

Department of Mathematics: Examination Conventions 2020–21

Final Honour Schools of Mathematics – Part B

1 Introduction

This document sets out the examination conventions for the **Part B Examination** in Mathematics. 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. The second part of the document contains additional information for assessors and examiners but some will also be of interest to candidates. So if you want to know what criteria are used in deciding the marking scheme for each examination question, then see appendix D.2. Similarly the criteria used to decide how many marks your extended essay or project should receive are given in appendix H. 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 J. You might also find the checklist used by question setters useful, see appendix D.1, and the note about the recalibration of marks, see appendix I.

The Mathematics Teaching Committee directs that the Part B Examination be 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 Mathematics Teaching Committee or the Proctors. This document is in all ways subsidiary to the current:

- *Examination Regulations*,
- *Examinations and Assessments Framework*.

2 Progression through University Examinations

To qualify for your BA or MMath in Mathematics you must pass a First and Second Public Examination. The First Public Examination in Mathematics is currently called 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 Part A of the examination and only candidates who obtain an upper second class or higher in the combined classification of Parts A & B, together with a weighted Part B average of 59.5 or higher, qualify to proceed to Part C. Candidates who satisfy the examiners in Part A and Part B only, qualify for the award of BA in Mathematics; candidates who satisfy the examiners for all three parts qualify for the award of MMath in Mathematics, with two associated classifications.

3 Part B Assessment Units

Students are assessed on the equivalent of 8 units.

3.1 Mathematics Department Units

Written Examinations: B1.1–B8.5, SB3.1

Each mathematics paper will examine one unit. Most mathematics units will be assessed by an open book exam. These 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. The examinations will be administered online and will be of two hours and 15 minutes duration. Of this time you should spend one hour and 45 minutes on the examination and the remaining 30 minutes on downloading the exam paper and then scanning your handwritten solutions and uploading them at the end.

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

Questions will be 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.

BEE extended essays

Extended essays have a weighting of two units. The word limit for BEE essays is 7500 words.

USM marks will be assigned to extended essays 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 25%, 50% and 25%, respectively.

BSP Structured Projects

This is a two unit course and is assessed by written project, oral presentation and peer review. The weightings for these three components are 75%, 15%, 10%, respectively. For the written projects the weighting will be further divided between general explanation and discussion of the problem (50% of available marks) and mathematical calculations and commentary (50% of available marks).

3.2 Statistics Department Units

Written Examinations: SB1.1, SB1.2, SB2.1, SB2.2, SB3.2 and SB4

Please see the Mathematics and Statistics Part B examination conventions at http://www.stats.ox.ac.uk/current_students/bammath/examinations.

3.3 Computer Science Department Units

Written Examinations: OCS1, OCS2

Please see the Mathematics and Computer Science Part B examination conventions at <http://www.cs.ox.ac.uk/teaching/examconventions/mcs.html>.

3.4 Other Units

BO1.1: History of Mathematics

This is a two-unit course. The examination will be administered online and will be 2 hours and 30 minutes' duration. Of this time you should spend two hours on the examination and the remaining 30 minutes on downloading the exam paper, and then scanning any handwritten elements and

uploading the full exam script at the end. Candidates can either type or handwrite their exam. The exam will have two sections: A (Extracts) with six questions and B (Essays) with three questions. Candidates will be expected to attempt two questions from Section A and one from Section B. The reading course mini-project will consist of an essay of 3000 words; essay topics set by the examiners will be released to the candidates in Week 7 of Hilary Term.

The assessment will use the following weighting principles:

1. A USM will be reported for the written paper and for the mini-project. The written paper and mini-project will each be given a weight of one unit when calculating a candidate's weighted overall average for Part B.
2. For the project, marks will be awarded for mathematical content, historical content, and presentation.
3. The extracts questions in Section A of the written paper will attract marks for treatment of context, content and significance.
4. The Section B essay will be marked using the same categories as the project.

BOE extended essays

Extended essays have a weighting of two units. The word limit for BOE essays is 7500 words.

USM marks will be assigned to extended essays with the same meaning as regards class boundaries as in the mathematics papers. In arriving at these marks, the relative weights attached to content, and style and presentation will be 75% and 25%, respectively.

Philosophy Papers: N101, N102, N122, N127

Please see the regulations for Philosophy in all Honour Schools including Philosophy at <http://www.admin.ox.ac.uk/examregs/>.

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 details of open book exams and how to complete and submit scripts. Notices from Examiners from previous years can be found on the Mathematical Institute's website.

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 miss an exam, you will be expected to provide a statement to your college explaining the reason you were not able to attempt the open-book exam within 48 hours of the start of that open-book exam. You are not expected to provide medical evidence. Colleges should apply with this information using the standard process.

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. In such a case, the examiners will award a fail for each of the Part B assessments.

4.2 Penalties for Late Submission of Open Book Examination Solutions

Candidates should upload their submission within the time allowed for their open-book examination. Candidates who access the paper later than the published start time (and who do not have an agreed alternative start time) will still need to finish and submit their work within the originally published time frame or be considered to have submitted late. Candidates who access the paper on time but who submit their work after the published time frame will also be considered to have submitted late. Where candidates submit their examination after the end of the specified time frame and believe they have a good reason for doing so, they may submit a mitigating circumstances notice to examiners to explain their reasons for the late submission. The Exam Board will consider whether to waive the penalties for late submission.

Penalties will be applied if you do not submit your solutions to the open book examinations by the stipulated deadline. These penalties are set out in Table 1 below.

Lateness	Penalty
First 5 minutes	No penalty
6–20 minutes	Fail mark

Table 1: Late Submission Tariff for Open Book Exams.

5 Penalties for Late Submission of coursework

The Examination Regulations stipulate specific dates for submission of coursework to the examiners. This includes the Part B extended essays, BSP projects, BO1.1 extended essays and any coursework you need to complete if you take a course taught by another department. 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). For 2020-21, all written assessments are to be submitted online.

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.

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 Table 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, without an accepted reason, will result in the failure of the whole of Part B. In such a case, the examiners will award a fail for each of the Part B 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 both the failure of the assessment and of the programme, the case must be referred to the Proctors.

When you take an exam, you will be required to sign up to an ‘honour code’. This will confirm that you have understood and abided by the University’s rules on plagiarism and collusion (see <https://www.ox.ac.uk/students/academic/exams/open-book/honour-code?wssl=1>).

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.

7 Marking of Mathematics Examinations

The majority of mathematics 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.

The Part B extended essays, BSP projects, are independently double-marked, normally by the project supervisor and one other assessor. The two marks are then reconciled to give the overall mark awarded. The reconciliation of marks is overseen by the examiners and follows the department’s reconciliation procedure (see <https://www.maths.ox.ac.uk/members/students/undergraduate-courses/teaching-and-learning/projects>).

The BO1.1 examination and essays are independently double-marked, normally by the course lecturer and one other assessor. The two marks are then reconciled to give the overall mark awarded. The reconciliation of marks is overseen by the examiners and follows the department’s reconciliation procedure (see <https://www.maths.ox.ac.uk/members/students/undergraduate-courses/teaching-and-learning/projects>).

Please see the appendices for the qualitative descriptors of the bands of marks awarded to examination answers (appendix D.2) and extended essays/projects (appendix H).

8 University Standardised Marks

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 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. 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

These marks reflect the qualitative descriptors given in appendix J.

9 Analysis of marks

There are two parts to the BA examinations: Part A and Part B

9.1 Part A

At the end of the Part A Examination, a candidate will be awarded a University Standardised Mark (USM) for each of the papers taken. The USMs awarded will be carried forward into a classification as described below.

9.2 Part B

The Board of Examiners for Part B will assign USMs for each paper taken in Part B and may scale the raw marks to arrive at the USMs reported to candidates. The scaling algorithm used by the mathematics examiners is explained in detail in the 2020 examiners' report which can be found at <https://www.maths.ox.ac.uk/members/students/undergraduate-courses/examinations-assessments/examiners-reports>.

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

- a paper was more difficult or easier than in previous years, and/or
- an optional paper was more or less difficult than other optional papers taken by students in a particular 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. Scaling may be also used to mitigate against the difficulties with setting an alternative format of assessment required in response to the COVID-19 pandemic and any related difficulties faced by candidates.

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

- the relative difficulty of the paper compared to the other Part B papers;
- information on candidates' performances on the earlier parts of the Examinations;
- 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.

The USMs awarded to a candidate for papers in Part B will be aggregated with the USMs from Part A to arrive at a classification.

9.3 Aggregation of marks for the award of the classification on the successful completion of Parts 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 (agreed by the Mathematics Teaching Committee) 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 6 long options, two of the long option papers as half-units)
 - 8 units (or equivalent) at Part B.
1. The relative weightings of the Parts is as follows:
 - (a) The weighting of Part A is 40%.
 - (b) The weighting of Part B is 60%.

Strong Paper Rule

A candidate will have satisfied the First Class, resp., Upper Second Class, resp., Lower Second Class strong paper rule if at least 6 units from Parts A and B lie in that class (or better) and include at least 2 of them in Part B.

To give an example, a candidate will have satisfied the Upper Second Class strong paper rule if the USMs of at least (the equivalent of) 6 units are at least Upper Second Class marks with (the equivalent of) at least 2 Upper Second Class units at Part B level.

In the following $Av\ USM = \text{Average weighted USM for Parts A and B together}$ (symmetrically rounded [62.49 will be rounded down and 62.50 will be rounded up]);

- First Class: $Av\ USM \geq 70$ and the First Class Strong Paper Rule satisfied.
- Upper Second Class: $Av\ USM \geq 70$ and the First Class Strong Paper Rule not satisfied **OR** $70 > Av\ USM \geq 60$ and the Upper Second Class Strong Paper Rule satisfied.
- Lower Second Class: $70 > Av\ USM \geq 60$ and the Upper Second Class Strong Paper Rule not satisfied **OR** $60 > Av\ USM \geq 50$ and the Lower Second Class Strong Paper Rule satisfied.
- Third Class: $60 > Av\ USM \geq 50$ and the Lower Second Class Strong Paper Rule not satisfied **OR** $50 > Av\ USM \geq 40$.
- Pass: $40 > Av\ USM \geq 30$.
- Fail: $Av\ USM < 30$.

BA in Mathematics

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 with the classification as described above, provided that they have fulfilled all the conditions for admission to a degree of the university.

MMath in Mathematics

In order to proceed to Part C, a candidate must achieve an upper second class standard or better in Parts A and B together, and a weighted average of 59.5 or above in their Part B assessments.

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.

10 Resits

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.

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 <http://www.ox.ac.uk/students/academic/exams/arrangements> 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 in section 4. 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 Regulations for Conduct of University Examinations, 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 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. The Panel will evaluate, on the basis of the information provided to it, the relevance of the circumstances to examinations and assessment, and the strength of the evidence provided in support. 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. The banding information will be used at the final board of examiners meeting to decide whether and how to adjust a candidate's results. Further information on the procedure is provided in the Policy and Guidance for examiners, Annex C and information for students is provided at www.ox.ac.uk/students/academic/exams/guidance.

12 Declared to have Deserved Honours (DDH)

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: <http://www.ox.ac.uk/students/coronavirus-advice/declared-awards>.

13 Examiners for 2020–21

The internal examiners are:

Prof. Nick Trefethen (Chair)

Prof. Paul Dellar

Prof. Kevin McGerty

Prof. Cornelia Drutu

Prof. Jim Oliver

Dr Neil Laws.

The external examiners are:

Professor Marco Schlichting, University of Warwick,

Professor Anne Skeldon, University of Surrey

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

Appendices

Further Information for Examiners

A Chair of Examiners

‘*Regulations for the conduct of examinations, Part 6*’, in the *Examination Regulations* covers the appointment of the Chair. The Committee for the Nomination of Examiners will usually appoint a Chair in Trinity Term of the preceding year.

B Paperwork for Examiners

The internal examiners should ensure that they are equipped with the following documents which will be provided by the Maths Institute’s administration, in electronic copy.

- The *Examination Regulations*.
- The *Examinations and Assessment Framework*.
- The *Aims and Objectives* of the mathematics courses, as agreed by the Teaching Committee.
- The *Course Handbook* and 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 on behalf of the Faculty, and any additional decisions of the Teaching Committee.
- Reports to the Teaching Committee on individual papers where appropriate.

- Class Percentage Figures for the last two years as published in the Examiners' Reports and Teaching Committee's *Guidance for Examiners on percentage 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.

The Director of Undergraduate Studies will ensure that the external examiners are (where appropriate) also provided with copies of these documents.

C Protocol for Setting Examination Papers

Each paper should be drafted by the appropriate lecturer, and checked by the lecturer of the complementary course if appropriate, or some other qualified person nominated by the examiners. Examiners and assessors are reminded that throughout the examination process security is very important. Examination papers must be passed via the secure Weblearn site.

D 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.

D.1 Checklist for Assessors

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 course synopsis)?
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) For the II(i)/II(ii) borderline 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 memorise the bookwork?
 - (b) For the I/II(i) borderline is there a part for which a full solution requires truly excellent understanding and skill?
8. Would a II(i)/II(ii) borderline candidate 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?
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. Does the question, adequately spaced, fit on a single page?
16. Is the question suitable for an online, open book examination? In particular, it should not be possible to answer bookwork parts simply by a copy and paste from readily available material.
17. Have you ensured that the question cannot be answered, in full or in part, by simply searching in the lecture notes, problem sheets, undergraduate textbooks, or by a Google search?
18. Have you made sure your questions cannot be answered, in full or to a large degree, using a computer (simulation, scientific computing software etc.)?

D.2 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.

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 J):

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. Because of open book conditions, we must be cautious about bookwork: there is no value in asking students to copy material out of lecture notes, etc., we have to be testing the students in a useful way;

S: similar to material seen before;

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

D.3 Approval of Papers and Marking Schemes

The papers and marking schemes are reviewed by the whole examination board, including the external examiners (see further below). Minor edits may be made to a paper in consultation with the assessor. 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.

D.4 Review by External Examiners

The external examiners should be consulted according to the agreed timetable, and provided with stable draft papers; full annotated solutions indicating what is bookwork and standard material, and with the proposed marking scheme. Comments from the external examiners on each paper will be sent to each respective assessor. 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.

E Attendance at Examinations

Attendance of Assessors will not be possible in the open-book examination. If an error is found during the examination paper, a candidate should make a note of this on their work before submitting. This will then enable the Exam Board to take the error into consideration in the normal way.

F Marking and Checking

F.1 Marking

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

Marking Schemes It is the responsibility of assessors 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 this change.

Mark Ranges in FHS papers All questions are to be marked out of 25.

Marking The marking process will be adjusted to accommodate the online examination. The examiners will want to review at least some of the scripts during the classification process. They will not want to 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 observe the following.

- 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 questions 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 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 on weblearn.

Reports Assessors will provide the examiners with a brief report on the performance of the candidates on each paper (or part-paper) to assist them in their deliberation on calibration; in particular assessors are invited to suggest where class boundaries could be drawn. Model examples of helpful reports are available.

G 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 marks database for each candidate;
- an audit trail for these checks.

Graduate research students are employed to carry out such checks. The standard document ‘Instructions for Graduate Checkers’ is kept in the Academic Office, and gives details.

G.1 Logging Scripts

The examiners should ensure that a central log is kept of the whereabouts of all scripts; and should instruct all markers to return ‘sporadic’ scripts or answers to the central contact with a note of explanation.

G.2 Availability of Assessors

The Chair must ensure that those appointed as assessors are informed of the examiners’ timetables, and are made aware that they must be available for consultation by the examiners until the signing of the Class List, and in particular during the input and checking of the marks.

H Coursework

The examiners should pay careful attention to what candidates have been told about the assessment of coursework in the *Examination Regulations* and the *Course Handbook*. All coursework is independently marked by at least two assessors. The examiners will oversee the reconciliation of marks, following the established reconciliation procedure(<http://www.maths.ox.ac.uk/members/teaching-staff/information-supervisors-undergraduate-projects>). If reconciliation is not possible, an additional marker should be appointed.

Projects and extended essays will be assessed with reference to the following qualitative descriptors.

For BE extended essays and BSP Projects

- 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 B. 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 B. It is likely to contain original material, which may take the form of new mathematical propositions, new examples, or new calculations, 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 or calculations.
- 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, 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.

For OE and BO1.1 extended essays

- 70–100 The candidate shows clear focus on the question, with precise and accurate details (mathematical and other), imaginative selection of examples and appropriate selection and quality (rather than quantity) of sources, and cogent argument, supported by evidence.
- Within this band the following finer gradations may be helpful:
- 90–100 Work of publishable quality.
- 80–89 Demonstrates originality of content or insight. Work at the upper end of this range could be publishable after minor improvements. Would be an appropriate entry for a national or university prize.
- 70–79 Work of high or very high quality, but perhaps lacking the originality that would be expected of publishable work. Might be a good candidate, for example, for a college prize.
- 60–69 Work that addresses the given topic, with solid command of factual content, reasonable range of examples and sources, coherent argument and analysis, and correct referencing and bibliography.
- (Essays at the lower end of this range may lack some of these qualities or show them only intermittently.)
- 50–59 Work with some use of facts, sources, and arguments, but marred by one or more of a failure to address the topic, serious or frequent errors of fact, a high proportion of indiscriminate information, speculation or unsupported argument, and incomplete or inaccurate referencing.

- 40–49 The candidate shows some knowledge of the topic but the work is marred by several of the following:- high levels of error or irrelevance, muddled or superficial ideas, incoherent or non-existent argument, incompetent use of sources, or very poor writing style.
- 30–39 The work demonstrates a little knowledge of the topic but no coherent argument.
- 0–29 The work demonstrates almost no knowledge of the topic.

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

J Classification of Candidates

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. They demonstrate an excellent knowledge of the material, and can 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.

[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 questions attempted are likely to be fragmentary only.

K Mitigating Circumstances Notices to Examiners

The University's policy on the use of medical and other certificates is available at <https://academic.admin.ox.ac.uk/mitigating-circumstances#collapse2154556>.

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.

L Post Examination

Examiners should ensure that the following are deposited with the Head of Academic Administration (or Undergraduate Studies Administrator), Mathematical Institute:

- a definitive record of individual USMs, signed off by one of the examiners (to be kept on file at the Institute for reference and for use in later examinations);
- all records of the Examination not otherwise destroyed and declarations relating to the destruction of examination material (as instructed by the Proctors);
- full marking schemes, including any subsequent amendments;
- LaTeX source files for the papers incorporating any corrections.

Chair
on behalf of the Teaching Committee.