Dear 1st year Teddy Hall Materials Students,

Welcome to Teddy Hall, and to Materials at Oxford!

In Michaelmas term you will have tutorials in the following topics: Thermodynamics and Microstructure with Prof. Katharina Marquardt, Crystallography with Prof. Sergio Lozano-Perez, and Mechanical Properties with me. We'll confirm your tutor for Maths closer to the start of term.

Your first tutorial will be me during the first week of term (date and time tbc.). For this you will need to bring answers to the following estimation questions. How you obtain the answer is just as important as the answer itself. Quote results to the nearest power of 10.

Estimation is a key skill for a scientist to develop. It is a first step before doing a more detailed calculation, and also provides a sanity check for any numerical answer you get. None of these questions needs more than 10 lines working. If you find yourself writing more than this you are working too hard! In the tutorial we will expect you to justify your answers.

(a) Number of atoms in a pencil full stop (i.e. the dot or period at the end of sentence!)

(b) Mass of Ben-Nevis (kg)

(c) How many kittens were born in Oxford last year?

(d) How many electrons are there on the earth?

(e) How much does it cost to leave a light on for a year?

(f) How many blades of grass on the lawn in the front quad of Teddy Hall?

Jonathan Yates
Tutor for Materials
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St Edmund Hall
Materials Science 2026-2027

Undergraduates

Email addresses are of the form firstname.lastname@seh.ox.ac.uk

Fellows

Teaching Fellows

Prof. Sergio Lozano-Perez	George Kelley Senior Research Fellow
Prof. Katharina Marquardt	Tutor
Prof. Jonathan Yates	Tutor

Other Materials Fellows

Prof. Sir Peter Bruce, FRS	Isaac Wolfson Professor of Metallurgy
Prof. Sir Peter Hirsch, FRS	Isaac Wolfson Professor of Metallurgy (1966-1992)
Prof. Steve Roberts	Professor of Materials, Tutor 2002-2014

Professorial and Emeritus Fellows are not directly involved in undergraduate teaching for the college, but they do play a role in the life of the college and you may meet them at various events, or in the department.

College Lecturers Prof. Rebecca Nicholls, Mr Q Sun

Organising Tutor

Jonathan Yates and Katharina Marquardt are the college tutors in Materials. They are responsible for arranging tutorials, collections, and reading of reports. They are also the first contact for questions about the course, requests for references etc.

Collections

Collections are exams usually sat in college at the start of a term. Their purpose is to help you prepare for the end of year University exams. The schedule of collections is:

1st years:	Start of Hilary and Trinity Terms
2nd years:	Start of Hilary and Trinity Terms
3rd Years:	Start of Michaelmas Term

Library

The college library aims to keep copies of the key books required for the courses taken in the first two years (and indeed has many of the books required for the 3rd year option courses). As Materials is a multidisciplinary subject relevant books will be found in the Physics, Chemistry, Engineering and Mathematics sections, as well as the dedicated Materials section. Copies of certain titles may be found in more than one section. Use of the library catalogue is advised. Suggestions for purchases, either new titles or additional copies of existing titles, are very welcome. Please pass these to one of the tutors.

History of Metallurgy and Materials Science at St Edmund Hall

Amongst the Oxford colleges St Edmund Hall has the longest and most distinguished association with Materials Science. William Hume-Rothery (b. 1899 d. 1968) was appointed as a fellow of the college in 1958 on becoming the first Isaac Wolfson Professor of Metallurgy. The Professorship was named after Sir Isaac Wolfson, a noted Philanthropist who also gives his name to our new dining hall, and to colleges in both Oxford and Cambridge. The Wolfson Chair is permanently associated with the Hall. Hume-Rothery worked in many areas of Metallurgy in particular he obtained rules concerning the formation of solid solutions. His successor to the Wolfson chair was Sir Peter Hirsch (b. 1925 d. 2025), one of the pioneers of transmission electron microscopy. The immediate past holder was David Pettifor (b. 1945 d. 2017) whose research was in the quantum mechanical modelling of Materials. The current Wolfson Chair is Sir Peter Bruce, whose research is in the area of ionic-conductors for battery applications. Jack Christian (b. 1922 d. 2001) was a professorial fellow at the Hall from 1963 and made contributions to many areas of Materials science, particularly in the field of martensitic transformations of metals and alloys. John Hunt was tutor from 1965 to 2003 and carried out seminal experimental and theoretical work on the solidification of materials. It is a rare distinction that six of the Hall's fellows in Materials have been elected fellows of the Royal Society (Hume-Rothery, Hirsch, Christian, Hunt, Pettifor, Bruce).
Materials has always been one of the college's top performing subjects with a high proportion of students obtaining first class degrees and many being awarded University prizes. In recent years a significant proportion of our students have undertaken graduate studies, both in this country and the USA. Other destinations have included industry, education and the city. The Hall's Materials alumni occupy many leading roles in academia, industry and public life.

Teaching 2026/2027

1st Year

Michaelmas Term
P1 Crystalline Materials by Diffraction SLP
P2 Elastic Deformation JRY
P2 Structure of Glassy Materials SLP/JRY
P3 Thermodynamics KM
P3 Microstructure of Materials I KM
P3 Nanomaterials RJN
Maths - Department

Hilary Term
P1 Electromagnetic Properties JRY
P1 Random Processes JRY
P1 Quantum Mechanics RJN
P2 Defects in Crystals KM
P3 Electrochemistry KM
Maths - Department

Trinity Term
P2 Mechanical Properties JA
P3 Microstructure of Materials II KM

KM Katharina Marquardt
JRY Jonathan Yates
JRY Jonathan Yates
RJN Rebecca Nicholls
SLP Sergio Lozano-Perez
JA Jack Aspinall