POSTGRADUATE TRANSFERABLE SKILLS TRAINING

1. Introduction to postgraduate skills training available to Oxford Materials Students

The Department provides a well equipped, vibrant and dynamic research atmosphere with much peer-support between some 100 research students and some 40 post-docs. Regular seminar series are held (typically 3 or 4 speakers per week in term time in our Department alone) and a wide range of PGR and M.Eng level lecture courses are offered.

In addition to specific research training, including a comprehensive suite of Electron Microscopy Training Modules, Materials Modelling Training and a Scientific Computing course (run by the Oxford Computing Lab), we have an extensive programme of transferable skills training workshops, including: Project Management; Information Searching; Presentation Skills; Scientific Writing; Laboratory Notebooks, IPR & Patents; Building a Business & Entrepreneurship (delivered by the University's Said Business School); Career Planning; Quality Management (ISO 9001) and Environmental Management (ISO 14001); Technical Workshop Skills and a Teaching Skills series. Many of these workshops are led by speakers from Industry or other experts and we also have a regular programme of UK Industrial Visits and an annual overseas Industrial Tour (recent destinations include Munich, Beijing, Toulouse, Tokyo & Milan and the 2009 tour is to China). All EPSRC funded students attend a UK-GRAD Grad School and other students may attend a local Oxford version of a Grad School.

There is also a wide range of central provision for transferable skills training, including the Mathematical, Physical & Life Sciences Divisional programme, the Oxford University Computing Service programme, the Oxford University Careers Service programme and the Oxford University Language Centre programme.

These opportunities provide the means for research students to build up many of the skills identified by the UK Research Councils as important for research students (see link on skills training web page).

If you believe you would benefit from a transferable skills training course that is not available form the University then it may be possible to fund you to attend an external course. Please consult the Director of Graduate Studies (Dr Adrian Taylor) if you wish to attend such a course.

2. More details of transferable skills training courses for Materials research students

(extracted from the 2009-10 Oxford Materials Graduate Course Handbook):

Graduates need to be skilled not only in the experimental and/or theoretical techniques relevant to their own research, but also in skills for communicating their results to a wider audience and for managing their own research programme and future career development. The handbook of ‘Postgraduate Lecture Synopses and Research Colloquia’ lists the different skills courses on offer under the title ‘Postgraduate Training’. You should keep a log-book or portfolio to record the various training that you undertake, of all kinds, formal and informal, since you may be asked to summarise this by your research sponsor or by a prospective employer and you will be required to summarise it on your applications for transfer of status and confirmation of status. There is an expectation by some sponsors and by the University that you will engage in approximately 10 days
per annum of transferable skills training during years one to three of your research degree. Skills training available to you as graduate students includes:

(i) Project management skills (Dr A O Taylor and others, MT Week 4);
(ii) Presentation skills (Staff of OUCS & Dr A O Taylor, HT Week 2);
(iii) Writing skills, lab notebooks, IPR and patents (Dr H E Assender & others, HT Week 5);
(iv) Information skills (Staff of Bodleian & Dr A O Taylor, MT Week 2);
(v) Career-planning (Alumni of Dept, OU Careers Service & Dr A O Taylor, MT Week 5);
(vi) Workshop skills (Laurie Walton, throughout year);
(vii) Microscopy skills;
(viii) Modelling skills/Introduction to the MML (Dr Paul Warren, MT Week 1);
(ix) UK-GRAD Graduate School, second (or third) year;
(x) Institute of Materials – Benefits of student membership (Mr D Arthur, MT Week 4);
(xi) Poster presentation skills (Dr A O Taylor, MT Week 7);
(xii) Teaching skills (Lecturing, laboratory demonstrating, tutorials, classes, maths classes, advanced A/V equipment [see lecture lists]);
(xiii) Quality Management and Environmental Management (ISO 9000 and 14,000) (Dr D Orton, Rolls Royce, HT week 8, biennial – next course in 2011);
(xiv) Academic Writing Skills (for non-native English speakers);
(xv) Foreign Language Skills (register on-line with the OU Language Centre http://www.lang.ox.ac.uk/courses/index.html by Wednesday of MT Week 1);
(xvi) Managing Your DPhil (MPLS Division Skills training web pages);
(xvii) Future Focus (OU Careers Service, for final year research students, how to access the jobs market, repeated termly);
(xviii) ISIS Innovation Ltd – Protecting and Exploiting Your intellectual Property (TBA).

Attendance at the project management lecture in Week 4 of Michaelmas Term is compulsory. It is also strongly recommended that you attend some of the workshop sessions in Hilary Term on ‘Presentation skills’ and on ‘Writing skills’, since you will need the former to give a good presentation at your first-year viva (see section 10) and second-year talk (see section 12) and you will need good writing skills for your first-year report (see section 10) and your thesis (see section 13). These courses assume you know the basics of word processing and use of Powerpoint, but introductory courses to these (and a wide range of other IT courses) are available from the University Computing Service (www.oucs.ox.ac.uk/itlp/). Students whose first language is not English, should attend the courses on ‘Academic Writing’ that are offered by the Oxford University Language Centre at 12 Woodstock Road (www.lang.ox.ac.uk). You should also attend the lecture in Week 2 of Michaelmas Term on ‘Information Skills’ as the latter is critical for accessing the
research already done in your chosen field. Information on accessing and searching the materials literature can be found at http://www.ouls.ox.ac.uk/rsi/training/materials. In Michaelmas Term some alumni of the Department, together with a representative from the Oxford University Careers Service, will run a compulsory and very useful workshop on Career Planning - Looking to the Future. Further information about the Careers Service can be found on their website (www.careers.ox.ac.uk).

Towards the end of your degree there is an opportunity to discuss career opportunities for Materials Scientists on a one-to-one basis with several Alumni of the Department. This complements the many activities available through the OU Careers Service.

Some of you may find it useful to attend the course ‘Scientific Computing for DPhil Students’ run by the Oxford Computing Laboratory. This will next run in 2010/11, course to be confirmed but likely to be (Tuesdays and Fridays, 12 noon – 1.00 pm Weeks 1-6. MT: Numerical (Non) Linear Algebra; HT: Differential Equations). (Further details from Lotti Ekert, lotti.ekert@comlab.ox.ac.uk).

Since Materials Science is strongly linked with technology and therefore wealth creation, you might like to develop your business skills by attending some or all of a set of lectures in a series called ‘Building a Business’ organised by The Oxford Science Enterprise Centre, part of the Saïd Business School. The lectures take place at 5.30pm on Tuesdays at the Said Business School.

Lecture 1, Taking First Steps, Company Basics, 3 November 2009
Lecture 2, Evaluating a Venture Idea, 10 November 2009
Lecture 3, Marketing: Creating and Keeping Customers, 17 November 2009
Lecture 4, Negotiation Skills, 24 November 2009
Lecture 5, Managing People, Managing Teams, 1 December 2009
Lecture 6, Raising Capital, Doing Deals, 19 January 2010
Lecture 7, Understanding Financial Control, 26 January 2010
Lecture 8, Protecting Your Ideas: Intellectual Property, 2 February 2010

Further details of the course and registration information can be found at the following web address: http://www.sbs.ox.ac.uk/entrepreneurship.

The lecture on ‘Intellectual Property’ being held on Tuesday of 3rd week HT (2 February 2010) is particularly recommended, as understanding intellectual property rights (IPR) is very important for all researchers, whether academic or in industry. You should note that the University has in place
arrangements governing the ownership and exploitation of intellectual property generated by graduate students in the course of their studies. The University claims ownership of certain forms of intellectual property that students may create, as described in the policy document included as an appendix. From time to time the MPLS Division also arranges courses on Intellectual Property and Entrepreneurship and Enterprise.

The MPLS Division runs a very useful workshop on ‘Managing Your DPhil’ (usually in Hilary Term) which complements the Department’s Project Management Scheme.

**If you wish to attend a key skills training course that is not offered by the Department of Materials or MPLS Division and for which a fee is charged, you may apply to the Director of Studies for funding using a copy of the form in the appendix of this handbook.**

If you wish to use the supervised workshop in the basement of the Hume-Rothery building, then it is essential that you first attend a Workshop skills course given by Laurie Walton, the Head of Workshop. Similarly, if you wish to use the electron microscopes, then you should first complete an access request form which is available from the website www-em.materials.ox.ac.uk/internal/index.html. This form should be returned to Mrs Katherine Hartwell (katherine.hartwell@materials.ox.ac.uk) preferably as an email Word attachment, once you and your supervisor have completed it. You can download from the same web address the ‘Facility Guide’ which gives full details of the microscopes available. (A hard-copy of these may be found in the handbook on ‘Facilities and Procedures’). If you wish to use the computer facilities in the Materials Modelling Laboratory for your research, then you should attend the lecture on ‘Introduction to the Materials Modelling Laboratory’ which is given by Dr Paul Warren, the Senior IT Officer, in Week 1 of Michaelmas Term. You should also attend the lecture in Week 4 of Michaelmas Term by Mr Arthur on the benefits of student membership of the Institute of Materials. The receipt of their monthly magazine ‘Materials World’ and attendance at their meetings should both increase your general knowledge and improve your networking skills!

The UK-GRAD Graduate School (or its equivalent) is compulsory for all EPSRC-funded students who started their research after 1 October 2000 and is one of the conditions for receiving a grant from the Engineering and Physical Sciences Research Council (EPSRC). Attendance at these residential schools is free for EPSRC-funded students but other students may need to pay a fee, which varies dependent on the course but is in the region of £500. The MPLS Division arranges an Oxford Graduate School and you may attend this at no charge even if you are not sponsored by the EPSRC. We recommend that you attend a Graduate School during the summer of your second year. The purpose of these schools is to help graduates develop their awareness of key transferable skills and enhance their career development. Transferable skills are those in addition
to your academic and research skills that employers both inside and outside academia are looking for. The government and funding agencies believe that these skills are essential for maintaining employability in a global economy which is increasingly requiring people to respond to and anticipate change. The University College London on their website www.ucl.ac.uk/keyskills/resources/Grid has presented a matrix of these skills:

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<thead>
<tr>
<th>Academic Skills</th>
<th>Self-Management Skills</th>
<th>Communication Skills</th>
<th>Interpersonal Skills</th>
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<tbody>
<tr>
<td>Library research</td>
<td>Reflection on learning</td>
<td>Written materials</td>
<td>Group work/Team work</td>
</tr>
<tr>
<td>Synthesis of data</td>
<td>Self-awareness/Assessment</td>
<td>Oral/Visual presentations</td>
<td>Understanding others</td>
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<tr>
<td>Critical thinking</td>
<td>Action planning/Decision making</td>
<td>Active listening</td>
<td>Negotiation</td>
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<tr>
<td>Active learning</td>
<td>Time management</td>
<td>Foreign language(s)</td>
<td>Peer assessment</td>
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<tr>
<td>Problem solving</td>
<td>Autonomy</td>
<td>Numeracy</td>
<td>Leadership</td>
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<tr>
<td>Project management</td>
<td>Initiative/Proactive approach</td>
<td>Information skills</td>
<td>Adaptability</td>
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<tr>
<td>Creativity/Innovation</td>
<td>Budgeting</td>
<td>IT skills</td>
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<tr>
<td>Numeracy</td>
<td>Career management</td>
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Further information about these graduate schools can be found on the EPSRC website and at www.vitae.ac.uk. This site also contains an excellent section designed by postgraduates for postgraduates under 'just for postgraduates', and you are strongly advised to browse through this at your earliest convenience. It contains five interlinked sections:

- Managing yourself – evaluating your skills, setting personal objectives
- Managing your research project – time management, managing your supervisor, support mechanisms
- Developing your career – building a career plan, effective networking
- Completing your doctorate – tips on writing your thesis, submission and viva.

In their February 2001 review of the site, Science magazine wrote: ‘The great strength of this site is that it has been put together for a very specific target group (doctoral students) and has clearly been written by people who know what they are talking about. From the ‘eight problems you can beat’ - such as lack of motivation, poor time management, and limited support - to the ‘nine factors to tip the balance’ in your favour when it comes to getting an academic job, this site is tailored to the needs of doctoral students and uses genuine examples. It talks about issues that are difficult to research elsewhere, such as building a good working relationship with your supervisor and writing up your thesis’.
In addition you might find the UK Grad monthly bulletin for research students of interest at http://vitae.ac.uk/4069/PGR-tips-email-bulletin.html.

**Further skills training information and courses can be found via the University’s ‘skills portal’ at** www.skillsportal.ox.ac.uk **and in the MPLS Division’s “Graduate Skills Training Induction Pack” with which you have been issued.**

The Skills Portal is a new website created for all research students, postdoctoral researchers and their supervisors at Oxford. It brings together a range of information about transferable skills development and has details of skills training courses, seminars and workshops offered throughout the university in a searchable database. There are links to online resources and tips on subjects such as project management and teaching skills. It also gives advice on getting the most from your time at Oxford and putting yourself in the best possible position to succeed in your career, whatever it might be. The Skills Portal Forum is the place to ask questions, discuss issues with other researchers and make your views known to the people who organise the training.