Postgraduate Lecture & Training Course Synopses 2024-25

and Research Colloquia Details

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Postgraduate Lecture & Training Course Synopses and Research Colloquia Details 2024-25

This booklet contains the synopses of postgraduate courses in the Department of Materials for 2024-25. '**Postgraduate training**' courses provide essential training for using some of our research facilities and a selection of transferable 'career skills' training (which is a requirement of many sponsors of research degrees). If you are a probationer research student, in addition to the compulsory safety lecture you are required to attend the workshops and lectures listed under **mandatory skills training**. '**Postgraduate teaching**' courses are intended to broaden and deepen your education by offering you more advanced material both in areas within and outside your own research. This booklet also contains synopses of the undergraduate **third year materials options** from our MEng degree programme. Synopses of lecture courses offered to first and second year undergraduates are contained in separate booklets.

Postgraduate training courses offered by the Mathematical, Physical and Life Sciences Division can be viewed via the MPLS Graduate School webpages. Information on lecture courses offered by other departments of the MPLS Division and the University normally can be found via department webpages and at Lecture Lists .

If you are a probationer research student you will be required to offer two subjects during the first year for assessment. One of these subjects must be in an area outside your research topic. You should first consult your supervisor and, if necessary, the Director of Graduate Studies (Dr Adrian Taylor) about the selection of your two topics for assessment. Your selection may be made from any of the courses listed under **Postgraduate teaching**, or the **third year options** (provided you have not already taken the option as an undergraduate), or other **postgraduate lecture courses available within the Mathematical, Physical and Life Sciences Division**.

It is essential that your performances on the two courses you select are assessed. To pass an assessed course you must (i) normally have attended a significant proportion of the complete course of lectures (some lecturers will define this more specifically in the synopsis for the course) and (ii) obtain a grade of at least 50% on the written work set by the lecturer (this is equivalent to a 'pass' at MSc level and is regarded as satisfactory for the purpose of transfer of status.)

- SOME OF THE LECTURE COURSES COMMENCE EARLY IN MICHAELMAS TERM, SO PLEASE CONSULT YOUR SUPERVISOR PRIOR TO THIS.
- IF YOU ARE UNDERTAKING AN ELECTRON MICROSCOPY (EM) TRAINING MODULE YOU MAY NEED TO TAKE A PARTICULAR POSTGRADUATE LECTURE COURSE. IN SUCH CASES YOUR SUPERVISOR SHOULD HAVE LIAISED WITH THE EM SUPPORT STAFF BEFORE YOUR PROJECT COMMENCED AND WILL BE ABLE TO ADVISE YOU ON THIS. THE EM SUPPORT STAFF WILL PROVIDE YOU WITH A SCHEDULE FOR YOUR EM TRAINING. PLEASE SEE P33 FOR INFORMATION ON ARRANGING EM MODULAR TRAINING.

The Department's formal research colloquium series is normally held on selected Thursdays throughout term at 4.00 pm in the Hume-Rothery lecture theatre. If you are a probationer research student you will be required to attend a minimum of seven colloquia during Michaelmas and Hilary terms of your first year, to include at least three of these Departmental Colloquia. Evidence of this attendance will be required, as described in the Graduate Student Handbook. See section 9 of the Materials Graduate Student Handbook for guidance if you wish to offer towards this course requirement either colloquia you have attended in another Department and/or Materials colloquia other than our Thursday afternoon series. You should check www.materials.ox.ac.uk for the final version of the list of colloquia. Information about colloquia in Hilary and Trinity terms will be distributed later in the academic year, and posted on the web site. Everyone in the Department with an interest in research is encouraged to attend the colloquia and hear of cutting-edge research across a broad range of the science and engineering of materials. The colloquia also provide a means to interact with other members of the Department and the speaker during tea before or after the talk.

Dr Adrian Taylor
Director of Graduate Studies

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Postgraduate Training

Mandatory

Postgraduate Training: Mandatory Michaelmas Term

Organised by Dr A.O. Taylor

1 session of 2-3 hours led by Dr Paul Warren, ex NSG (Pilkington Glass), assisted by Dr Adrian Taylor

Project Management

This two to three hour course introduces the application of basic project management to the research undertaken for a research degree. It will cover topics such as defining a DPhil project, structuring the research and associated activities and managing their progress. The aim is to teach new research students techniques which will help them to complete successfully their degree within the funded period for the degree. Experience of project management is also a useful generic skill and one that is valued by graduate recruiters

The Department's graduate course structure includes six-monthly project management reviews. This allows and encourages you as the student to take responsibility for the successful outcome of your research by assessing expectations and progress throughout the duration of your course. It will enable you to flag up any concerns you might have that your research is not keeping to schedule, so that your supervisor and, if necessary, the Materials Graduate Studies Committee can consider whether remedial action is required.

You are expected to bring a first draft of your Project Management Form 1 (excluding the Gantt Chart and WBS) to the afternoon seminar of the workshop.

Postgraduate Training: Mandatory Michaelmas Term

Dr A.O. Taylor

(A Careers Advisor from the OU Careers Service)

1 session of 1.5 hours

Looking to the Future – What do employers seek?

A guide to the qualities and skills sought by employers; given in year one to enable you to deliberately develop these qualities, thus maximising your chance of winning your ‘dream job’ in due course. Careers in industry and academia are covered.

Postgraduate Training: Mandatory Michaelmas Term

D. DeBrincat, Jennifer Scott

1 hour

Safety Lecture

A guide to the Departmental Safety Policy as described in the Safety Organisation and Laboratory Safety documents. Provides an outline from the Departmental Safety Officer about how risks are formally assessed, what to do in an emergency, how to access help and report incidents, training and first aid. Also identifies sources of relevant information.

Compulsory for all new research workers

Postgraduate Training

Where a synopsis is shown in grey font, the course or workshop will not be offered in 2024/25 but may be offered in subsequent years

Postgraduate Training Michaelmas Term

J. Graham (Institute of Materials, Minerals & Mining)

1 session of 1 hour

The Institute of Materials, Minerals & Mining (IoM^3)

An introduction to the professional body for Materials Scientists. For those first year research students who attend this talk and do not already have student membership of the Institute the Department will pay for your student membership of the IoM^3 for your first year.

Postgraduate Training Michaelmas Term

Radcliffe Science Library

1 session of 1h 30mins

Information Skills

This session will introduce you to the electronic sources of scientific information used by Materials Scientists and how to access and search them, focussing on:

- Use of SOLO for searching Oxford Library Collections
- Electronic resources for Materials Science research
- General principles for a comprehensive literature search
- Effective use of electronic databases Materials Research Database, Web of Science and SciFinder (chemistry) as examples
- Finding e-journals and conference proceedings
- Citation searching using the Web of Science
- Copyright and plagiarism (introduction)

There will be hands-on practice and an opportunity for students to discuss their projects.

(Use of the standard search engines for the World Wide Web will not be covered in any detail, as these will be familiar to most people. However there are additional lectures organised by the University Computing Service if you feel you need some help in this area.)

Postgraduate Training Hilary Term

Radcliffe Science Library

1 session of 2 hours

Managing your References (Bibliographic Software)

This 2-hour session will introduce you to software tools used to organise your references. Reference Management software such as EndNote and RefWorks will be demonstrated to help you export references as you search databases, library catalogues and the Internet, and create bibliographies when you require them.

Further options of using ‘Write as you cite’ software to add in-text citations and create a Reference List using appropriate referencing style will also be shown. Practical part of the session includes exploring ‘RefWorks’ software for collecting, organising and managing your references.

Additional session on managing your references is organised as part of the WISER Program. This session provides a comparison of five software tools to help you choose the software that suit your needs.

Postgraduate Training Michaelmas Term

Radcliffe Science Library

1 session of 2 hours

Patent Literature

This session provides an introduction to patent literature, to where patents can be found and how to search patent databases and obtain full-text patent information.

Searching for patent information will also be demonstrated in materials science and chemistry research databases using the Proquest platform and SciFinder database. Further examples include tracking patent application, or finding a specific patent in databases.

The session will include hands-on searching of patent databases.
This session does not cover any legal issues related to use of patents.

Postgraduate Training

Dr A.O. Taylor

Poster Presentation Skills

Dr Taylor's slides from a workshop that is no longer offered are available at our Postgraduate Skills Training webpage (https://www.materials.ox.ac.uk/teaching/pg/pgskills.html)
Posters are widely used at scientific conferences and in this workshop guidance will be given on how to make effective use of this medium.

During Hilary term a Departmental DPhil Poster session will be held to give practical experience (Year 3 students will present posters). Two prizes, each of £200, are sponsored:

1. Best "Scientific Conference" entry (sponsored by Rolls-Royce).
2. Best "Public Understanding" entry (sponsored by the Ironmongers Company).

Postgraduate Training Michaelmas Term

Dr Abby Evans (OU Careers Service)

1 session of 1 hour

The OU Careers Service – Active Job Hunting

An introduction to the support available from OUCaS to students and post-docs reaching the end of their research and who are seeking jobs.

Postgraduate Training Michaelmas Term

Dr A.O. Taylor and others, including several alumni

1 session of approximately 2 hours

Careers and Networking Event with Alumni

An opportunity for informal discussion of careers available to Materials graduates, with several alumni of the Department representing a broad range of employment sectors. Informal one-to-one chats are held over a glass of wine or soft drink in the Holder Café.

Biographies of those alumni who are participating will be provided in advance.

This event will be useful both (i) if you already know in which sector you would like to work, in which case you can seek “insider” knowledge from specific alumni or (ii) if you are simply seeking inspiration for the direction in which your Materials degree might now take you.

Postgraduate Training Hilary Term

D. Baker (ITS) & Dr A.O. Taylor

4 sessions totalling 6 hours

Presentation Skills

What is it that makes a good talk? As scientists, we constantly need to convey information about our work and explain new results, so it is important for us to have good presentation skills. Most scientific and other presentations are given using electronic media, especially using software such as PowerPoint. This is just a method of presentation, and while it allows a wider range of techniques, computer presentation is no more a guarantee of a good talk than the use of a blackboard is proof of a bad one. These sessions will aim to give some insight into how you should prepare, structure and present your talks in order to get your message across. Hints will also be given as to how to use computer presentation methods effectively, based on PowerPoint, which is available through a University site license. The course will comprise four sessions:

- PowerPoint for scientific presentations, including hands-on practice (ITS Level 3 course; basic knowledge of PowerPoint is assumed).
- An introduction to advanced audio-visual technology (including Touch Screens and Visualisers).
- Production of posters using PowerPoint.
- Practical tips on delivering a research talk (This part of the workshop is no longer run as a live event each year. Instead Adrian Taylor’s slides and the recordings from recent versions of this talk are available to you via Canvas and our Postgraduate Skills Training webpage (https://www.materials.ox.ac.uk/teaching/pg/pgskills.html)

It is permissible to attend just those sessions in which you are interested.

Postgraduate Training Hilary Term

OU Language Centre

5 sessions of 2 hours

10 places only

Academic Writing (for overseas students)

This intensive course runs over five consecutive afternoons and is aimed at students for whom English is a second language, with priority given to those who are finding it difficult to write reports in English. If you have already attended one of the Language Centre's courses on Academic Writing please contact Sharmaine Ijada (graduate.studies@materials.ox.ac.uk) to determine if the present course will be of any value to you.

Postgraduate Training All Terms

Dr E. Liotti

Each visit requires approx 4 hours (including travel time)

Industrial Visits

If places are available, research students may join one or more of the several visits that are arranged each year to industrial sites to illustrate some of the applications of Materials Science.

Industrial Tour

Some places may be available on the Industrial Tour. A visit of 5-10 days, usually during the Easter Vacation, is made to a region overseas in order to visit several companies that make use of Materials Science. Recent visits were to the south of France, Singapore, Germany and China.

Postgraduate Training All Terms

Several talks, each typically 40-60 minutes

Industrial Talks

Each year, scientists from Rolls Royce, Tata Steel and Johnson Matthey visit the Department to give short talks on the applications of Materials Science in industry. Often these talks are followed by a buffet lunch during which you can network with the industrialists and learn of career opportunities.

In addition the Department's very active Student Materials Society ('MatSoc') normally arranges several events each year including some talks given by external speakers (have a look at https://www.matsoc.com/events). Hence you might wish to consider joining MatSoc.

Postgraduate Training Michaelmas Term

JCCG Members

1 session of 2 hours

tbc – a discussion is underway whether to continue with this local event or simply to use a related MPLS workshop entitled “Your Successful DPhil” (https://www.mpls.ox.ac.uk/training/courses/your-successful-dphil1)

Owning a Successful DPhil

This is a 1 hour workshop organised and run by the student members of the JCCG. It is very much ‘by students for students’, and covers some inside advice about the following topics:

- Motivation;
- Working Hours;
- Deadlines & Finishing On-time;
- Expectations –
  - “What does my supervisor expect from me?”
  - “What do you want from your supervisor?”
- The truth about doing a DPhil;
- Organising a long project;
- Internal & External Resources.

The workshop is followed by lunch over which you will have the opportunity to talk with older DPhil students (3rd/4th years) and some post-docs about their experiences.

Teaching Skills

A series of workshops to introduce the topic to those new to teaching and to enable existing teachers to share experiences & best practice.

- **Tutoring Maths Classes** Michaelmas Term
  Prof S.C. Benjamin
  3 hours

- **Tutoring Materials Science** Michaelmas Term
  Christopher Patrick
  3 hours

- **Materials Options Classes** Michaelmas Term
  Prof M.L. Galano
  3 hours (2h if delivered virtually by MS Teams)
  [Please note: This workshop is run only if required]

- **Junior Demonstrating in the Materials Teaching Lab** Michaelmas Term
  Prof P.D. Nellist and D.R. Passmore
  1.5 hours
  In addition to the workshop, one-to-one mentoring is provided by the Senior Demonstrator(s) for the experiment(s) you are “demonstrating”, and you are required to practise the full experiment in advance of the actual lab classes.

- **Senior Demonstrating**
  One-to-one mentoring is provided by the Practical Courses Organiser (Prof D.E.J. Armstrong) and normally a Senior Demonstrators’ forum is arranged once or twice each year for the sharing of best practice, etc.

- **Lecturing a Taught Course**

  Prof T.J. Marrow

  3 hours

  [Please note: This workshop is run only if needed.]

  This workshop is aimed particularly at those who might have to deliver all or part of an **existing** lecture course to undergraduates or taught MSc students, for example if covering for a member of staff on sabbatical leave. It is also open to others who are interested and keen to develop this area of their CV.

  The workshop will include:

  - The expectations of colleagues and students.
  - The lecture in its context as one part of an integrated 'unit of study' (e.g. an Oxford 'Paper' or, elsewhere, a 'Module').
  - A digest of the relevant educational research on student learning by means of lectures.
  - Practical tips on delivering a lecture course.
  - Open discussion to share opinions on 'best' practice.

  [Note: the workshop will **not** cover topics such as writing a **new** lecture course, syllabus design or delivering a research talk; these topics either are or will be covered in other workshops].

  See also Teaching Skills workshops run by the MPLS Division, advertised at https://www.mpls.ox.ac.uk/training.