candidates. On each paper, any recalibration of marks should be done without disturbing the order of candidates. In order to ensure fair treatment examiners are reminded that they may exercise individual consideration in assigning USMs for candidates whose marks lie outside the standard pattern.

Examiners should take note of the distribution of USMs above 60 (in Parts A and B), above 65 (in Part C) and above 70 in the Examination in a normal year and not depart from it without good reason. Information about the distribution of USMs in the Examination for recent matriculation years will be provided by the Mathematics Teaching Committee.

The USMs reported to candidates for each paper should be symmetrically rounded.

H Classification of candidates

H1 Parts A and B

The average USM ranges used in the classifications reflect the following general Qualitative Class Descriptors:

First Class: the candidate shows excellent skills in reasoning, deductive logic and problem-solving. They demonstrate 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. They demonstrate 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. They demonstrate 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. (The 'Pass' descriptor applies in Parts A and B only.)

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

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

H2 Part C

The average USM ranges used in the classifications reflect the following general Qualitative Class Descriptors:

Distinction: High quality work throughout the course. The candidate shows excellent knowledge of the material over a wide range of topics. The criteria for USMs in the distinction band are:

– 90–100: The candidate shows remarkable ability and true insights. Dissertations in this band will be potentially worthy of publication.

– 80–89: The candidate shows outstanding problem-solving skills and outstanding knowledge of the material over a wide range of topics, and is able to use that knowledge innovatively and/or in unfamiliar contexts.

– 70–79: The candidate shows excellent problem-solving skills and excellent knowledge of the material over a wide range of topics, and is able to use that knowledge innovatively and/or in unfamiliar contexts.

Merit: The merit covers very good quality of work through out the course. The criteria for USMs in the merit band are:

– 65–69: The candidate shows very good problem-solving skills, very good knowledge over a wide range of topics, or excellent command of some material and good or very good command of the rest.

Pass: The pass covers a wide range of results from candidates who show adequate knowledge of most of the material, to candidates who show good knowledge of much of the material over a wide range of topics. The criteria for USMs in the pass band are:

– 60–64: The candidate shows good or very good problem-solving skills, and good or very good knowledge of much of the material over a wide range of topics.

– 50–59: The candidate shows basic problem solving skills and adequate knowledge of most of the material.

Fail: The candidate shows an inadequate grasp of the basic material. Candidates may have shown some understanding but the majority of work is likely to show major misunderstanding and confusion, and/or inaccurate calculations.

– 40–49 The candidate shows reasonable understanding of at least part of the basic material and some problem solving skills. Although there may be some good work, the majority of work will contain errors in calculations and/or show incomplete understanding of the topics.

– 30–39: The candidate shows some limited grasp of basic material over a restricted range of topics, but with large gaps in understanding. There need not be any good quality work, but there will be indications of some competence.

– 0–29: The candidate shows an inadequate grasp of the basic material. The work is likely to show major misunderstanding and confusion, and/or inaccurate calculations.

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

I Mitigating circumstances notices to examiners

I.1 Parts A,B and C

The University's policy on the use of medical and other certificates is available at https://www.ox.ac.uk/students/academic/exams/examination-adjustments

I.2 Part A

As Part A is part of a multi-part examination there are two points at which the mitigating circumstances notice should be considered, the final meeting of the Part A examiners and the final meeting of the Part B examiners.

If Part A examiners are presented with a mitigating circumstances notice affecting one paper they can take it into account and decide on the appropriate action to be taken.

If Part A examiners are presented with a mitigating circumstances notice affecting more than one paper and feel unable to take any action at the Part A Examination Board they should pass this information, along with the medical or other evidence, to the Board of Examiners in Part B the following year. The Part B examiners can then take this evidence into account before making a classification. Once USMs have been issued to colleges at the end of Part A they cannot be altered, so in order to

take such evidence into account Part B examiners may have to suspend the examining conventions in awarding a classification.

In all cases a record of mitigating circumstances notices and medical or other evidence submitted at Part A must be kept and passed to the Part B examiners, along with a note of the any action taken.

I.3 Part B

As Part B is part of a multi-part examination there may be two sets of mitigating circumstances notices for the examiners to consider, notices submitted to the final meeting of the Part A examiners and notices submitted to the final meeting of the Part B examiners. The Part A examiners will pass on a notice submitted at Part A, along with a note of the any action taken. The Part B examiners can take the evidence submitted at Part A into account when classifying a candidate. However, they should note that the Part A USMs cannot be altered at this stage, so in order to take such evidence into account the Part B examiners may have to suspend the examining conventions when awarding a classification.

J After the examination

Examiners should ensure that full marking schemes (including any amendments) and LaTeX source files for the papers incorporating any corrections (for the electronic archive) are deposited with the Academic Administrator.