TRANSFERABLE SKILLS FOR MASTER’S STUDENTS
A paper from the Working Party for Master’s Degrees

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Overview

This report summarises the recommendations of the working party tasked with reviewing the provision of transferable skills on Master’s courses. The report highlights skills and attributes of particular significance to Master’s students and recommends that an audit be carried out to comprehensively review existing transferable skills provision.

Transferable skills objectives

The group agreed several key objectives for Master’s level transferable skills:

1. Focus on employability – An important motivation for undertaking Master’s courses (especially MSc’s) is to enhance employment prospects. Courses are short in length and students need to start applying for jobs almost as soon as they begin their course. Training in career and application skills therefore needs to be available straight away.

2. Developing future leaders – The longer term vision must be to equip and position students with a distinctive set of “Imperial attributes” for becoming highly effective leaders and global citizens. This aspect of transferable skills provision should not be an optional “add-on”, but needs to be embedded across the curriculum.

3. Opportunities for all students – It is important that provision is for all students, especially those less confident and pro-active. High achieving and motivated students will already be searching out and using resources available. In addition, skills provision should be sensitive to the fact that circa 40% of Master’s students are from overseas.

4. Innovative and sector leading – Provision need not necessarily be influenced by what has been carried out in the past or institutional benchmarking. The essential criterion of success is relevance and applicability to the modern work environment – i.e. to add value for both students and future employers.

Existing provision

Existing transferable skills provision for Master’s students is relatively small. In previous years, only Master’s students within GSEPS have been able to participate in the Graduate School’s transferable skills programme, which includes the following relevant options:

1. Personal Effectiveness Courses
   - Interpersonal Skills for MSc Students
   - Negotiating & Influencing Skills for MSc Students
2. The MasterClass Programme
   - Note-taking and Efficient Reading
   - Research Skills and Reference Management
   - Preparing and Writing a Literature Review
   - Stress Management
   - Academic Writing
   - Developing your Career through Networking
   - Interview Skills
   - Job Search with a Difference
   - Informational Posters - Layout and Design

The MasterClasses standalone 90 minute lectures (including Q&A) covering a range of topics designed specifically to meet the needs of Master’s students. The Careers Advisory Service (CAS) is involved in the delivery and also provides a large amount of additional support for departments to assist with transferable skills elements within their Master’s courses.

A full audit of transferable skills provision needs to be undertaken, but already a number of potential gaps have been identified:

1. Recruitment understanding – Anecdotal evidence suggests many students have a limited understanding of recruitment processes and practices, with some students assuming that a good degree from a good university is sufficient to get a good job.

2. Soft skills – Feedback from employers suggests that Imperial students could benefit from more development of “soft skills”, including communication (oral, written and body language), the ability to articulate arguments and flexibility in adapting to new situations.

3. IT skills and maths – There is evidence that not all Imperial students have sufficient skills in basic software such as Excel. At undergraduate level, some institutions incorporate European Computer Driving Licence (ECDL) modules to address this.

4. Making the most of existing skills content – It is important to ensure that students are receiving feedback on existing transferable skills content (e.g. presentations) and not only the main academic content of their course.

Master’s Attributes

The working group agreed that a core set of graduate attributes should apply to undergraduate and Master’s courses. However, higher level courses should aim to better develop and evidence these skills. Master’s graduates should be particularly strong in the following areas:

- Reflective independent learning
- Communication of complex ideas
- Interdisciplinary awareness
- Project and time management
- Flexibility and ability to manage complexity
- Networking skills

A full list of potential Master’s level attributes is provided in the Appendix.
Implementation

Centrally run courses (such as the MasterClasses) can be extremely useful and often the most effective means of delivering transferable skills content. However, it is important to enhance opportunities for the development of attributes within courses, not least because separate modules would be difficult to timetable within existing twelve month curriculums. Embedding into course content would also enable skills to be continuously practiced and developed.

The key priority, therefore, should be to support MSc coordinators in their efforts to incorporate transferable skills training into existing programmes. One approach would be to build on the consultancy method of the Careers Advisory Service (CAS), which has advised departments (such as Mechanical Engineering) on curriculum design in order to develop employability skills. Such an approach could potentially be coordinated through the Graduate School.

It is anticipated that the Postgraduate Professional Development Committee would have ownership for setting the strategic focus of transferable skills provision. Detailed monitoring of course content could take place through the postgraduate quality committees (PQCs) and additional questions included in course reviews to cover transferable skills. Clearer statements should also be made in course handbooks about transferable skills content.

Next Step: A Master’s Audit

The working group agreed that the next step should be to audit the content and delivery of current courses in order to understand where improvements or central provision are needed. There would be two components to the audit:

1. A review of programme specifications for transferable skills content (noting that many courses are delivered in clusters and share similar specifications).
2. Interviews with MSc course directors to identify transferable skills content not explicitly mentioned in programme specifications and to acquire further detail on delivery methods.

It was agreed that the audit could potentially be carried out by a Management Trainee working in the Education Office, for completion by December 2011. The management trainee should work in close cooperation with the Masters Working Party, initially by drawing up a template for information gathering, to be refined after some initial web-based information gathering and interviews. The working party felt it was critical that this exercise not be seen by Masters organisers and administrators as an additional bureaucratic burden on them, and so methods such as a questionnaire for them to complete were rejected.

Eric Yeatman (Chair), September 2011
APPENDIX

Imperial Master’s Key Attributes

Graduates from Master’s courses should have opportunities both within and outside the curriculum to develop the following skills.

Graduates should be:

- Reflective self-learners.
- Aware of how industry operates – with a good understanding of the structure and function of businesses and industries in their area.
- Good communicators - able to communicate effectively (verbal, written and oral communication) at all levels and in a manner appropriate to their audience.
- Able to see the bigger picture and manage complexity
- Creative thinking
- Flexible and adaptable – in particular able to adapt technical skills to real-life situations.
- Responsible for their actions.
- Motivated and able to take the initiative.
- Organised, with plans for the future.
- Ethical practitioners.
- Excellent IT skills
- Inter-culturally aware with an understanding of global challenges.
- Able to manage projects.
- Able to tackle and solve problems outside their comfort zone.
- Able to think laterally and work across disciplinary boundaries.
- Skilled in leadership and advocacy.
- Good at problem solving, research and enquiry (the academic content of our courses develops these skills well).
- Strong academically (should be assumed for all of our courses).
EXECUTIVE SUMMARY

Master's (MSc only) level transferable skills provision varies considerably between courses. The general view, however, is that transferable skills are best delivered when embedded in the curriculum, with central units such as the Graduate School, Library and Careers Service providing flexible additional support where there are gaps or where a particular skill is best taught initially by an expert. Examples of good practice from across the College demonstrate that there are many ways of embedding transferable skills which support key course objectives, not distract from them. Course organisers are therefore encouraged to look for ways of broadening and deepening transferable skills provision within courses, making use of good practice and of the support available centrally.

1. BACKGROUND

Transferable skills are competencies which can be carried from one activity to another, such as communication and time management skills. They are highly valued by employers and a major priority for the College. Over the past year, a cross-faculty Transferable Skills Review Committee, led by the Pro-Rector (Education and Academic Affairs), developed a set of Imperial graduate attributes, together with associated skills, as a platform for the future development of transferable skills at both undergraduate and postgraduate level.

This report is a review of transferable skills provision at the Master's level (MSc only), based on the Imperial graduate attributes. It follows from the recommendation of the review committee to carry out an audit of existing provision, with the purpose of identifying what is being done currently, sharing good practice and making recommendations for improvement.

2. ACKNOWLEDGEMENTS

We would like to thank all the course organisers we interviewed (listed below) for their time and for engaging in some really valuable and positive conversations. In return, we hope they will find this report useful. We would also like to thank Elspeth Farrar (Director of the Careers Advisory Service), Sally Baker (Graduate School Manager – Postgraduate Development), and Sophie White (Graduate School Manager – Communications & Quality Assurance) for the useful information that they have provided.

3. METHODOLOGY

The first step was to review the programme specifications for every Master’s course to acquire a general overview of transferable skill provision. A series of structured interviews were then carried out with Master’s course organisers across the College in order to identify transferable skills content that was not directly identified in the programme specifications, to acquire further detail on the delivery methods, and to look for examples of good practice.

Those interviewed were:

Dr Andrew Heyes, MSc Sustainable Energy Futures
Dr Patrick Naylor, Director of Postgraduate Studies, Electrical & Electronic Engineering
Dr Simon Leather, MSc Integrated Pest Management et al. (based at Silwood Park)
Dr Nicola Rogers, MSc Immunology
4. SUMMARY OF EXISTING PROVISION

There is considerable variation in transferable skills provision at Master’s level. While some courses deeply embed the teaching and practice of transferable skills, others courses either offer very little or rely largely on exhortation. Many course organisers were, however, making a conscious effort to improve the provision of transferable skills training and were keen to share good practice.

Here is a rough guide on the extent to which transferable skills are embedded across the departments we spoke to:

A. **Strongly embedded: project and time management.** Imperial students are noted for working hard and time management is inculcated to a large extent on every course. Anecdotal evidence suggests that Imperial graduates also tend towards project management positions in the workplace.

B. **Variably embedded: teamwork, communication, ICT and maths skills.** Maths and ICT skills are part of the curriculum in many courses, though less so in medicine and the life sciences than in engineering and the physical sciences. Communication skills are also a part of all courses to some extent, though many students may require additional help (e.g. with presentation skills). While many courses do group projects and presentations to improve students’ teamwork, often these take place just once and are not embedded throughout the year.

C. **Little embedded: negotiation, leadership and critical thinking skills.** With the exception of the Business School, negotiation and leadership skills are rarely included at Master’s level. However, this may be because such skills are less of a priority for one year Master’s students, since many employers concentrate on core transferable skills and subject competencies, anticipating that other business skills will be picked up as necessary in the workplace later on. On the other hand, critical thinking skills were identified by many course organisers as being very important, particularly as many students with degrees in science-based subjects would not have had the opportunity to develop these skills very far at undergraduate level. At the moment critical thinking skills are generally not thoroughly embedded.
Table A: Existing provision of transferable skills at Master’s level (January 2012)

<table>
<thead>
<tr>
<th>Skill</th>
<th>How Taught</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Project and time management proficiency</strong></td>
<td>This skill is perhaps the most embedded of all, with every course inculcating it to some extent by means of frequent tight deadlines and individual research projects. The Graduate School also runs a course in time management for MRes and PhD students.</td>
</tr>
<tr>
<td><strong>Teamwork skills</strong></td>
<td>Teamwork skills are frequently embedded in the curriculum through the means of group projects, which are often assessed towards the degree. The Graduate School runs a MasterClass in Interpersonal Skills.</td>
</tr>
<tr>
<td><strong>A consideration of others in their workplace</strong></td>
<td>This skill is often embedded in the curriculum, particularly in courses where laboratory and field work is required. The MasterClass in Interpersonal Skills and the Myers Briggs workshop cover aspects of this skill.</td>
</tr>
<tr>
<td><strong>ICT skills</strong></td>
<td>The provision of ICT skills training is patchy. Many courses require their students to use particular software programmes and to carry out computer modelling, and it is expected that students will, for example, word process their reports. However, students may not necessarily have to use common workplace software such as Excel during their course, and there is no training offered in this.</td>
</tr>
<tr>
<td><strong>Maths/Statistics skills</strong></td>
<td>Again, the provision of maths skills training is patchy. Many students in maths and physical sciences courses will already have strong mathematical backgrounds, but anecdotal evidence suggests that students in the life sciences and medicine sometimes struggle with the statistical analysis involved, something which is not always addressed specifically enough by the centrally provided statistics courses. Some courses offer their own statistics training, provided by external specialists. The Business School runs a basic maths test on many of its courses and students who fail are given extra help. The BEPS (Business, Engineering and Physical Science) programme runs two basic courses in statistics (Stats from Scratch &amp; Stats for Research). The HLSM programme runs courses for MRes students (Introduction to Regression Modelling; Introduction to Statistical Thinking and Introduction to Statistics Using SPSS).</td>
</tr>
<tr>
<td><strong>The ability to be articulate, both orally and in writing, to lay and specialist audiences</strong></td>
<td>This skill is frequently embedded in Master’s courses by means of feedback on coursework, project work, and oral presentations. However, technical writing and presentation skills are also taught on Graduate School courses aimed at students who feel that they need more assistance.</td>
</tr>
<tr>
<td><strong>An understanding of risk, uncertainty, failure and success</strong></td>
<td>This is not taught centrally but is embedded subtly in the research project component of many courses, where students have to take these factors into account in planning and executing their projects. It is taught more formally in the Business School, particularly on courses covering financial modelling and the theories and principles of economics.</td>
</tr>
<tr>
<td><strong>An appreciation of cost and value</strong></td>
<td>This is not taught centrally, but is embedded in many courses run by the Business School and by the Faculty of Engineering, where students often have to cost projects in a way that they would do so in industry. In Medicine and Natural Sciences, however, this is not really embedded in the curriculum.</td>
</tr>
<tr>
<td><strong>The capacity for attentive exchange, informed persuasive argument and reasoning</strong></td>
<td>This skill is not usually embedded in the curriculum, although some courses encourage it by means of debate and seminars. It is partly covered in the Assertiveness and Myers Briggs Graduate School courses and in the Interpersonal Skills and Negotiating Skills MasterClasses.</td>
</tr>
<tr>
<td><strong>Leadership skills</strong></td>
<td>Leadership skills are seldom taught, and these are something that many course organisers believe should be acquired in the workplace.</td>
</tr>
<tr>
<td><strong>Networking and negotiating skills</strong></td>
<td>Apart from in the Business School, these skills are not really embedded in the curriculum, with seminars and talks from industrial representatives being the main way in which students get the chance to network. Negotiating and networking skills are taught in Graduate School MasterClasses, but are not generally taught on any level in Master’s courses themselves apart from in a subtle way through group work.</td>
</tr>
</tbody>
</table>
5. KEY ISSUES WITH EXISTING PROVISION

A. Variation between pure and applied subjects. Courses geared towards applied skills and knowledge for employment in specific sectors (e.g. MSc Petroleum Science and MSc Integrated Pest Management) were generally much more oriented towards transferable skills provision than pure subject courses (e.g. MSc Pure Mathematics). Organisers of these applied courses had strong links with industry, knew exactly what skills employers wanted, and built these into the curriculum. A good example is the MSc in Petroleum Geoscience, where students are taught to use industry-standard hardware and software on field trips based around industrial-style team projects. On the other hand, pure subject courses without an obvious employment sector tended to focus more or less exclusively on core subject competencies.

B. Transferable skill requirements depend on education history. This particularly applies to non-native English speakers who can often find higher order communication skills more challenging. Another key area of difference is where students have been educated in systems focused on memory and learning by rote, with less attention to critical thinking and teamwork. In addition, some undergraduate courses in science and engineering have traditionally lacked group work and discursive elements. It was also thought that refresher classes in basic maths and statistics would be useful for students coming into a course after a period in industry, though in general these students tend to have better transferable skills.

C. Little time available for transferable skills. It is likely that some courses rely too much on telling students that transferable skills are important but leaving them to develop them in their own time, rather than making serious attempts to embed transferable skills in the curriculum and have students learn them in context. As the good practice section of this document shows, there are ways of embedding transferable skills that support the main academic aims of the course, not distract from them.

D. Students focus more on skills if they are assessed. Students will naturally tend to focus on the skills which most obviously help them to succeed in their course, such as academic writing. This is clearly indicated by the pie chart below, which shows that 55% of Graduate School courses attended by Master’s students in 2010-11 were about written or technical skills. This is not an irrational approach for students to take, and so it has been suggested that any skills which represent an important graduate attribute relating to the course should be included in the assessment methods.

![Pie Chart showing distribution of skills](chart.png)

- Written Communication, 39%
- Technical, 10%
- Business, 17%
- Careers, 12%
- Oral Communication, 6%
- Science in Context & Ethics, 4%
- Personal Development, 12%
6. GRADUATE SCHOOL PROVISION

Currently the Graduate School runs a large selection of transferable skills courses (full details in Appendix 3). These are aimed mainly at postgraduate research students, but many are also open to Master’s students. In addition to these, the Graduate School offers a “MasterClass” programme to all Master’s students. This consists of a series of stand-alone 90-minute lectures (including Q&A) on a number of topics designed specifically to meet the needs of Master’s students, such as writing and communication skills, reference management and career development. They usually take place on Wednesday lunchtimes during term-time.

The numbers of Master’s students from each department who attended one or more Graduate School courses in the 2010-11 academic year are shown in the following table. Attendances in Chemical Engineering and the Energy Futures Lab are particularly high because BEPS arranges training sessions specifically for their MSc courses, while Earth Science & Engineering and Materials are among those with very low participation rates. However, the information in this table should be viewed with care. Departments may have low participation rates because they embed a lot of transferable skills provision within their curriculum, arrange sessions separately with external trainers, have timetabling clashes, have many students not based at South Kensington, or because of the old GSEPS/GSLSM divide; it is not necessarily the case that they are less interested in transferable skills provision for their students.

Table B: Attendance on centrally held transferable skill courses (2010-11)

<table>
<thead>
<tr>
<th>Department</th>
<th>Number of individual Master's students attending one or more courses</th>
<th>Total number of Master's students in department</th>
<th>Attendance percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chemical Engineering</td>
<td>76</td>
<td>77</td>
<td>99%</td>
</tr>
<tr>
<td>Energy Futures Lab</td>
<td>41</td>
<td>43</td>
<td>95%</td>
</tr>
<tr>
<td>Cell &amp; Molecular Biology</td>
<td>17</td>
<td>19</td>
<td>89%</td>
</tr>
<tr>
<td>Chemistry</td>
<td>36</td>
<td>42</td>
<td>86%</td>
</tr>
<tr>
<td>Centre for Environmental Policy</td>
<td>64</td>
<td>143</td>
<td>45%</td>
</tr>
<tr>
<td>Surgery &amp; Cancer</td>
<td>33</td>
<td>82</td>
<td>40%</td>
</tr>
<tr>
<td>NHLI</td>
<td>12</td>
<td>31</td>
<td>39%</td>
</tr>
<tr>
<td>Molecular Biology</td>
<td>7</td>
<td>19</td>
<td>37%</td>
</tr>
<tr>
<td>Physics</td>
<td>40</td>
<td>112</td>
<td>36%</td>
</tr>
<tr>
<td>Electrical Engineering</td>
<td>35</td>
<td>103</td>
<td>34%</td>
</tr>
<tr>
<td>Bioengineering</td>
<td>23</td>
<td>72</td>
<td>32%</td>
</tr>
<tr>
<td>Computing</td>
<td>41</td>
<td>158</td>
<td>26%</td>
</tr>
<tr>
<td>Civil Engineering</td>
<td>51</td>
<td>216</td>
<td>24%</td>
</tr>
<tr>
<td>Mechanical Engineering</td>
<td>20</td>
<td>111</td>
<td>18%</td>
</tr>
<tr>
<td>Mathematics</td>
<td>10</td>
<td>81</td>
<td>12%</td>
</tr>
<tr>
<td>Biology</td>
<td>11</td>
<td>158</td>
<td>7%</td>
</tr>
<tr>
<td>Business School</td>
<td>32</td>
<td>572</td>
<td>6%</td>
</tr>
<tr>
<td>Aeronautics</td>
<td>3</td>
<td>61</td>
<td>5%</td>
</tr>
<tr>
<td>Earth Science &amp; Engineering</td>
<td>7</td>
<td>144</td>
<td>5%</td>
</tr>
<tr>
<td>School of Public Health</td>
<td>3</td>
<td>72</td>
<td>4%</td>
</tr>
<tr>
<td>Medicine</td>
<td>5</td>
<td>134</td>
<td>4%</td>
</tr>
<tr>
<td>Humanities</td>
<td>4</td>
<td>115</td>
<td>3%</td>
</tr>
<tr>
<td>Materials</td>
<td>0</td>
<td>8</td>
<td>0%</td>
</tr>
</tbody>
</table>
The key points made by course organisers concerning the Graduate School’s provision of transferable skills training were:

A. **Quality is good, but there is overlap** – students generally say that the courses are interesting and helpful, though a few have complained that it is not made clear that some material is repeated in each of the different writing courses. However, the courses are evidently performing a valuable role.

B. **Timetabling clashes** – the packed timetables of most Master’s courses mean that many students are unable to attend central transferable skills courses without missing vital lectures or seminars. Suggestions for improving this include scheduling classes in the evenings and at weekends, scheduling more classes over the summer when Master’s students are doing their research projects and consequently have more unscheduled time, and putting more of the course materials online so that courses can be shorter and more focused.

C. **Lack of visibility / understanding** – a couple of course organisers thought that the Graduate School courses were open only to PhD students, and another was confused about the differing College and local requirements for Master’s students to attend transferable skills courses. It is apparent that the courses could be advertised better and that the website could be made clearer.

7. **CAREERS ADVISORY SERVICE**

The Careers Service offers an extensive range of tailored careers talks and sessions for individual Master’s programmes, such as “Career Speed Dating for Mathematicians” and “Careers for International Students”. Some of these courses are run at the Hammersmith and Silwood Park campuses, reaching out to students who might not have been able to attend South Kensington based sessions; full details can be found in Appendix 4. The Careers Service also works with the Graduate School in running MasterClasses focused specifically on the careers needs of Master’s students.

It is worth noting that Master’s students are heavy users of the Careers Service’s centrally organised programme and services. Last year:

- 30% of attendees at career adviser led seminars and workshops were PGTs
- 33% of attendees at employer led lunchtime careers talks, the employer led skills programme, and careers forum sessions were PGTs
- 22% of attendees at careers fairs were PGTs
- 23.5% of one-to-one contacts were with Master’s students

Although Master’s students use the Careers Advisory Service extensively, there is potentially room for more departmental engagement for some courses.

8. **LIBRARY**

The Library also offers courses in transferable skills such as writing literature reviews, reading and note-taking, presentation skills, and intelligent use of the internet. Specific courses in databases such as ProQuest and reference management software such as EndNote are also provided. It was generally agreed that these courses were useful and a valuable resource.
9. LESSONS LEARNED AND GOOD PRACTICE

The key lesson learned is the importance of embedding transferable skills in the curriculum and continually reinforcing them; the MSc Petroleum Geoscience and the MSc Sustainable Energy Futures performed particularly well in this respect. A “one-shot” approach to transferable skills is not likely to work, and nor is a lecture approach where students are told that particular skills are important; there needs to be some “learning by doing”. Here are examples of good practice:

A. Industry-style projects > teamwork skills
   - On the MSc Sustainable Energy Futures, students who have done research projects in similar areas are put into groups of 4-6 and have to put together a single half-hour presentation on all their work for a non-specialist audience.
   - On several of the Life Sciences MSc courses at Silwood Park, four three-day workshops are held where students work in groups of 4 to create and present a fully-costed solution to a consultancy problem.

B. Workshops and debating sessions > critical thinking skills
   - On the MSc Science Communication, students are taught in small group workshops rather than in lectures, which gives them much more opportunity for discussion and debate and hence enhances their critical thinking skills.
   - The MSc Sustainable Energy Futures runs a debating society where students are split arbitrarily into teams and have to present an argument together.

C. Careers sessions > how and where to apply
   - The Master of Public Health builds careers sessions into the course, inviting distinguished senior public health professionals to come and talk about their careers.
   - The course organisers of some smaller courses, e.g. MSc Shock Physics, have a large number of industrial contacts and can often put students interested in a particular company in touch with someone already working there.

D. Product pitching > communication skills
   - An undergraduate degree module in Mechanical Engineering asks students to test the performance of an industrial fan and then write up the results into a report for the advertising department of their fictitious company, a non-specialist audience.

E. E-learning > easily accessible support
   - The Business School runs an online plagiarism course and test which students are required to complete and pass before the start of their course, easing the pressure on students by reducing the amount of work in the very busy first few weeks of term.

Case Study: The Barrel Award
The MSc in Petroleum Geoscience runs a “Barrel Award” every year. Students are split into groups of 6-7 which are deliberately picked to be as diverse as possible. They work on an industry-style project for 4-5 weeks, at the end of which they submit a report and give a 25-minute presentation pitch to a panel made up of leading industrial employers. The concept was adopted by the American Association of Petroleum Geologists (AAPG), which in 2007 launched the “Imperial Barrel Award”, an annual competition in which postgraduate students from around the world take part. This provides excellent publicity for the College, both from the name of the award and from the publicity material sent to participating universities, which states that the “Barrel Award” has been part of the MSc in Petroleum Geoscience at Imperial College since 1976 and that the AAPG competition remains true to the original concepts pioneered by Imperial.
Examples of good practice at other institutions:

- The University of Cambridge has a central online booking system which brings together training courses run across the university by different providers in different venues: [http://training.cam.ac.uk/](http://training.cam.ac.uk/).
- The Cambridge University Skills Portal ([http://skills.cam.ac.uk/](http://skills.cam.ac.uk/)) has different sections for undergraduates, postgraduates, research staff (including post-docs), and university staff, each of which outlines the importance of transferable skills and links to the training booking system and to various online courses.
- UCL has created the Bloomsbury Postgraduate Skills Network, a group of HE institutions in the area around UCL which share best practice in skills training for graduate research students ([http://courses.grad.ucl.ac.uk/bpsn.pht](http://courses.grad.ucl.ac.uk/bpsn.pht)); this network allows students additional opportunities for skills training through attending training courses and workshops at other member institutions.

10. RECOMMENDATIONS

As a general principle, transferable skills are most effectively imparted when embedded and reinforced in the curriculum. The role of central provision is to complement what happens on the course: to top up, to enhance, and to provide extra support where it is needed or where a particular skill is best taught initially by an expert. It is therefore vital that central provision is as flexible, as responsive to students’ needs, and as visible as possible.

A. Priority:
   1. The priority areas for transferable skills provision should be critical thinking and the deeper embedding of teamwork projects involving communication and presentation skills.

B. Consider:
   2. If there is a need for a particular focus on pure subjects, and how these can be better supported in terms of transferable skills provision.
   3. The timetabling of centrally provided courses, to see if they can be timetabled at evenings, lunchtimes, or less busy periods of the year.
   4. The current course provision, to see if more can be offered to support specific student needs in areas such as statistics, critical thinking, and English language for non-native speakers.
   5. The advertising and packaging of central provision, particularly ways of making the lengthy list of courses available easier to understand.
   6. The current e-learning provision, to see if providing more “blended learning” would be possible and useful.

C. Encourage:
   7. The sharing of good practice, perhaps through a routine dissemination of good practice reports from Graduate School committees based on Master’s course reviews and feedback from surveys.
   8. Course organisers to consider whether transferable skills should be included in the assessment criteria and to look for further ways of embedding.
   9. Course organisers to work with the Careers Advisory Service.

If the implementation of these recommendations results in increased demand for Graduate School courses, there may be a need to provide more courses in the future.
APPENDIX 1 – GRADUATE ATTRIBUTES

(a) Imperial College graduates should be individuals who:

• are exceptionally well educated in their field
• are independent learners and critical thinkers
• are able to retrieve, analyse and assimilate complex information
• are able to manage complexity and ambiguity
• have good communication skills
• have critical judgment
• know their personal impact and how it can contribute most effectively in the workplace

(b) In addition to discipline-specific education and training, the College should provide an education that enables students to:

• have a good general knowledge and understanding of the sciences, including mathematics, and an awareness of the major global scientific challenges
• understand how individuals from different disciplines approach and solve problems
• understand the societal, ethical and commercial context in which they operate
• have business awareness and, where relevant, industrial or commercial experience
• be enterprising and open to the value of entrepreneurship
• show integrity and honesty in their professional activities

(c) Imperial students should also be able to demonstrate:

• the ability to be articulate, both orally and in writing, to lay and specialist audiences
• the capacity for attentive exchange, informed persuasive argument and reasoning
• teamwork and leadership skills
• an appreciation of cost and value
• an understanding of risk, uncertainty, failure and success
• networking and negotiating skills
• project and time management proficiency
• a consideration of others in their workplace
APPENDIX 2 – A POSSIBLE APPROACH TO IMPLEMENTATION

1. **Identify priorities** – What skills add value to the students on our course? What skills do we need to focus on?

2. **Embed** – How can we incorporate these skills into the curriculum? Can we teach ourselves or do we need outside input? What good practice can we use from elsewhere?

3. **Apply** – How can we ensure that students have opportunities to apply and reinforce these skills within the course structure?

4. **Assess** – How can we ensure that students are incentivised to take skills seriously?
APPENDIX 3 – GRADUATE SCHOOL TRANSFERABLE SKILLS COURSES

The Graduate School offers a “MasterClass” programme to all Master’s students. This consists of a series of stand-alone 90-minute lectures (including Q&A) on a number of topics designed specifically to meet the needs of Master’s-level students. They usually take place on Wednesday lunchtimes during term-time, and the topics covered in the 2011-12 academic year are:

- Academic Writing
- Developing your Career through Networking
- Informational Posters – Layout & Design
- Interpersonal Skills
- Interview Skills
- Job Search with a Difference
- Negotiating Skills
- Note-Taking and Efficient Reading
- Preparing and Writing a Literature Review
- Research Skills and Reference Management
- Stress Management

In addition to these, the Graduate School also offers a range of courses designed for research students. These are aimed primarily at PhD students, but many are also open to students on MRes courses, including:

<table>
<thead>
<tr>
<th>Course</th>
<th>Open to Humanities, Life Sciences and Medicine MRes Students</th>
<th>Open to Business, Engineering and Physical Sciences MRes Students</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Personal Effectiveness</strong></td>
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<tr>
<td>Assertiveness</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Creativity &amp; Ideas Generation</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Myers Briggs: Introduction</td>
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<td>Yes</td>
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<tr>
<td>Myers Briggs: Careers</td>
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<tr>
<td>Myers Briggs: Personality &amp; Communication</td>
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<td>Yes</td>
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<tr>
<td>Networking</td>
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<td>Yes</td>
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<tr>
<td>Time Management</td>
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<tr>
<td><strong>Presentation Skills</strong></td>
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<tr>
<td>Advanced Presentation Skills</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Blogs, Twitter, Wikis &amp; Other Web-Based Tools</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Effective Poster Presentations</td>
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<tr>
<td>Presentation Skills Half-Day Workshop</td>
<td>Yes</td>
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<tr>
<td>Presenting: Developing Natural Ability</td>
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<tr>
<td>Science Blogging</td>
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<td>Yes</td>
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<tr>
<td>Science &amp; the Media</td>
<td>Yes</td>
<td>No</td>
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<td>2</td>
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<tr>
<td>Technical Presentations</td>
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<tr>
<td>Fishbowl</td>
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<td>Yes</td>
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<tr>
<td><strong>Research Effectiveness</strong></td>
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<tr>
<td>Efficient Reading</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Use of Animals in Biomedical Research</td>
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<td>No</td>
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<tr>
<td><strong>Ethics</strong></td>
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<tr>
<td>Science, Research &amp; Integrity</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td><strong>Statistics</strong></td>
<td></td>
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<tr>
<td>Introduction to Regression Modelling</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Introduction to Statistics using SPSS</td>
<td>Yes</td>
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<tr>
<td>Introduction to Statistical Thinking</td>
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<tr>
<td>Stats from Scratch: An Introduction to Statistics</td>
<td>No</td>
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<tr>
<td>Stats from Scratch: Intermediate Statistics</td>
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<tr>
<td><strong>Writing Skills</strong></td>
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<td>Academic Writing Skills</td>
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<tr>
<td>Reviewing the Literature for your Introduction</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Tackling a Literature Review</td>
<td>No</td>
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<tr>
<td>Technical Writing Two-Hour Workshop</td>
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<td>Technical Writing Lecture Series</td>
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<tr>
<td><strong>Business &amp; Commercialisation Skills</strong></td>
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<tr>
<td>Discovering Entrepreneurship and Innovation</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Intellectual Property &amp; its Importance to Researchers</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Introduction to Business Ethics</td>
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<td>Yes</td>
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<td>Introduction to Business: An Integrative Case Study (Google)</td>
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<td>Introduction to Business: An Integrative Case Study (Apple)</td>
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<td><strong>Mini MBA Programme</strong></td>
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<td>Introduction to Business: Accounting</td>
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<tr>
<td>Introduction to Business: Entrepreneurship</td>
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<td>Course Title</td>
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<tr>
<td>Introduction to Business: Marketing</td>
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<td>Yes</td>
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<tr>
<td>Introduction to Business: Organisations</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Introduction to Business: Strategy</td>
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<td>Yes</td>
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<tr>
<td><strong>Information Skills</strong></td>
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<td>EndNote</td>
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<td>Information Retrieval</td>
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<tr>
<td>The Information Landscape: Introducing ISI Web of Knowledge</td>
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<tr>
<td>The Information Landscape: Keeping Ahead in the Information Game</td>
<td>Yes</td>
<td>Yes</td>
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<td>Reference Manager</td>
<td>Yes</td>
<td>No</td>
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<td><strong>Careers</strong></td>
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<td>Interview Practice with Video Playback</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Understanding Competencies: the Importance of Behaviour for Superior Performance</td>
<td>Yes</td>
<td>Yes</td>
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<td><strong>Science in Context</strong></td>
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<tr>
<td>Science in Context: Science Communication</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Science in Context: Science &amp; Politics</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>Science in Context: Philosophy of Science for Scientists</td>
<td>Yes</td>
<td>Yes</td>
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</tbody>
</table>

The following online courses are open to all postgraduate students:

- Attending Conferences, Presenting and Networking
- Career Planning in the Sciences
- Ethics: Good Research Practice
- Getting Published in the Sciences
- Intellectual Property in the Research Context
- Project Management in the Research Context
APPENDIX 4 – CAREERS SERVICE INVOLVEMENT WITH MASTER’S COURSES

MSc sessions last year and this year:

Faculty of Engineering

Aeronautics
- MSc Computational/Composite Materials – November

Chemical Engineering
- MSc Chemical Engineering – Careers for International Students – (also with International Office)

Civil Engineering
- MSc Civil Engineering – Intro to Careers (with the International Office)
- Civil Engineering MScs are also encouraged to come to the Interview & Application sessions that we do for final year MEng students

Earth Science and Engineering:
- 1 introduction to Careers Service and producing professional CV to all (140) (repeated 21 October 2011)
- Talk as part of an event organised by the Society of Petroleum Engineers Young Professionals about employers’ expectations and employability skills needed in this sector; also contributed to event - running assessment centre and CV feedback sessions

Electrical and Electronic Engineering
- MSc EEE department
  o 2011 Job Hunting and CVs (2 sessions)
  o 2010 Job Hunting and CVs (2 sessions)

Energy Futures Lab
- MSc Energy Futures – Careers, Energy Futures

Mechanical Engineering
- MSc Mechanical Engineering – Careers

Faculty of Medicine
- MSc Neuroscience at HH – all MScs – 8 October 2010
- MSc Human Molecular Genetics, at HH – all MScs – 19 November 2010
- MSc Immunology at HH – all MScs – 25 November 2010
- MSc Molecular Biology and Pathology of Viruses at St Mary’s – all MScs
- Hammersmith - Talk on interviews (lunch-time) – open to MSc and PhDs
- Charing Cross - Talk on CVs, applications (lunch-time)open to all MSc & MRes
- Talk at Research symposium – Dept of Surgery and Cancer, mainly PhDs at SK
- MRes Integrative Neuroscience at HH – all MScs – October 2011
- MSc Human Molecular Genetics, at HH – all MScs –November 2011
- MSc Immunology at HH – all MScs – November 2011
- MSc Molecular Biology and Pathology of Viruses at St Mary’s – all MScs – January 2012

Faculty of Natural Sciences

Centre for Environmental Policy:
- 1 general to all (140) about Introduction to Careers, 3 x specific sessions for individual options groups (4 sessions in total) about employment, skills and CV writing
produced a ten minute introduction to using JobsLive for students on the MSc Environmental Technology on Camtasia;
• one workshop for PhDs in the department
• the above planned again for this year (Camtasia presentation to be emailed out again)

Life Sciences
• Talk at Silwood as part of Careers day for MSc students – 2 February 2011
• Careers guidance interview day at Silwood for MSc and MRes students
• Talk at Silwood as part of Careers day for all MSc students – February 2012 (followed by another day there in March offering appointments)

Mathematics:
• All MSc students are included in activities for final year students
• 1 talk about Careers Service and career planning
• Evening event: Career Speed Dating for Mathematicians (both repeated this year)

Physics
• MSc Physics – November

Humanities
• MSc in Scientific, Technical and Medical Translation with Translation Technology - annual induction talk, CV session and Xing session

Graduate School Master classes Delivered by Careers Advisory Service
• MasterClass on Interviews for GSLSM at Hammersmith Hospital
• MasterClass on Networking for GSLSM at Hammersmith Hospital
• MasterClass on Interview skills for GSEPS