

## STUDENT NEEDS

The expansion of higher education has enabled a larger number of students to attend university courses but those of below average ability may find difficulties in coping academically. This may be exacerbated by difficulties in social adjustment, time management, and work/play balances which might be experienced. University staff make considerable efforts to support such students because: many university missions include an aspiration to develop each student to their maximum potential; students leaving before completion of their degree represent a waste of student time and money invested; there is a waste of university resource in providing the teaching and facilities which the student has consumed without attaining a degree; income to the university is reduced significantly; retention rate may influence university funding, affect position in league tables and affect choices prospective students might make.

The cost of supporting struggling students is considerable and includes the resit examination system as well as extra tutorial provision, counselling, and a variety of interviews to help, cajole, frighten or persuade the student to perform better.

While this is of great assistance to the less able student who is well below the mean in terms of ability, there is a second group of students who are just as far above the mean ability range as the less able student is below it for whom little special provision is made. Generally, these very able students are left to their own devices on the basis that they will be OK and will graduate anyway. They are no trouble and do not cause a loss of income, or reputation, in the university ratings game.

We do not stretch and fully develop these students and this is in conflict with many university mission statements which talk of developing each student to their full potential – not just the less able ones. These very able students may be the lifeblood of our disciplines, making the advances and changes which lay the foundations for wealth creation and development in the future.

Stretching students is not just getting them to learn more facts at undergraduate level, i.e. doing more of the same. It should be about taking them faster to a higher level of knowledge and skills and increasing development of high level graduate skills such as problem solving, critical analysis, innovation, creativity, synthesis of new ideas and integration of ideas across subject boundaries.

It is not immediately obvious how this can be achieved but some possibilities are: streaming according to ability might help but is too staff intensive and it is probably too coarse a technique to fully develop the outstandingly bright student who might represent 1 in 100; it might be possible to include extra optional material in the undergraduate degree and thus give outstanding students the opportunity to obtain a 'starred' degree (as is proposed for 'A' level); a more workable possibility, which copes with the reality that there will be very few really outstanding students in each discipline in each university, revolves around the 'masterclass' concept.

'Masterclasses' would be run on a national basis during vacations. Such 1-5 day courses could be provided by universities, by learned societies, by Higher Education Academy Subject Centres or by industry. Students would be selected to attend on the basis of an application which might include an assessed piece of work and would contribute a small amount to the cost of providing the (highly subsidised) course. A certificate would credit satisfactory completion of the course.

Whatever turns out to be possible we should not just be helping weak students to succeed but we should also be stretching our able students to achieve their full potential. There is more than one way of failing a proportion of students.

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## 2 | HIGH PROFILE ACTIVITY



Three years ago we embarked on an FDTL Phase 4 project entitled PROFILE which aimed to provide the bioscience community with a web-based, electronic-portfolio system for managing work-experience placements. During the three years of development, we tried a variety of approaches, produced a number of versions of the software, and consulted widely to produce a product in which we now feel confident enough to offer to our colleagues in the HE sector.

PROFILE is a secure web-based system that provides students with individual electronic-portfolios; we think there are numerous reasons for you to take up Profile, but here are 12 to get on with (not in any particular order of importance):

### 1. FLEXIBILITY

PROFILE uses a form-based approach to manage how users interact with the system. So, to manage our placements to suit our particular needs, we created a small number of these web-forms to encapsulate that administrative process. If you'd like to use PROFILE to manage your placements but your requirements are different, then that's fine – you just use your own set of forms that represent the way you work! The system does not impose on you what specific forms should be used or even what the forms are being used for. If you want to use the system for monitoring work experience or Personal Development Planning (PDP), again that's fine. We have even converted the paper-based portfolio of a professional body that oversees part of the training of our students, with the PROFILE version 'adding value' through the features below. In theory, just about any administrative task that involves completing forms (and what doesn't?) can be emulated by PROFILE.

### 2. LIFELONG ACCESS

Because PROFILE is not delivered via a commercial VLE (Virtual Learning Environment), the users do not need to be wiped from the system when they graduate. This means that they can keep

hold of their e-portfolios and show them to prospective employers, or continue to add to their work as part of CPD (Continuing Professional Development) – ideal for fostering alumni.

### 3. COMMUNICATION AUDIT TRAIL

PROFILE contains a text messaging system whereby tutors, students and work supervisors can communicate with each other asynchronously. All the exchanges are captured and recorded so that these 'conversations' not only provide feedback, but serve as an automatic audit trail.

### 4. SECURE!

The PROFILE e-portfolio 'belongs' to the student and is secure. That is, only the student has access rights to the contents of his/her portfolio, but can 'invite' tutors or work supervisors to view and sign-off (see below) the contents as necessary. The student can even revoke invitations so viewing can be restricted to certain people at certain times.

### 5. UNIQUE WEB-FORM FEATURES

PROFILE handles ordinary web-forms created by applications such as Microsoft FrontPage; however, the PROFILE system offers novel (as far as we are aware) approaches in managing the way these forms are subsequently delivered and filled in. All elements in a form (e.g. checkboxes and textboxes) can be configured to allow only certain types of users to complete them. For instance, on a form the majority of the fields might be set for the student to complete. The rest could then be set so that only the academic tutor or work supervisor is allowed to complete them. We use this feature extensively as an 'electronic sign-off' for students' work (with the onus on the students to 'invite' the tutor or supervisor in to 'sign off' their forms). Because the tutor or supervisor has a separate login this sign off cannot be 'forged' and can serve as a way of authenticating the work as being performed by the student.

### 6. ELECTRONIC PAPER-CLIP

A very useful feature which our program allows is for individuals to 'attach' electronic files to their forms. So for instance, if you want a student to upload a file in support of something claimed in a form they can do this easily. Any electronic file (Word, Excel, PowerPoint, audio, video, etc.) can be uploaded, with the link to the file automatically appearing on the form.

### 7. AUTOMATED EMAILS AND REPORTING

If you want to use PROFILE to track student learning remotely and have a number of students in your charge, you wouldn't want to have to constantly logon to check up on their progress. To avoid this, PROFILE has an automated system whereby emails are fired off to all those with access to a particular portfolio to indicate a certain level of activity. For instance, when a student writes a message in the communication part of PROFILE or uploads a file, an automated email is sent to the tutor containing a hyperlink to that message or file. In this way, the tutor does not even have to log on as the link takes him/her straight there (the link only works once for security reasons).

### 8. YOU'RE IN CHARGE!

Once you are set up with your own self-contained, autonomous area on PROFILE you just go ahead and use it. We are heavily into devolved management – you're not waiting for us and we're not being bothered by you! There are no administrative bottlenecks. You manage your list of users through a simple Excel spreadsheet and you control what web-forms (and 'ordinary' web pages) are mounted on the system for your users to access and interact with.

### 9. HELP IS AT HAND

Although PROFILE is very simple to manage, you are given support through

online help (profile@uwe.ac.uk) and through tutorials and instructions on the website.

### 10. START USING PROFILE NOW!

Profile is fully operational (this will be the third year we have been using it with our students) and can be used almost immediately. It is proved highly stable, robust and scalable.

### 11. IT'S FREE!

Did we mention that using PROFILE is free?! For this reason alone it should appeal to your Resource Managers. All products arising from FDTL-funded projects are made available free to HEIs under the terms of HEFCE.

### 12. IT'S BETTER THAN FREE!

What could be better than free? Well, we can help you produce the forms needed for PROFILE. If you have your current forms in Word and can produce web-forms using Microsoft FrontPage, Macromedia Dreamweaver and the like, then you just produce the web-forms and upload them. If you don't know how to use html editors we can provide tutorials or even convert the forms for you. Of course, our resources are not limitless! The scale of our assistance in producing web-forms may be limited by demand.

If you would like to know more about PROFILE e-portfolios, then contact profile@uwe.ac.uk and we can arrange a meeting or demonstration. You can view some help pages on [www.profile.ac.uk](http://www.profile.ac.uk) and there is even a Personal Development Planning (PDP) link on the Profile homepage if you are interested in how Profile can be used to support PDP.

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# EDUCATION FOR SUSTAINABLE DEVELOPMENT

What is sustainable development? The World Commission Report "Our Common Future", commonly known as the Brundtland report, defined sustainable development (SD) as: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs".

With the recent publication of the UK Government's sustainable development strategy "Securing the Future", in which education plays an important role, and the DfES sustainable development action plan for Education and Skills, in which HEFCE has noted that it will "signal to the university sector that ESD requires development" SD is becoming an issue for Higher Education (HE).

The Centre for Bioscience recently conducted two surveys of SD and Education for Sustainable Development (ESD) in the biosciences in both HE and the employment sector. Our aim was to establish a baseline of knowledge of, and practice of, ESD in bioscience departments and to inform the Centre for the planning of future activity in ESD.

The URL for the on-line survey was sent to our bioscience representatives, thirty-three completed the survey and respondents were from a wide range of departments including: Biological Sciences, Agriculture, Anatomy, Biomolecular Sciences, Pharmacology, Plant Sciences, Physiology, Life Sciences and Food Sciences.

In the HE sector 73% of those who responded had a good understanding of the term "sustainable development" and 82% thought that it was "very important" or "quite important" for young people to have an understanding of SD (Figure 1). 80% thought that HE had a role to play in developing societal understanding of SD.

Respondents thought that HE could contribute to the understanding of SD in a variety of ways:

- "Two routes; firstly education, secondly research"
- "Create awareness of the problems"
- "Setting a model of practice as an organisation"
- "Contextualise and integrate SD with existing subject material"

However, while 43% of respondents believed SD should be a compulsory part of curricula, there were a greater number of respondents (51%) who were unsure or positively against its compulsory inclusion. Some respondents suggested that HE could contribute to a greater understanding of SD through good practice over both whole institutions and within departments. But only a fifth of respondents were aware of an institutional strategy for SD and nearly half of institutions had no strategy in place.

The majority of respondents believed that ESD was relevant to their discipline, but some respondents saw SD as totally unrelated to their subject:

- "Sustainable development is not an issue for students in pharmacology"
- "In my particular area of Biochemistry I do not see how SD can be easily applied"

23% of respondents thought that all graduates ought to have a general awareness of SD issues and could be included as part of the "general education aspects" of a degree:

- "It should be integrated into all courses, not just biosciences"



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- “Graduates are likely to be opinion formers of the future, they should be aware of the issues and repercussions”
- “We must at least ask the question as to what impact this or that activity has or could have on SD. This will get trainees/students at least thinking along the right lines.”

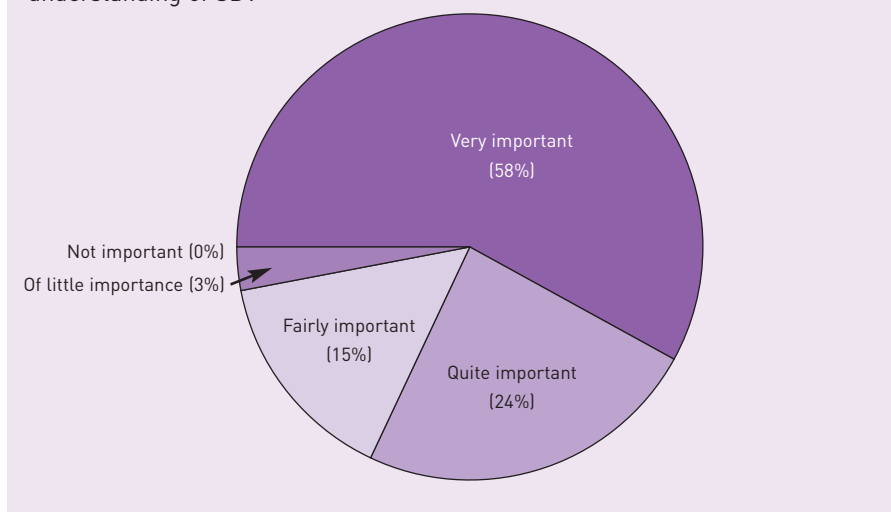
A wide variety of SD issues were already being taught on a number of courses, either integrated into modules or as specific SD modules. Where SD was not already taught broad themes, such as environmental, social and economic aspects were suggested for inclusion in curricula. Other departments within some respondents' institutions were known to be teaching SD and over half of respondents said that they would consider, or are at present, using staff from other departments to teach SD to bioscience students.

Over half of the respondents felt that they and their colleagues had the knowledge and skills to teach SD. Yet one of the biggest barriers to teaching SD was seen to be staff knowledge. Training or resources for staff were suggested as a way of increasing teaching, but only a fifth of respondents used, or were aware of, specific SD learning resources. Other barriers seen to be preventing SD teaching were an already full curriculum and budget constraints.

The second questionnaire was sent to a range of companies or organisations that employ bioscience graduates, in order to gauge their opinions on SD. Responses were received from seven organisations and respondents had a wide range of job titles, including research scientist, business manager and HR advisor.

86% of respondents said their company had a policy or position statement relating to SD and 71% of those surveyed thought that it was “very important” or “quite important” for the graduates they employed to have a broad understanding of the concept of SD. Employers suggested that knowledge of national and international SD issues and key and current SD issues would be useful for graduates to have. All respondents thought that in the future graduates would need specific skills / knowledge

**Figure 1** How important do you think it is for young people to have some understanding of SD?



in relation to SD and 71% stated that employing graduates with a good understanding of SD would improve their efficiency, competitiveness or effectiveness.

Of the companies surveyed, 86% provided in-house training for their employees about SD, in most cases this training was for specific issues related to the company.

The full ESD and SD in the biosciences report is available at: <ftp://www.bioscience.heacademy.ac.uk/esd/esdreport.pdf>

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 Securing the future – The UK Government Sustainable Development Strategy. See: <http://www.sustainable-development.gov.uk/publications/uk-strategy/uk-strategy-2005.htm>  
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(All accessed 22/4/05)

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**THE CHANCE FOR YOUR STUDENTS TO WIN £250**

“How does the experience of your course compare with any expectations you may have had?”

The competition is open to all UK HE students (postgraduate and undergraduate) studying for a degree in a pure or applied bioscience. The winning entry will receive £250 and will be submitted into the Higher Education Academy competition, with the chance of winning first prize of a laptop computer.

The winning and shortlisted entries will be published on the Centre’s website.

Further information, including criteria, guidelines for the essay, and an electronic application form (on which all essays must be submitted) are available from: <http://www.bioscience.heacademy.ac.uk/opportunities/essay06.htm>

**Closing date for entries – 17th February 2006**



# WHAT MAKES THE BEST LEARNING EXPERIENCE FOR YOU?

This was the question posed by the Centre for Bioscience's first Student Essay Competition 2005. The competition was open to all UK undergraduates studying for a degree in pure or applied biological sciences and invited students to submit their opinions and experiences in a 500-1000 word essay. In total, thirty-one entries were received from seventeen institutions. The short-listed entries are available to download as pdfs from the Centre's website (see <http://www.bioscience.heacademy.ac.uk/publications/essay.htm>).

Essays were judged according to the following criteria and should have:

- included the attributes as to what makes the best learning experience for a degree in a pure or applied biological science
- provided perceptive observations and helpful ideas (to bioscience teaching staff)
- been entertaining and interesting to read
- been well written in terms of structure, grammar and spelling

The winning contribution was submitted by Jessica Haglington (see below), a second year Biologist at the University of Exeter. Jessica's success was based on a recipe for good teaching which started with: "Take one cup of experience, mix with a big dollop of enthusiasm and stir with a well-humoured lecturer...". The judges felt that Jessica had encapsulated the key features of the learning process in her 'recipe for success'. The essays were intended as a useful resource for bioscience academics. Dr Chris Willmott in his communication to the BEE-j, Volume 5 (<http://www.bioscience.heacademy.ac.uk/journal/vol5/beej-5-c1.htm>) discusses the common themes raised by the students. Extracts from this are quoted below:

What were the main points raised by the students? Several concerned what we might consider as "the attributes of the lecturer". Foremost amongst these was enthusiasm, sometimes identified as "passion" or "excitement". When it is present, the effect can be positive; as Haglington put it "If a lecturer is truly passionate about their subject it becomes infectious, and can spread through a class faster than MRSA through the NHS!" Conversely, an apparent absence of interest in one's own subject leaves the class demotivated; how can students be inspired, argues Gemma Cook, in another shortlisted entry, if lecturers do not seem to be inspired themselves? "Anyone scared of being labelled a geek will certainly not want to look further into a topic that even the lecturer appears to find boring" added Rebecca Nesbit.

Hot on the heels of enthusiasm, students warm to judicious use of humour. This is not to say that all lecturers should be as versed in the skills of the stand-up comic as they are in, say, the central dogma of molecular biology, but a timely pun or aside reminds the students that their teachers are, in fact, human too. This brings us to a third attribute identified by the contributors, approachability. A smile in the corridor that marks the fact that you recognise someone as being in your class, even if you cannot name them; taking time in the practical class to talk to the students rather than the other demonstrators; a willingness to help when asked, without giving the clear impression that you had several thousand more pressing engagements — all of these can serve to help students maintain their interest in the process of learning. "When lecturers are friendly and approachable and make sincere efforts to make themselves available for queries and problems, despite their pressing schedule, my appreciation for what they teach tends to grow" commented Nataly Petrou.

There were, inevitably, a few disagreements between our contributors. Most striking amongst these was a difference in opinion over whether lecturers should or should not target questions directly at individual students during a lecture. For some, the fear of this event served to sharpen the mind and to focus their attention. For others, however, that very same fear was a distraction. Gemma Cook speaks of the 'emotional safety' of knowing that you will not be picked on to answer questions, of "not having to expose your lack of understanding to a hundred intellectuals".

As a subject winner, Jessica's essay was entered for the overall Higher Education Academy Student Awards. We are pleased to say that Jessica beat the winning essays from seventeen other subject centres to become the overall winner and was presented with her prize – a laptop kindly provided by Toshiba – at the Academy's Annual Conference.

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Overall winner Jessica Haglington (middle) with Professor Ed Wood, Co-Director, Centre for Bioscience (left) and Richard Williams, Higher and Further Education Business Development Manager, Toshiba (right)

# 6 NEWS FROM THE CENTRE

The Centre continues to support bioscience teaching and learning in HE. Once again we have

a programme of CPD based around workshops and one-day events. The programme includes events on teaching ethics to bioscience students, fieldwork and feedback to students. Further details and registration forms are available from (<http://www.bioscience.heacademy.ac.uk/events/futureeventsbio.asp>). These events are free, open to all and provide an excellent opportunity to meet fellow bioscientists, discuss issues and learn from people working

in the area. An event report is posted on the website soon after each event and this provides a useful collection of information and links to resources on a given topic. ImageBank (see page 12) continues to grow and now has over 3,500 images. BEE-j (Bioscience Education E-journal) has reached its sixth volume, now has a new logo (see left) and continues to publish articles on tertiary-level bioscience education.

The Centre has also produced two new audit tools, both on external examining. (See also page 10 for Prof Wood's article on external examining.) The first audit tool provides a framework to consider the duties and responsibilities of an institution during the external examining process. The second deals with the individual examiner's obligations. These, along with other audit tools are available at <http://www.bioscience.heacademy.ac.uk/resources/Audit.htm>

The Centre's website contains a wealth of information on learning and teaching issues and associated resources. Unfortunately though, as resources grow it can become increasingly difficult to find what you are looking for. To aid navigation we will be making some changes to the website during the next few months. The first of these are already in place and we have put 3 new buttons on the front page. These are for 'New Lecturers', 'Bioscience Representatives' and 'Staff & Educational Developers', by clicking on these buttons users are taken directly to resources suitable for these groups of people.

Each year the Centre offers funding for mini-projects to develop, establish or validate learning, teaching and assessment materials or methods. Earlier in the year the Centre funded projects in the areas of e-learning and entrepreneurship. A general call for mini-projects has been announced, with the funding increased to a maximum of £3000 per project. Criteria and guidelines are available from

(<http://www.bioscience.heacademy.ac.uk/opportunities/tdginfo.htm>). In addition to funding projects for individuals or small groups, the Centre is looking to expand its funding to included departmental awards. The Departmental Teaching Enhancement Scheme (as it will be called) will provide bioscience schools, departments or units with additional funds to develop and implement some aspect of practice that will lead to an improved learning environment for students across their department. The maximum award will be £15,000 with collaborative projects across departments/institutions welcomed. (<http://www.bioscience.heacademy.ac.uk/opportunities/deptgrant.htm>)

The Centre is always interested to hear feedback from the bioscience community and we welcome constructive comments on the website and our other activities.

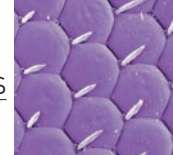
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## DEPARTMENTAL TEACHING ENHANCEMENT SCHEME

The scheme provides bioscience schools and departments with additional funds (up to £15,000) to develop and implement some aspect of practice that will lead to an improved learning experience for students in their department. Collaborative projects across departments/institutions are very welcome. Project funds must be used to effect change across entire department(s) rather than within a single module or one individual's teaching practice.

Deadline for applications: 31 March 2006

Further details: <http://www.bioscience.heacademy.ac.uk/opportunities/deptgrant.htm>



# THE HIGHER EDUCATION ACADEMY

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The Higher Education Academy is just over one year old and an early task has been to plan carefully how it will accomplish its role. In designing future activities to support the enhancement of learning and teaching in the UK it is clear that the Academy has extended its role and scope significantly beyond the specific activities of the three organisations that led to its creation – the Learning and Teaching Support Network (LTSN), The Institute for Learning and Teaching in Higher Education (ILTHE), and the National Co-ordination Team (NCT). Of course, much of the work of these organisations continues and is vital to the success of the Academy. To be successful, the Academy has to ensure that it has a presence and makes a demonstrable impact in Higher Education Institutions (HEIs) in England, Northern Ireland, Scotland and Wales (including further education institutions where higher education is delivered). This is a terrific challenge, and the Academy has developed a strategy and planned activities to address its mission to help institutions, discipline groups and all staff to provide the best possible learning experience for their students.

The Academy recognises that there is a global agenda for 'excellence' in learning and teaching, as well as in research; a recognition that is reflected in the following summary of the Academy strategy:

- Be an authoritative and independent voice on policies that influence student learning experiences
- Support institutions in their strategies for improving the student learning experience
- Lead, support and inform the professional development and recognition of staff in higher education
- Promote good practice in all aspects of support for the student learning experience
- Lead the development of research & evaluation to improve the equality of the student learning experience
- Be a responsive, efficient and accountable organisation

Significantly, this strategy establishes that the Academy is an independent voice in supporting the enhancement of student learning experiences by seeking to influence policy as well as to support HEIs and practitioners in realising policy aims. Similarly, the strategy recognises that it has a vital role to play in championing the scholarship of teaching by promoting research and evaluation in all aspects of student learning.

The Academy's work with higher education institutions and individual practitioners will be realised in different ways and through different forms of engagement. At senior strategic levels, the Academy has established a network of pro vice-chancellors to advise on the best ways in which the Academy can support institutional learning and teaching goals. The Academy will continue to engage colleagues working in nationally funded projects like the FDTL and CETL programmes or colleagues working to support national policy initiatives such as widening participation or employability. Considerable work is also being done in supporting the development of e-learning. The Academy is also leading initiatives to support institutions through the Change Academy which collaborates with the Leadership Foundation to support HEIs through the management of change. Work is also being undertaken in relation to quality enhancement in Scotland and through the analysis of institutional learning and teaching strategies in Wales. Through 2005-6 all UK HEIs will have a named Academy contact to develop further the engagement between the Academy and each individual institution.

Two common questions asked by colleagues are, 'What has happened to the Generic Centre and what are the benefits of the Academy for individual practitioners?'

The work of the Generic Centre has been absorbed into the work of the Academy in York. The resources can still be found on the website (<http://www.heacademy.ac.uk/48.htm>) and new resources continue to be developed. Special interest groups continue to be promoted through networks such as the quality enhancement network. For individual practitioners there is an array of possible ways to engage with the Academy. Colleagues new to teaching (including postgraduates) are likely to undertake an institutional programme in learning and teaching that has been supported by Academy accreditation. For colleagues

pursuing teaching excellence, the Academy supports the National Teaching Fellowship Scheme and all colleagues are able to become Academy registered practitioners, attend the annual learning and teaching conference and participate in practitioner networks. The Academy is also working on the development of a CPD framework to support individual practitioners.

Undoubtedly, the principal support for individual practitioners, however, is through the Academy Subject Centre Network (formerly the LTSN). This network of 24 centres (<http://www.heacademy.ac.uk/SubjectNetwork.htm>) has received glowing praise for its work from an independent, external evaluation and has more than proved the point that colleagues prefer to develop their learning and teaching expertise within the context of their disciplines and professions. Through funding for mini-projects; support for expert seminars; periodical publications and networking, an individual academic can become a member of a vibrant community of practice centred on improving learning and teaching in their discipline.

And finally, individual practitioners can also influence the Academy's work through its governance. There is an Academy Council that includes 16 elected registered practitioners and has the responsibility to determine matters concerned with professional standards and the development of individual practitioners and, overall, there is an Academy Board that includes two registered practitioners. In short, the individual practitioner may draw on Academy resources from the Academy website; may be a registered practitioner with an accredited qualification; may be successful in obtaining an Academy commissioned research grant; may be supported as a National Teaching Fellow; may be supported through negotiated developments taking place in their own institution; may be supported through the variety of activities offered by their Subject Centre, may become a registered practitioner and attend the annual conference and participate in practitioner networks as well as have an influence on the Academy's work through participating in its governance.

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# 8 | A GUIDE TO DEVELOPMENTS IN POSTGRADUATE EDUCATION

Join me for a quick whiz around the latest policy developments and publications in postgraduate education.

## 1) THE NEW CODE OF PRACTICE FOR RESEARCH DEGREE PROGRAMMES

The Quality Assurance Agency (QAA) published a revised 'Code of Practice for postgraduate research programmes' in September 2004. The revised Code is more student-focussed than previous versions. It presents a series of precepts that cover all aspects of research programmes across key areas such as supervision, feedback mechanisms and assessment.

Institutional implementation of the revised Code will be evaluated via a Special Review of postgraduate research degree programmes to be conducted by the QAA in 2005-06 in England, Wales and Northern Ireland.

QAA (2004) Code of practice for the assurance of academic quality and standards in higher education: Postgraduate research programmes  
<http://www.qaa.ac.uk/academicinfrastructure/codeOfPractice/default.asp>

QAA (2005) Operational description of the special review of postgraduate research degree programme (England and Northern Ireland)  
<http://www.qaa.ac.uk/news/circularLetters/CL0305.asp>

## 2) TRANSFERABLE SKILLS TRAINING FOR POSTGRADUATE RESEARCH STUDENTS

A number of initiatives, outlined below, have put skills development firmly on the PhD training agenda in recent years.

In 2001, the UK Research Councils, the AHRB and major charities that fund PhD research set out in the Joint Skills Statement (JSS) their common view of the

skills and competencies that PhD students would be expected to have, or to develop during their research training. The JSS has been widely adopted as a framework for skills development and recording.

The JSS covers skills and competencies in 7 areas: research skills and techniques; research environment; research management; personal effectiveness; communication skills; networking & team working and career management.

Research Councils/AHRB Joint Skills Statement (JSS)  
<http://www.grad.ac.uk/jss/>

In 2002, Sir Gareth Roberts' Review 'SET for Success' concluded that: "skills acquired by PhD graduates do not serve their long-term needs. Currently, PhDs do not prepare people adequately for careers in business or academia".

Roberts recommended that:  
"...the training elements of a PhD – particularly training in transferable skills – need to be strengthened considerably; ...include the provision of at least two weeks' dedicated training a year, principally in transferable skills." [4.2]

Roberts also recommended an increase in the length of a PhD to an average of 3.5 years and an increase in the stipend for PhD students.

The Government accepted the main recommendations of the Roberts' report and allocated £29.8M (over 3 years) to the Research Councils to implement additional transferable skills training for Research Council-funded PhD students and research staff. The funding, often referred to as the 'Roberts money', applies to PhD students starting on or after October 2003 and is allocated *pro-rata* based on the number of eligible Research Council-funded PhD students and research staff in each institution. The average amount per Research Council-funded PhD student is in the region of £850 per academic year. Although the funding is intended primarily for Research Council-funded PhD students and research staff, institutions

are able to use the funds to benefit all PhD students through course development, seminars and symposia.

The arrival of the Roberts money has prompted much debate about what constitutes transferable skills training for PhD students. 'Training' has been broadly defined by the Research Councils as: "demonstrable acquisitions of skills by a wide variety of means and includes a process of preparation, reflection and review." The consensus is that 'transferable skills' should mean transferable beyond employment in the specialist area of the researcher's research and that a good working definition is provided in sections C-G (Research Management, Personal Effectiveness, Communication Skills, Networking and Teamworking, and Career Management) of the JSS. The research skills outlined in sections A and B of the JSS (Research Skills and Techniques and Research Environment) are deemed to be specialist and hence training in those skills cannot be funded using the Roberts money.

Sir Gareth Roberts Review (2002) 'SET for Success'  
[http://www.hm-treasury.gov.uk/documents/enterprise\\_and\\_productivity/research\\_and\\_enterprise/ent\\_res\\_roberts.cfm](http://www.hm-treasury.gov.uk/documents/enterprise_and_productivity/research_and_enterprise/ent_res_roberts.cfm)

The increased emphasis on providing development opportunities for postgraduate research students is reflected in the revised QAA Code of Practice. Embedded within the code are the JSS training needs analysis and the use of personal development portfolios:

Precept 18: Institutions will provide research students with appropriate opportunities for personal and professional development

Precept 19: Each student's development needs will be identified and agreed jointly by the student and appropriate academic staff, initially during the student's induction period: they will be regularly reviewed during the research programme and amended as appropriate.

Precept 20: Institutions will provide



opportunities for research students to maintain a record of personal progress, which includes reference to the development of research and other skills.

### 3) ENTRY AND COMPLETION RATES OF PhD THESES

The first comprehensive report on entry and completion rates of PhD students was published by the Higher Education Funding Council for England (HEFCE) in January 2005. The report 'PhD research degrees: Entry and completion' tracks a single cohort of PhD students that began their research degrees in 1996-97.

Of around 18,500 postgraduate research students, 57% on full-time courses and 19% on part-time courses had completed within five years. By 2002-03, seven years after starting, the completion rates had increased to 71% for full-timers and 34% for part-time students.

HEFCE (2005): PhD Research Degrees, Entry and Completion:  
[http://www.hefce.ac.uk/pubs/hefce/2005/05\\_02/](http://www.hefce.ac.uk/pubs/hefce/2005/05_02/)

### 4) FIRST DESTINATION STATISTICS OF PhD STUDENTS

'What Do PhDs Do?' is the first ever analysis of the official first destination statistics of PhD graduates in the UK. The report concludes that PhD graduates are more geographically mobile, and more fully employed than less highly qualified graduates. Their unemployment rate (3.2%) is less than half that of first degree graduates and only 1% are in 'stop gap' jobs which bear no relation to the level of their qualifications. Surprisingly, less than half of this cohort are employed in the education sector, fairly equally divided between teaching and postdoctoral research. Significant numbers are found in all sectors of the economy. As well as providing an overview of first destinations for all PhD graduates the data is further analysed by four broadly discipline-based groups: arts and humanities; social sciences; biological and biomedical sciences; and physical sciences and engineering.

UKGRAD (2004): What do PhDs do?  
<http://www.grad.ac.uk/wdpd/>

### 5) NERC TRAINING AWARDS STRATEGY REVIEW

The Natural Environmental Research Council has updated its training awards strategy following an extensive review of its training activities during 2004. The review covered NERC's overall approach to training and early career development as well as looking at the effectiveness of individual schemes (fellowships, PhDs, masters and short courses). The recommendations include: greater emphasis on supporting masters courses with strong links with employers; greater flexibility in the length of the PhD and more jointly-funded multidisciplinary studentships.

NERC Training Awards Strategy Review 2004  
<http://www.nerc.ac.uk/funding/training/report.pdf>

### 6) DEVELOPMENTS IN EUROPE

The Bologna declaration aims at creating a European Higher Education Area by 2010, facilitating the mobility of students throughout Europe, by easing recognition of qualifications and introducing a European credit transfer system. The Bologna process initially focussed only on the first two 'cycles' of higher education: Bachelors and Masters. At the follow up meeting held in Berlin in September 2003 it was agreed that the 'third cycle', the PhD, should be included in the process. At the Bologna Seminar on "Doctoral Programmes for the European Knowledge Society" (February 2005) participants agreed a set of ten core principles to go into the drafting of the Bergen Communiqué.

In March 2005, the European Commission adopted a European Charter for Researchers and a Code of Conduct for the Recruitment of Researchers. The European Charter for Researchers addresses the roles, responsibilities and entitlements of researchers and their employers or funding organisations. It aims at ensuring that the relationship between these parties contributes to successful performance in the generation, transfer and sharing of knowledge, and to the career development of researchers. The Code of Conduct for the Recruitment of Researchers aims to improve recruitment, to make selection procedures fairer and more transparent

and proposes judging merit on a wide range of evaluation criteria, such as teaching, supervision, teamwork, knowledge transfer, management and public awareness activities.

Bologna Seminar (2005) 'Doctoral Programmes for the European Knowledge Society'  
[http://www.eua.be/eua/en/Salzburg\\_Seminar.aspx](http://www.eua.be/eua/en/Salzburg_Seminar.aspx)

European Commission (2005) European Charter for Researchers  
<http://europa.eu.int/eracareers/europeancharter/>

### 7) TRENDS IN POSTGRADUATE STUDY

In November 2004, the Higher Education Policy Institute (HEPI) published a report describing the entire postgraduate sector in the UK. The report highlighted the strong growth in postgraduate study in the UK with numbers of first year postgraduates increasing by 21% between 1995-96 and 2002-03. This growth is largely accounted for by an increase in taught masters students from overseas – their numbers almost doubled in between 1996-97 and 2002-03. In 2002-03, almost 120,000 postgraduates embarked on taught masters programmes compared to 16,000 starting PhDs.

HEPI (2004): Postgraduate Education in the United Kingdom:  
<http://www.hepi.ac.uk/pubdetail.asp?ID=164&DOC=reports>

However, despite the importance of taught masters to institutions, the majority of the policy developments and publications described above are exclusively concerned with postgraduate research students - postgraduate taught students are noticeable by their absence! It can only be a matter of time before the sector realises that postgraduate taught programmes have been overlooked and they need to be put back on the political agenda to ensure their future development.

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# EXTERNAL EXAMINING

The external examiner system has been in operation in the UK for many years. Its aim is to share good practice and to provide an independent check on the standards for degrees awarded in different institutions. There are now strong moves from Universities UK to bring in a system of voluntary accreditation for institutions' systems for the induction and support of external examiners.

External examining is a highly skilled process through which complex information about students' learning and their standards of achievement are evaluated and objective impartial advice is provided to institutions on the basis of the judgements that are made. Much of the knowledge, insights and capability that underpins the external examiner role has developed over many years of teaching and assessing students.

The development and ongoing support of external examiners is seen as part of the wider issue of developing the competence of teachers in higher education for assessing students' learning and supporting institutions' arrangements for Continuing Professional Development. It is believed to be desirable that external examining is located within the profession profile of teaching within higher education as an advanced form of professional practice.

## THE TQEC REPORT

The recent Teaching Quality Enhancement Committee Report called for a new role for external examiners including appropriate training and standardisation of their function. The basis for this is that UK higher education is in the middle of a 20-year revolution that is transforming it from a low participation elite system to a high participation more socially-attuned system. External examining was invented for a low participation system but is now expected to function in a mass system.

The TQEC Report argues that because of the new role in providing public information (external examiner reports will be public) the external examiner system should be strengthened.

Induction training given to external examiners, the content and nature of the reports they are asked to provide, and the form of follow-up by the HEI all vary between HEIs. Practice also varies in respect of the appointment of external examiners. Given the new demands being placed on the external examiner system in providing public information, and the central importance of the system in safeguarding standards, greater consistency is needed.

The Report is available at [http://www.hefce.ac.uk/pubs/hefce/2002/02\\_15.htm](http://www.hefce.ac.uk/pubs/hefce/2002/02_15.htm)

## ROLE OF THE ACADEMY AND SUBJECT CENTRES

Possible roles for the Higher Education Academy might be to enhance the status of external examining as a professional function in higher education as well as to provide information about good and effective practice and to help external examiners better to fulfil their role(s). Individuals who will be the 'next generation' of external examiners need to develop the necessary knowledge, skills and capabilities to perform the external examining function satisfactorily.

A Working group [chaired by Howard Colley] has been set up within the Academy to build knowledge about current Subject Centre activities with respect to supporting external examiners, and to investigate the potential external examiner enhancement and support function for the Academy.

The Academy might offer services and support such as:

- Recognition of an institution's programmes for the induction and development of external examiners.
- Development of a web site and a range of information resources
- Preparation and distribution of a handbook for external examiners
- Offering short courses in assessment and the evaluation of assessment practices

- Subject community building and database construction
- Fund research into external examining

## PROBLEMS SPECIFIC TO BIOSCIENCE

In the Biosciences there are several specific issues. One is that many departments now offer a range of Bioscience degrees which have different titles but many common modules. Because of the exponential expansion of knowledge in Bioscience there are issues about whether any one external examiner can keep up with all the areas in which they may be asked to examine.

Other issues include problems with students taking a year out (e.g. in industry, overseas), to what extent this year's work is graded and credited, and to what extent the department can exert proper quality assurance over supervision of and marking by people working outside the department.

Many departments are also terminating oral (viva) examinations because they are regarded (by some) as unfair. Typically only a proportion of the students receive a viva and these students are not usually asked the same questions.

The Centre for Bioscience surveyed all the other Subject Centres in 2003, and asked each what they were doing about the issue of external examining. Not surprisingly the replies revealed a wide range of activities and these were collated to inform subsequent Academy activity.

More recently the Centre has produced a section on its website about External Examining issues (<http://www.bioscience.heacademy.ac.uk/issues/extex/index.htm>) This site includes two audit tools: one for individuals and one for institutions so that they can review their responses to, and degree of preparedness for, the proposed changes in the external examiner system.

**Professor Ed Wood**  
Centre for Bioscience  
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# VIRTUAL EDUCATION RESOURCE FOR WHOLE ORGANISM BIOLOGY

In recent years, there have been a number of new digital teaching resources and virtual learning environments (VLEs) for tertiary bioscience. While many have focused on molecular, physiological and genetic fields, there have been few developments in evolutionary and whole organism biology.

The objects of molecular biology are difficult to visualise, so virtual tools have been created to aid students' understanding of these topics. In contrast, whole organism topics are more often taught by examination of real objects such as skeletal, taxidermy and wet preserved specimens. Traditional observation is still seen as the best way to learn key issues of morphological adaptation.

A survey of UK bioscience academics undertaken by the Department of Biology, University College London, reveals that real specimens are used for teaching in only two-thirds of institutions. In many cases, teaching collections exist but are either not appropriate to the current syllabus or not in a proper condition. Indeed almost one-third of respondents said they had previously approached a museum for access to suitable specimens.

The survey demonstrates a great deal of interest in digital teaching resources, in fact over 95% of those surveyed agreed that VLEs would help them to teach whole organism biology, and in particular evolution. The respondents showed similar enthusiasm for an open access imagebank.

UCL adopted WebCT Campus Edition 5 years ago to deliver its array of new distance learning courses and e-learning support material. We have trialled WebCT in the Biology Department, aiming to support the real elements of an undergraduate Vertebrate Evolution course. In this pilot, we used the content delivery features of WebCT combined with HTML and PDF documents and the PowerPoint compression program Impatica

(<http://www.impatica.com/imp4ppt>) to provide fast and secure access to pre-prepared summary notes, lecture slides, an imagebank containing photographs of zoological specimens, reading lists with links to journal websites and reprints of hard to find articles.

Some of these resources were previously available to students through library and departmental webpages, however students tend to find these "disorganised" and "inconsistent" with only "partial information on certain topics". In contrast, a survey of students showed unanimous agreement that "it was easy to find the course material I was looking for in WebCT" and almost 60% agreed that the organisation of the course material in WebCT was "more comprehensive" and "easier to access" than on an equivalent departmental webpage. Nearly half also agreed that "the consistency of the WebCT environment makes it feel familiar and open", with almost 80% visiting the site at least fortnightly and 35% accessing course information at least weekly.

Notably, WebCT's built-in Discussion Fora encourage student-student-lecturer interaction in a safe and open environment. Used by only 40% of students during the teaching semester, feedback suggests it has greater potential as a revision aid, when most in-depth review of the syllabus takes place. The interlinking Glossary entries are invaluable to jargon-rich topics like cladistics, and the imagebank with keyword search provides useful support to subjects heavy on anatomical detail and comparing physical adaptations. Other tools like the "quiz" feature make it feasible to replace real practical classes with automatically graded electronic "practical" exercises, a great expense saver.

Space, time and the availability of specimens do not always allow such expensive resources to be used effectively. In these circumstances, the availability of digital alternatives can

adequately replace the real experience. A collaborative project ongoing between the Grant Museum of Zoology, Department of Biology, at UCL and the Division of Life Sciences at King's College London seeks to develop a range of virtual teaching modules on the themes of vertebrate comparative anatomy and physiology. The project aims to combine the interactive delivery of material in WebCT with online practical sessions involving digital images of museum specimens. This would not only relieve the pressure on zoological collections and staff where practical sessions are currently taught, but would also make them available to institutions where no such resource exists.

Despite some initial reservations, the project has clearly been a successful exercise. While being costly in the development stage (for which a post was funded by UCL's teaching innovation fund), the running of a WebCT module proves to be low maintenance and frees up valuable time for course organisers. WebCT usage statistics showed that not only the primary objectives of the project were met, but additionally we have created a resource that saves student time and encourages wider learning, bringing together information from many varied sources including peer-to-peer interaction, expertise from lecturers, online and digital material, and almost limitless opportunities for expansion.

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# 12 | IMAGEBANK

## PICTURE THIS...

You need a specific image to accompany your lecture or practical session and you don't have time to trawl through pages and pages of copyright-protected images that your internet search engine has dragged up. So where can you go? Have you ever thought about ImageBank?

## WHAT IS IMAGEBANK?

ImageBank is an online resource provided by the Centre for Bioscience giving access to thousands of free, copyright cleared, bioscience images for use by both academics and students for teaching purposes. There are a wide variety of images available, from natural history and histological sections through to lab equipment and techniques, and new images are added regularly.

The site also contains several collections, including Biology Images from the University of Newcastle-upon-Tyne, and a collection of microbiology images from the University of Leeds. Numerous links to other biological image sites are also provided with a description of their contents and copyright status.



Red Admiral Butterfly

Display page

Search Page Results page [Go to Folder](#)

**Name:** Clownfish

**Description:**  
Common Clownfish and sea anemone. Clownfish (or anemonefish) have a unique symbiotic relationship with anemones. The clownfish has developed an immunity to the sea anemone sting and uses the sea

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Please credit: Dr Aurora Levesley © Aurora Levesley	Ecology , Zoology , Marine Biology	
<b>Classification</b>	<b>Scientific name</b>	<b>Common name</b>
Animals, Fish	Amphiprion ocellaris	Common clownfish
<b>Relevant Web URL</b>	<b>keywords</b>	
<a href="http://www.national-aquarium.co.uk/">http://www.national-aquarium.co.uk/</a>	coral, sea, marine	

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## HOW DO I USE IMAGEBANK?

ImageBank is easy to use, just go to the ImageBank website (<http://www.bioscience.heacademy.ac.uk/imagebank>) and decide how you want to find your image. Do you want to browse or search by: systematic classification, common or scientific name, subject, collection or contributor? Alternatively you could search by keyword.

An example of an ImageBank entry is shown above.

The image itself is accompanied by a wealth of information. Many images come with a detailed description, supplied by the contributor, where appropriate, the classification, common and scientific name of the organism shown are detailed. The name of the contributor is also given so you can credit them whenever you use the image. If relevant, a web link is also given, which may link to a page containing further images or more information about the image or contributor. Images are easy to download and save to your computer.

## WHAT CAN I FIND THERE?

A huge number and wide variety of images! A few examples are available as shown in this text ...and thousands more are available!

## CAN I CONTRIBUTE?

Yes you can! We are always looking for and delighted to receive, quality bioscience images to add to this growing resource. We accept most electronic formats (eg, TIFF, JPEG, GIFF) and, for a limited time, we are offering free digitization of slides and photos contributed to ImageBank. Images can be sent in online or by post just contact us...

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**Katherine Clark, Sue Grahame**  
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Picture credits: Red Admiral butterfly (Paul F. Brain © University of Wales, Swansea).