Examination Conventions 2025/26

Preliminary Examination in Materials Science

Contents

1. Introduction

Examination conventions are the formal record of the specific assessment standards for the course or courses to which they apply. They set out how examined work will be marked and how the resulting marks will be used to arrive at a final result, a progression decision and/or classification of an award.

These conventions apply to the Preliminary Examination in Materials Science for the academic year 2025/26. The supervisory body responsible for approving these examination conventions is the Department of Materials' Academic (Undergraduate) Committee (DMAC).

2. Rubrics for individual papers

Written Papers

All written papers are assessed by a three-hour, closed-book, in-person examination. Each examination will be invigilated. All examination papers will be handwritten.

The only types of calculators that may be used in examinations are from the following series:

CASIO fx-83

CASIO fx-85

SHARP EL-531

Candidates are not permitted calculators in the Mathematics for Materials Science examination.

A basic periodic table, a list of some fundamental constants, and some mathematical definitions and formulae will be provided in all written papers.

The Materials Science papers 1 - 3 each comprise eight questions from which candidates must attempt five. Each question is worth 20 marks. The maximum marks available for each of these papers are 100. There is no strict rule about how many questions are set on each lecture course in the Materials Science papers 1 - 3. As a result, (i) it should not be assumed that a question will be set on every lecture course and (ii) some questions may require knowledge from across the entire year.

The Mathematics for Materials Science paper consists of two sections, candidates are required to answer all questions in Part A and four questions from Part B. The total marks available for this paper are 180; the marks achieved then being weighted by a factor of 0.555' to produce a mark out of 100.

Materials Coursework

There are three coursework assessment units:

(i) A10153S1 Reports of Practical Work in Materials

Two full reports as specified in the MS Prelims Handbook, together with assessment of the student's laboratory notebook entries for each of the eight specified practicals also as detailed in the MS Prelims Handbook (normally these reports and notebook entries are marked as the practical course progresses);

(ii) A10154L1 Reports of Crystallography Work in Materials

A set of reports for crystallography (completed under the class schedule);

(iii) A16329S1 Computing in Materials Science

Project work for Computing in Materials Science.

Refer to the Course Handbook for further details.

Assessment Unit	Rubric	Format
A16810H1 Materials Science 1: Physical Foundations of Materials	There are **EIGHT** questions in this paper. Answer **FIVE** questions.	Handwritten
A16811H1 Materials Science 2: Structure and Mechanical Properties of Materials	There are **EIGHT** questions in this paper. Answer **FIVE** questions.	Handwritten
A10152H1 Materials Science 3: Transforming Materials	There are **EIGHT** questions in this paper. Answer **FIVE** questions.	Handwritten
A16812H1 Mathematics for Materials Science	Candidates should answer **ALL** questions from Section A, and **FOUR** questions from Section B.	Handwritten
A16329S1 Computing in Materials Science	Refer to Handbook	Submission
A10154L1 Reports of Crystallography Work in Materials	Refer to Handbook	Practical
A10153S1 Reports of Practical Work in Materials	Refer to Handbook	Submission

3. Marking conventions

3.1 University scale for standardised expression of agreed final marks [EAF 11.1]

All agreed final marks for individual papers and formally assessed coursework are expressed as whole numbers on a 0–100 scale (University Standardised Marks, USMs):

70-100	Distinction
40-69	Pass
0-39	Fail

3.2 Qualitative marking criteria for different types of assessment

Qualitative descriptors, based on those used across the Mathematical, Physical and Life Sciences Division, are detailed below:

70-100	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. The higher the mark in this band the greater will be the extent to which these criteria are fulfilled; for marks in the 90-100 range there will be no more than a very small fraction, circa 5-10%, of the piece of work being examined that does not fully meet all of the criteria that are applicable to the type of work under consideration. The 'piece of work' might be, for example, an individual practical report, a question on a written paper, or a whole written paper.
60-69	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.
40-49	The candidate shows reasonable understanding of at least part of the basic material and some problem solving skills. Although there may be a few good answers, the majority of answers 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 answers, but there will be indications of some competence.
0-29	The candidate shows inadequate grasp of the basic material. The work is likely to show major misunderstanding and confusion, and/or inaccurate calculations; the answers to most of the questions attempted are likely to be fragmentary

3.3 Verification and reconciliation of marks [EAF 11.2]

During the marking process the scripts of all written papers remain anonymous to the markers. Each written paper is marked by a single moderator. The moderators must ensure that every page of the script has been fully marked. All scripts with an overall failing mark will be subject to full second marking. The second moderator will have sight of the first moderator's marks, but will record an independent formal judgement. Differences in the initial marks will be reconciled at the paper level. If the difference in the marks is small (no more than 10% of the total available) simple averaging is permitted. Otherwise, the moderators identify the discrepancy and read the script again, either in whole or in part, to reconcile the differences. If after this process the moderators still cannot agree, they seek the help of the Chair, or another moderator as appropriate, to adjudicate. For all other scripts, the second moderator checks that the overall mark for each question is consistent with one of three sets of descriptor(s), namely those for <40, 40 to 69, or >= 70 as appropriate. An integer total mark for each paper is awarded, with decimal values of 0.5 and above rounded up.

First year practicals are assessed on a continual basis by the senior demonstrators. The work for the six crystallography classes is assessed by the Crystallography Class senior demonstrators and reviewed by the Crystallography Class Organiser, the first of these classes being assessed formatively only. The project work for the Computing in Materials Science is assessed by the CMS senior demonstrator. The Practical Courses Organiser reviews the marks for the practicals before they are considered by the moderators, drawing to their attention (i) any anomalously low or high average marks for particular practicals and (ii) any factors that impacted on the practical course, such as breakdown of a critical piece of equipment. The moderators review the practical, crystallography and project marks.

3.4 Scaling [EAF 11.8]

Adjustment to marks, known as scaling, normally is not necessary for prelims. However, moderators may choose to scale marks where in their academic judgement:

a. a paper was more difficult or easy than in previous years, and/or
b. 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 candidates' marks are not advantaged or disadvantaged by any of these situations. In each case, the moderators will establish if they have sufficient evidence for scaling. Scaling will only be considered and undertaken after moderation of a paper has been completed, and a complete run of marks for all papers is available.

If it is decided that it is appropriate to use scaling, the moderators will review a sample of papers either side of the classification borderlines to ensure that the outcome of scaling is consistent with academic views of what constitutes an appropriate performance within in each class.

Detailed information about why scaling was necessary and how it was applied will be included in the Examiners' report and the algorithms used will be published for the information of all moderators and students.

3.5 Short-weight convention and departure from rubric in examinations

The rubric on each paper indicates a prescribed number of answers required (e.g. "candidates are required to submit answers to no more than five questions"). Candidates will be asked to indicate on the cover sheet which questions, up to the prescribed number, they are submitting for marking. Excepting section A of the Mathematics for Materials Science paper, for which all questions are compulsory, if this information is not provided then the examiners will mark the questions in numerical order by question number.

If the candidate lists more than the prescribed number of questions then questions will be marked in the order listed until the prescribed number has been reached. The examiners will NOT mark questions in excess of the prescribed number. If fewer questions than the prescribed number are attempted, (i) each missing attempt will be assigned a mark of zero, (ii) for those questions that are attempted no marks beyond the maximum per question indicated under section 2 above will be awarded and (iii) the raw mark for the paper will still be calculated out of 100 for MS1, MS2 & MS3 and out of 180 for the Mathematics for Materials Science paper (MS4).

3.6 Penalties for late- or non-submission of submitted work [EAF 8.2; ER 14]

For Assessment Units consisting of a single submission (Computing for Materials Science) the scale of penalties agreed by the board in relation to late submission is set out below. Details of the circumstances in which such penalties might apply can be found in the Examination Regulations (Regulations for the Conduct of University Examinations, Part 14.) Failure to submit a required assessment more than 14 calendar days after the deadline will result in failure of the assessment ('technical fail'), with any resit capped at the pass mark.

Lateness	Cumulative mark penalty
Up to one day (submitted on the day but after the deadline)	Deduction of 10% of the maximum marks available.
Each additional day	Additional deduction of 5% of the maximum marks available per day (e.g. two days late = 15%; three days late = 20%). Each weekend day counts as a full calendar day for the purposes of mark deductions.
Max. deducted marks up to 14 days late	Deductions are cumulative. The total deduction will not reduce the mark below 40%.
More than 14 calendar days after the deadline	Fail

For Assessment Units consisting of multiple submissions (practical scientific reports, crystallography work), late submission or non-submission penalties are applied to the individual component.

Late submission of an **individual practical scientific report** will attract penalties calculated as a percentage of the maximum marks available for that report, as follows:

Lateness	Cumulative mark penalty
Up to one day (submitted on the day but after the deadline)	Deduction of 10% of the maximum marks available for the individual scientific report
Each additional day	Additional deduction of 5% of the maximum marks available per day (e.g. two days late = 15%; three days late = 20%). Each weekend day counts as a full calendar day for the purposes of mark deductions.
Max. deducted marks up to 14 days late	Deductions are cumulative. The total deduction will not reduce the mark for the individual scientific report below 40%.
More than 14 calendar days after the deadline	Fail

Submitted work for crystallography classes is completed during the class and will be stamped after collection on the day of the class. Scripts without the stamp will not be marked. Students who attend a class and have signed the attendance sheet but forget to hand their work in will have their scripts marked at a later date provided they were handed in before the other students received their marked copies back, but the mark recorded will be reduced by a factor of 2. If the work is handed in after this deadline a mark of 0 will be recorded, but will count towards the requirement to submit a script for every crystallography class. All scripts must have been submitted by the end of Hilary term.

Failure to submit an individual practical report or piece of crystallography work will normally be deemed failure to complete satisfactorily the relevant coursework assessment unit, and will therefore result in failure of the Preliminary Examination as a whole, as per the Special Regulations.

3.7 Penalties for over-length work and departure from approved titles or subject-matter in submitted work [ER 16]

Where a candidate submits a piece of written coursework which exceeds the limit prescribed by the relevant regulation/the course handbook, the examiners will apply a penalty of up to 10% of the maximum mark available for the piece of work.

3.8 Penalties for poor academic practice [EAF 8.4.3]

Substantial guidance is available to candidates on what constitutes plagiarism and how to avoid committing plagiarism (see Appendix B of the Materials Prelims Handbook and https://www.ox.ac.uk/students/academic/guidance/skills/plagiarism).

The Examination Board shall deal wholly with cases of poor academic practice in submitted work where the material under review is small and does not exceed 10% of the whole. Assessors should mark work on its academic merit with the board responsible for deducting marks for matters such as derivative or poor referencing. Determined by the extent of poor academic practice, the board shall deduct between 1% and 10% of the marks available for the piece of work in question.

Any more serious cases of poor academic practice should always be referred to the Proctors.

3.9 Penalties for non-attendance at examinations [EAF 11.9.1; ER 14]

Unless the Proctors have accepted a submission requesting absence from an examination, as detailed in Section 14 of the Regulations for the Conduct of University Examinations, failure to attend an examination will result in the failure of the assessment. The mark for any resit of the assessment will be capped at a pass.

3.10 Penalties for late submission of online examination scripts [EAF 9.3.2]

This does not apply since all examination papers are handwritten.

3.11 Penalties relating to practical classes

Attendance at the practical classes for **A10153S1 Reports of Practical Work in Materials** is compulsory and will be monitored by the Teaching Lab Technician.

The following mark penalties relating to practical classes apply:

For non-attendance at labs for part of or all of a practical without approval: The number of marks available for notebook assessment for that practical or $^{3}/_{50}$ of the total marks available for the assessment unit in the event of a practical assessed via report.

For starting an experiment without permission: The number of marks available for notebook assessment for that practical or $^{3}/_{50}$ of the total marks available for the assessment unit in the event of a practical assessed via report.

For failure to hand in the practical book at the end of each day: $^{1}/_{50}$ of the total marks available for the assessment unit.

The exam board will also be presented with the attendance information for students, specifying where non-attendance has been excused, and will make the final decision on application of penalties and/or progression.

4. Progression rules and classification conventions

4.1 Qualitative descriptors of Distinction, Pass, Fail

70-100 Distinction	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.
60-69 Pass	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 Pass	The candidate shows basic problem-solving skills and adequate knowledge of most of the material.
40-49 Pass	The candidate shows reasonable understanding of at least part of the basic material and some problem solving skills. Although there may be a few good answers, the majority of answers will contain errors in calculations and/or show incomplete understanding of the topics.
30-39 Fail	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 answers, but there will be indications of some competence.
0-29 Fail	The candidate shows inadequate grasp of the basic material. The work is likely to show major misunderstanding and confusion, and/or inaccurate calculations; the answers to most of the questions attempted are likely to be fragmentary

4.2 Final outcome rules

Once marking is complete, an overall weighted average mark is calculated for each candidate and the final outcome is determined.

In calculating the final outcome, the following weightings are applied to the various assessment units.

Assessment Unit	**Weighting**
Materials Science 1	1.0
Materials Science 2	1.0
Materials Science 3	1.0
Mathematics for Materials Science	1.0
Reports of Practical Work in Materials	0.5
Reports of Crystallography Work in Materials	0.25
Computing in Materials Science	0.25

The marks as agreed by the board of examiners are converted into outcomes for the Preliminary Examination as follows:

Distinction	Route 1: An overall weighted average mark of 75.0 or above; AND A mark of 40 or above in each coursework assessment unit. OR Route 2 An overall weighted average mark of 70.0 or above; AND A mark of 70 or above in at least 2 of the 4 written papers; AND No written paper mark below 60; AND A mark of 40 or above in each coursework assessment unit.
Pass	An overall weighted average mark of 40.0 or above; AND A mark of 40 or above in each coursework assessment unit.
Fail	An overall weighted average mark of below 40.0; OR a mark of below 40 in any coursework assessment unit.

A Distinction may only be awarded at the first attempt; resit candidates are not eligible for a Distinction.

Borderline consideration for Distinction applies where:
(a) the candidate's final overall average lies within 1 percentage point below the pass/distinction threshold; or
(b) the candidate achieves the pass/distinction average required for Route 2 but has one written paper at 59, thereby narrowly missing the preponderance requirement.

In such cases, the moderators use their discretion and consider the quality of the work the candidate has presented for examination over the whole profile of the Preliminary Examination.

4.3 Progression rules

To pass the examination and progress to Part I, candidates are required to satisfy the moderators in all assessment units, either at a single examination or at two examinations in accordance with the re-sit arrangements detailed below.

Where compensation is permitted, only those marks in excess of 40 on a passed written paper may be used towards compensation and normally this shall be at a rate of 3 marks to every deficit mark to be compensated. Only one written paper can be compensated.

For example, if three written papers are passed and a mark of 36% is obtained in the failed written paper then the total for the four written papers must be at least 168 marks {36 + 3 x 40 + 3 x (40-36)} for the failure to be compensated. This is summarised in the table below.

Mark on Failed Paper	**Minimum Total Mark** *over 4 written papers to compensate for one failed paper*
39	162
38	164
37	166
36	168
35	170

The Moderators have the authority to use their discretion and consider each case on its merit.

Failure of the coursework papers will normally constitute failure of the Preliminary Examination.

4.4 Use of Vivas [EAF 10]

There are no vivas in Prelims.

5. Resits [EAF 13]

Candidates who pass the coursework assessments and fail one or two written papers will be asked to resit only those written papers.

Candidates who pass the coursework assessments and fail more than two written papers will be asked to resit all four written papers.

The resits usually take place in September. To pass a resit paper the candidate must obtain at least 40%, and normally no compensation is allowed. There is only one opportunity to resit the examination, and failure to pass a resit examination normally results in the candidate being prohibited from progressing to Part I. Exceptionally, a college may allow a student to suspend studies for a year and take Prelims a second time the following June.

Materials coursework cannot normally be retaken. Exceptionally a candidate who has failed a coursework assessment may be permitted jointly by the Moderators and the candidate's college to retake the entire academic year.

The Moderators have the authority to use their discretion and consider each case on its merit. In such cases they will take into account a candidate's profile across all elements of assessment together with, subject to guidance from the Proctors where appropriate, any other factors they deem to be relevant.

The mark for any resit required due to non-attendance or non-submission will be capped at a pass.

6. Consideration of mitigating circumstances [EAF Annex E]

A candidate's final outcome will first be considered using the 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. 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.

7. Details of examiners and rules on communicating with examiners

In Prelims the examiners are called "Moderators".

In 2025/26, the Moderators are:

Professor Martin Castell

Dr Chiheb Ben Mahmoud

Professor Angus Wilkinson

Professor Jonathan Yates (Chair)

Candidates should not under any circumstances contact individual Moderators about the preliminary examinations.