



UNIVERSITY OF OXFORD

# DEPARTMENT OF MATERIALS

PARKS ROAD OXFORD OX1 3PH · Telephone: (01865) 273700

**To: All Candidates for Preliminary Examination in Materials Science 2024**  
**From: Professor James Marrow, Chair of Moderators, Prelims 2024**  
**Subject: Prelims Examination Trinity term 2024**  
**Date: Tuesday, 27 February 2024**  
**cc: Director of Undergraduate Studies, Tutorial Fellows**

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## Information on the Prelims Examination Trinity term 2024

I am writing with information about the arrangements for your forthcoming examination and to provide you with a copy of the Examination Conventions for 2024.

The Prelims Moderators in Trinity 2024 are: Prof. Angus Kirkland, Prof. Enzo Liotti, Prof. James Marrow (Chair), and Prof. Angus Wilkinson. Candidates are reminded that in order to preserve the independence of the moderators, **you are not allowed** to make contact directly about matters relating to the content of the exams or the marking of papers. Any communication must be via your college, who will, if the matter is deemed of importance, contact the Proctors. The Proctors in turn communicate with the Chair of Moderators. If you have any queries about the Examinations or anything related to the Examinations, for example, illness or personal issues, please don't hesitate to seek further advice from your College tutor, or one of the Department's academic support staff as listed in your course handbook.

## Examination conventions

The Examination Conventions for the Prelims Examination are enclosed.

## Format of the examination papers

Past papers can be found on OXAM at <https://weblearn.ox.ac.uk/portal/site/oxam> (or go to the University's homepage, click on "Oxford Students – Academic Matters – Examinations and Assessment" and select "OXAM: past examination papers")

There are **four** written papers, each 3 hours in length:

**Materials Science 1** – Physical Foundations of Materials

**Materials Science 2** – Structure and Mechanical Properties of Materials

**Materials Science 3** - Transforming Materials

**Mathematics for Materials Science**

The **Materials Science papers 1 - 3** each comprise eight questions from which candidates must attempt five. Each question is worth 20 marks, so the total marks available on each paper are 100.

**The examiners would like to remind you that there is no strict rule about how many questions are set on each lecture course in the Preliminary examination papers. As a result, (i) you should not assume that a question will be set on every lecture course and (ii) some questions may require knowledge from more than one lecture course.**

The rubric on each paper indicates a prescribed number of answers required (e.g. "candidates are required to submit answers to no more than (x) questions"). You will be asked to indicate on a covering sheet which questions, up to the prescribed number, you are submitting for marking. Excepting section A of the Maths paper, if this information is not provided then the examiners will mark questions in numerical order by question number. 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 on the paper will be awarded and
- iii) the mark for the paper will still be calculated out of 100.

**NOTE: Each question is to be started on a new page.**

As in previous years, questions are, where possible, likely to have some mathematical or analytical content.

The Prelims paper on **Mathematics for Materials Science** consists of two sections, candidates are required to answer all questions in Part A and 4 from Part B. The total marks available for this paper are 180; the mark achieved then being scaled by a factor of 0.555 such that the paper contributes a maximum of 100 marks to the Preliminary Examination.

In the event that you feel there is a mistake or error in a question, please note your concerns at the start of your answer and, if necessary, state your understanding of the question. The examiners will consider the validity of the error and assess the impact of the error on candidates' choice of questions and on the answers written by those who attempted a question that contained an error, and will take this impact into account when marking the paper.

The **fifth paper** consists of continuous assessment of the Materials practicals, the Crystallography coursework taken throughout the year, and the Computing for Materials Science (CMS) project. Your attention is drawn to the **requirement** for coursework to be completed to a **satisfactory level**, as defined in your course handbook. For practical coursework to be judged as satisfactory candidates must have achieved at least 40% overall on this practical coursework and have submitted a report for marking on each practical listed in the course handbook.

For crystallography coursework to be judged as satisfactory candidates must have achieved at least 40% overall on this crystallography coursework, and have submitted a report on each of the crystallography classes. For the CMS project work to be judged as satisfactory candidates must have achieved at least 40% on this coursework.

Coursework cannot normally be retaken and failure of coursework will normally constitute failure of the Preliminary Examination.

## **Timetable of the examination papers**

It is hoped that the timing of the examination papers will be similar to that of previous years when in-person examinations were sat (see below). However, **THIS CANNOT BE CONFIRMED UNTIL THE EXAMINATION SCHOOLS PUBLISH THE OFFICIAL TIMETABLE, AND MAY BE SUBJECT TO CHANGE.**

**Week 7**      Monday 3rd June-    Mathematics for Materials Science  
                  Tuesday 4<sup>th</sup> June -    Materials Science 1  
                  Thursday 6<sup>th</sup> June -    Materials Science 2  
                  Friday 8<sup>th</sup> June -      Materials Science 3

## **Maths Definitions & Formulae booklet**

A Maths Definitions & Formulae booklet will be available on each desk for the Mathematics for Materials Science paper.

## **Value of Constants**

A value of constants sheet will be available on each desk for the three Materials Science written papers.

## **Periodic Table**

A periodic table will be available on each desk for the three Materials Science written papers.

The above materials are available to view in advance on [Canvas](#).

## **Use of calculators**

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

CASIO fx-83  
CASIO fx-85  
SHARP EL-531

Candidates are required to clear any user-entered data or programmes from memories immediately before the exam begins. The examiners may inspect any calculator during the course of an exam.