LTSN BIOSCIENCE BULLETIN

CONTENTS

EDITORIAL

Over the last few months the LTSN Centre for Bioscience has run events and workshops in universities in various parts of the country (Glasgow, Newcastle, Manchester, Reading, Nottingham Trent) with open access to teaching staff. We have referred to these as 'cluster visits' because we have tried to target universities in regions where staff from several universities can attend the event without travelling too far or using up too much of their day. In each of these events we have put on a talk on the benchmarking process, usually by an individual on the bench-marking panel. People obviously want to know how benchmarking will affect their departments in the next QAA round. The benchmarking panels have now all but completed their work, and their draft documents are about to appear. In addition, of course, there was the announcement by government that the 'lighter touch' would be even lighter still with departments with good scores in the previous round escaping a formal visit in the next round – except for a random sampling of this group of good performers. Nonetheless, departments will still have to conform to the benchmarks and the LTSN Centre for Bioscience will organise a meeting in York University on Tuesday 11 September to discuss the benchmark statements: you are invited to attend and bring your concerns and comments.

We are very pleased to announce the names of the first individuals to be awarded grants from our Teaching Development Fund. Their names appear on page 2 and we congratulate them. We hope that these small sums will act as catalysts to stimulate the development of innovative ways of teaching, and we remind readers that another tranche of grants will be available soon (closing date 21 July).

Articles in this issue include an account of the *Real World Project* based in the University of Newcastle upon Tyne which aims to enhance the employability of students by integrating work-related activities into the curriculum, and there is a brief description of the *Professional Scholarship P rogramme* (FDTL3) at Harper Adams University College, Newport, Shropshire, which is being developed to enhance the key skills, careers management abilities and scholarship needed for successful lifelong learning. There is a continuation of the series of articles from the School of Education in Leeds University on how students develop their conception of science and how science is done. There are some thoughts from Simon Heath on embedding the concept of sustainability in bioscience curricula, and a description of *Talessi* – the Teaching and Learning at the Environment-Science-Society Interface project. The *RDN* (Resource Discovery Network), a virtual training suite funded by the UK Further and Higher Education Funding Councils through JISC, is explained, and we also have an article about *EDINA*, the Edinburgh Data and Information Access, another JISC-funded national data centre. Note that most of these projects have a web site or a contact email address from which further information can be obtained.

Ed Wood, Director
Learning and Teaching Support
Network Centre for Bioscience

DISABILITIES LEGISLATION AND JISC'S NEW SERVICE TECHDIS

New legislation and policy initiatives are changing the way in which learners with disabilities are being treated in UK education. In addition communication and information technology is being more widely applied to learning and teaching, research and administration

The Special Educational Needs (SEN) and Disability Bill was given Royal Assent on 11 May 2001, part two of this act removes the exemption of education from the Disability Discrimination Act (1995), placing new anti-discrimination duties on schools, colleges, universities and providers of adult education. More information on this can be found at the TechDis Web-site[1].

Advances in the field of communication and information technologies have the potential not only to greatly enhance the learning experience for students, but also to ensure access to education by everyone, regardless of any disability or impairment. Responding to the needs of the HE and FE community, the Joint Information Systems Committee has set up a new service: TechDis – Technology for Disabilities Information Service. Established by the Joint Information Systems Committee (JISC); the service will be building on the work of the DISinHE project but with a wider and deeper remit. TechDis will provide information and advice to the HE and FE sectors on the use of new and existing communication and information technologies, to enhance access to learning and teaching, research and administration activities for students and staff with disabilities.

One of the services TechDis aims to provide to support staff will be a database of technologies that can be used to assist student learning in situations which have been previously inaccessible. Technologies such as adaptive keyboards, text-to-speech software or electronic note taking equipment will be included in the TechDis Accessibility Database.

Within higher education, in addition to legislative drivers for change, the Quality Assurance Agency (QAA) Code of Practice on Students with Disabilities[2] has set out 24 'precepts' or standards that institutions are expected to meet. The precepts cover all areas of an institution's relationship with students, including all aspects of learning and teaching. It expects institutions to treat disabled students as an integral part of the academic community and to provide for them as part of their core activities.

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[1] http://www.techdis.ac.uk
[2] http://www.qaa.ac.uk/public/cop/copswd/pre13%5F24.htm

TEACHING DEVELOPMENT FUND

The first awards have been made from the LTSN Bioscience Teaching Development Fund.

PROGRAMMED LEARNING TO REPLACE LECTURES
Dr Peter Chevins, Keele University, School of Life Sciences
The project will encourage more active participation in an Animal Physiology module. Students will be set a programme of required reading as the major part of their learning programme, and regularly tested on their understanding of it in both formative and summative modes. Their results will be compared with those of previous cohorts who received only lectures.

WEB-BASED FORMATIVE ASSESSMENT
Dr Ray Harper, University of Luton, Department of Biology & Health Science
The project will construct software (WebO Lite) for a web-based formative assessment system. This system will include a wide variety of question styles and will enable the construction of self-assessments, tutorials and courseware. The design software will be PC based and the projects produced will run from any media (floppy disk to internet server) on any computer system with a modern browser.

DEVELOPMENT OF AN IN-HOUSE JOURNAL OF UNDERGRADUATE RESEARCH IN THE BIOLOGICAL SCIENCES (JURBS)
Dr Jac Potter, Chester College of Higher Education, Department of Biology
The project will develop a journal aimed at presenting the best undergraduate research undertaken at Chester College and will investigate the pedagogic value of such a publication. The evaluation will focus on: (i) the benefit(s) of the process of publication for contributing undergraduate students; and (ii) the perceived benefit/s of the journal as a product for students that undertake research in the subject in the subsequent year.

PERSPECTIVES AND TECHNIQUES IN GENOMICS TECHNOLOGY: AN INTERACTIVE WEBSITE GUIDE
Dr Emma Williams, University of Bristol, School of Biological Sciences
Genomic technology is rapidly revolutionising many disparate areas of science. To allow information on genomic technology to be incorporated into our scientific and medical training programmes, we are developing a structured teaching and learning website that will allow lecturers and students across the University to access information about what genomic technology is, the latest developments, and possible future developments. It is our aim that the website will be available to all UK Universities by May 2002.

The second round of Teaching Development Grants closes on 21 July 2001. *Further details can be found on http://bio.ltsn.ac.uk/*

TEACHING ABOUT THE PRACTICES OF SCIENCE: *A case study of a tutorial on glycolysis*

This is the second of four articles which present research on learning and teaching in the biosciences at the University of Leeds. The first article presented the principles involved in designing research studies to evaluate the effectiveness of teaching.[1] This article exemplifies this approach using a case study of a tutorial on glycolysis.[2]

The glycolysis tutorial is one of a series of first year tutorials in the School of Biochemistry & Molecular Biology at the University of Leeds that aims to develop students' understandings about the 'practices of science'. Aspects of the practices of science include how scientists collect and interpret data, how they generate and evaluate theoretical models, and how science knowledge is applied to complex contexts outside of the laboratory. Lecturers identified three aims for the glycolysis tutorial: managing a meeting; developing data interpretation skills; and developing an understanding of the biological purpose of glycolysis and gluconeogenesis.

Prior to the tutorial the students are given a booklet which describes the clinical history of a baby who becomes sick following a switch from breast-feeding to formula milk. The booklet includes graphs and data tables detailing the outcomes of tests of the baby's blood and urine. Students are provided with the gluconeogenesis and glycolysis metabolic pathways. In the tutorial the students work as a group to answer ten questions about this information. Student take the role of chair, minute-taker, data analyst, etc. The questions take them through a series of steps leading them to the deduction that the baby has an enzyme defect leading to fructose intolerance.

The study involved observations of two tutorials and interviews with students and teachers. The principal outcome of the study was a detailed understanding of the learning demands the students faced during the tutorial. Here is how one of the tutors talked about the gluconeogenesis and glycolysis pathway and its relation to biological processes in the body.

What I suppose I am trying to say is that if you take Baby Philip off fructose, take the sugar out of the diet, then he is perfectly normal. In other words, if I put my hand over this part of the metabolic pathway everything is running smoothly. And Philip's mother noticed this and got him off sugar pretty quickly.

However, many of the students found it very difficult to make these connections. This was partly a result of their unfamiliarity with the details of gluconeogenesis and glycolysis, but also the need for them to interpret the symbolic shorthand used in metabolic maps. Other learning demands included interpreting graphs and tables, and managing the tutorial as a meeting. Given the range of learning demands involved neither of the two student groups observed were able to identify the metabolic disorder without considerable support from the tutor. Nevertheless the value of engaging with the metabolic pathway in a supported and interactive peer group session was valued by many of the students:

It's one of the few chances you get to actually talk back. Lectures and things are very passive. Sort of taking in information… But tutorials are the only time you really get to ask questions and put things in your own way. Even use the names. Actually say them yourselves.

The first article of this series[1] emphasised the role of teaching objectives, teaching design, student activities and student learning in the evaluation of teaching. for the glycolysis tutorial. However, in terms of the challenges facing students the three teaching objectives specified were far too ambitious. The study showed that teaching objectives need to be much more focused and specific, reflecting the learning demands placed on students as they work with the metabolic pathway. Teaching activities need to be designed to support students in overcoming these learning demands, e.g. activities designed explicitly to help students to make connections between the maps of gluconeogenesis and glycolysis and actual biological processes in the body. Indeed, since lecturers' knowledge of what it means to be a scientist tends to be implicit, based on action, it is especially important that teaching objectives related to the 'practices of science' are made explicit.

ACKNOWLEDGEMENTS

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[1] LTSN Bioscience Bulletin, Spring 2001, No. 2, p.6-7

[2] For a more detailed account see Ryder, J. and Leach, J. 1996 Learning what it means to be a biochemist: Case study of a tutorial on Glycolysis Biochemical Education 24 21-25

ARTICLES WANTED

Would you like to contribute to a future issue of the LTSN Bioscience Bulletin? We would be pleased to receive your articles, case studies or news items. Alternatively you may like to comment about content or suggest ideas for future features. Whatever your contribution we would like to hear from you. Contact Trish Walker, Centre Manager, *ltsnbioscience@bmb.leeds.ac.uk*

PROFESSIONAL SCHOLARSHIP PROGRAMME *FDTL3 23/99*

The Professional Scholarship Programme (PSP) is being developed with the purpose of enhancing the key skills, career management abilities and scholarship required for successful lifelong learning by autonomous professionals. The background to this FDTL3 project is directly linked to the QAA Subject Overview Report for Agriculture, Forestry and Agricultural Sciences. The report recommends that there is scope for further integration of the teaching of transferable skills into most curricula, and for making such skills development explicit to students throughout their training. Writtle College and Harper Adams University College are both specialist institutions with a long history of preparing people for careers in the land based industries, and possess complementary experiences in the development of such transferable skills. Joint development of the PSP, which will become an integral part of all undergraduate programmes at these Institutions, will build on achievements applauded by QAA subject reviewers.

The design is based on a strand of modules which run throughout under-graduate programmes from years one to four. These modules include Effective Communication, Introductory, Intermediate and Advanced Research Methods, and Career Development. An Individual Project module, which can take the form of either a Dissertation or an Investigational Project, and a placement period, incorporating work-based learning and assessment are also major segments in the programme. A profiling system will be developed to encourage students to take personal ownership of the development of these skills. Completion of the programme will provide tangible evidence that students have attained six key skills (communication, numeracy, IT, team work, problem solving and learner autonomy) through the award of the Certificate of Professional Skills.

Tangible outputs will be in the form of paper-based (although available on disk) and on-line teaching packs, which will be developed in discrete units allowing tutors to select particular elements or use the module material in its entirety. Materials will include module descriptors with learning outcomes, lesson plans, presentation slides, assessment briefs, student exercises and supportive illustrations, within the context of the land-based industries.

The programme of work is well underway, with teaching packs from the first module, Effective Communication, currently in use by fourteen tutors in four institutions. Development of the modules and profiling system is phased over a period of three years, with each module trialled and evaluated before revision and further development as an on-line resource. It is intended that key teaching staff will be engaged in the development and review of the PSP, and that similar programmes and good practice in other disciplines and sectors will be investigated. We also hope to engage other HEIs in the participation of this project, therefore encourage any readers who would like more details to contact us.

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THE REAL-WORLD PROJECT *FDTL3 39/99*

REAL-WORLD is an initiative that has the principal aim of enhancing the employability of students by integrating work-related learning activities into the curriculum. Work-related learning can include activities such as placements, industrial visits, live projects, case materials, mentoring schemes. REAL-WORLD has a national focus and is concentrating on the subject areas of Agriculture, Forestry, Agricultural Sciences and the Organismal Biosciences.

REAL-WORLD is based at the University of Newcastle-upon-Tyne with project staff from the Faculty of Agriculture and Biological Sciences and the Academic Development Unit at Newcastle, and the School of Sciences at the University of Sunderland.

GOOD PRACTICE
A key feature of REAL-WORLD is the development of a good practice guide that will draw from the experiences and expertise of the academic and business community involved in the appropriate subject areas. Using the guide as a base, REAL-

THE TALESSI PROJECT: AND LEARNING AT TH SCIENCE-SOCIETY INT *Promoting active learning for in awareness and critical thinking*

Based at the University of Greenwich, and supported by HEFCE's 'Fund for the Development of Teaching and Learning', the TALESSI project aims to promote active learning for interdisciplinarity, values awareness and critical thinking in higher education.

▶ ACTIVE LEARNING: learning and teaching which promotes students' active engagement and 'deep' learning

▶ INTERDISCIPLINARITY: the capacity to integrate know-ledge derived from disciplines which may hold very diverse views as to what 'counts' as valid knowledge

▶ VALUES AWARENESS: the ability to identify and analyse explicitly-stated, and 'hidden', values in academic debate

▶ CRITICAL THINKING: the means to reveal and question the problematic and often contestable character of 'knowledge claims' which contribute to academic debate and student learning

WORLD will encourage and support the practical uptake of work-related learning into the curriculum. For employers and support organisations, REAL-WORLD will act as a link to ensure that skill requirements and concerns are reflected in the integration of work-related learning.

The initial workshop was hosted in December 2000. Participants from a range of institutions contributed to a 'conceptual framework' which will form the basis for identifying examples of good practice in work-related learning. Details of the areas covered at the workshop, including a copy of the conceptual framework, are included in the report on good practice which is available at the address below. An initial report is also available which is concerned with establishing criteria for good practice in work-related learning.

FOR ACADEMIC DEPARTMENTS

► Access a good practice guide based on case studies. Participate in the development of the guide to ensure that innovations in work-related learning can be communicated to a variety of institutions;

► Take advantage of the support, guidance and funding REAL-WORLD offers regarding the development of work-related learning;

► Share your experience and views with other practitioners via REAL-WORLD.

FOR EMPLOYERS

► Access and contribute to the good practice guide and ensure that it reflects your needs for a skilled workforce;

► Participate in the framework for establishing good practice in work-related learning;

► Form relationships with departments who are committed to meeting the skill requirements for graduates;

► Work with REAL-WORLD to develop work-related learning initiatives

RECEIVE OUR INITIAL REPORT ON GOOD PRACTICE

We have prepared an initial report that is concerned with establishing criteria for good practice in work-related learning. This is available free of charge. *To request your copy or to find out more about REAL WORLD please email us at the address below.*

Robert Walker, REAL-WORLD, Careers Service, University of Newcastle email r.g.walker@ncl.ac.uk

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TEACHING
E ENVIRONMENT-
ERFACE
terdisciplinarity, values
FDTL1 38/96

The project developed from our experiences of teaching controversial environmental issues such as global climate change. Our approach seeks to promote critical thinking about competing 'knowledge claims', emanating from academia and beyond, in such a way as to reveal their underlying values and other assumptions, and the not infrequent uncertainty, provisionality and contestability of those claims.

We have developed a portfolio of on-line Teaching and Learning Resources (TLRs) in support of this aim. TLRs are self-contained teaching packages, which include learning outcomes, learning activities, stimulus materials etc.

TALESSI's environmental focus is, to some extent, less important than our 'generic' educational aim – namely the cultivation of interdisciplinarity, values awareness and critical thinking. Indeed several TLRs focus principally on a specific academic skill, more so than on a topic *per se*.

Arguably, our approach is applicable to a wide range of subjects. Over the past four years, these principles and resources have been tested with staff and students in a range of disciplines, from Biology to Business and Physics to Philosophy. Some participants'

comments are shown below.

We also undertake workshops, departmental visits, and a programme of TLR piloting and user evaluation. We can pay up to £100 for each TLR that is evaluated, with our prior agreement.

PARTICIPANTS' COMMENTS ON THE TALESSI PROJECT

"I am very much in favour of the critical approach the TALESSI project has been developing. I am pleased to see the students developing this skill."

"For all tutors who ask me 'what should I give the students a tutorial on?', I will refer them immediately to the TALESSI web site.

"The TALESSI project has made my teaching more focused and less boring."

"I like the way the TLRs address the philosophy of science and the way we think about environmental science."

"The fear of alienating 'hard' science staff could be a problem with some TLRs."

"All TLRs have to be integrated into course programmes; they don't stand alone."

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EMBEDDING THE CONCEPT OF SUSTAINABILITY IN BIOSCIENCE CURRICULA

The LTSN Centre for Bioscience will seek to ensure that the UK bioscience community is linked into educational initiatives not only in the UK but also on a wider front across Europe and beyond. One example of such an opportunity is the SOCRATES Thematic Network Projects (TNP) funded by the EU. Two of these networks are co-ordinated by members of the Centre's staff:

► AFANet[1] – the SOCRATES Thematic Network for Agriculture, Forestry, Aquaculture and the Environment (Dr Simon Heath)

► EpharNet[2] – the European Pharmacology Network (Prof Ian Hughes)

In addition there are other TNPs which will be of interest to the Bioscience community, e.g. Thematic Network Project Biology and BIOTECHnology Thematic NETwork (BIOTECHNET). The TNP initiative started in 1996 and will continue under SOCRATES II. There have been numerous outcomes for which details can be found on the TNPs' web sites. This article focuses on one such development under the auspices of AFANet– embedding the concept of sustainability in bioscience curricula.

Although not a new topic, it is an issue for the industries covered by AFANet, and one which has clearly gained momentum in education, research and the concerns of the wider community. This AFANet activity set out to bridge the conceptualisation of issues of sustainability with the integration of these issues in the curricula of higher education in agriculture, forestry, aquaculture and the environment.

The initial analysis was made at an international workshop in August 1998 and extended by including the experiences and analysis of other colleagues from around the world. The result of this analysis is the book *Integrating concepts of sustainability into education for agriculture and rural development* edited by Bor, Holen, Wals and Filho (2000). Part 1 of the book attempts to conceptualise the issues surrounding sustainability in higher agricultural education whilst part 2 provides case study examples of the integration of the concept of sustainability into curricula.

In the final chapter Bor, Holen and Wals (2000) provide analysis and guidance for staff in higher education institutions who wish to guide or adapt their curricula to address the issues surrounding the concept of sustainability. They summarise the challenges under four main headings:

1   *conceptual and thematic challenges*
2   *implications for teaching and learning*
3   *operational and institutional conditions*
4   *sustainability and potential societal and scientific impact*

and recognise that each institution, faculty or department has

to address the issues from its own initial perspectives and starting position: there can be no global prescription.

For example, to give a flavour of the challenges, taking (2) above they consider that the integration of sustainability into the curricula of higher education has serious consequences for teaching-learning arrangements. For example they summarise some of the changes as:

•   *teacher-centred to learner-centred arrangements*
•   *consumptive learning to discovery learning*
•   *individual learning to collaborative learning*
•   *theory-dominated learning to praxis-oriented learning*

Wals and Bawden (2000) have taken this a step further in writing a position paper which emphasises the human development aspect of education rather than the instrumental use of education in trying to alter peoples' behaviour in a pre- and expert-determined direction.

The challenge is to stimulate a continuing discussion. Although the discussion above focuses on the applied biosciences it is of equal concern across the bioscience curriculum. LTSN Bioscience offers the opportunity of a forum to share experience and to stimulate the further implementation of the concept of sustainability within bioscience curricula. If you are interested in participating please contact the Centre (ltsnbioscience@bmb.leeds.ac.uk).

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Bor, W. van den, Holen, P., Wals, A. E. J. and Filho, W. L. (2000). *Integrating concepts of sustainability into education for agriculture and rural development.* Peter Land, Frankfurt am Main, pp. 1-329.

Wals, A.E.J. and Bawden, R. (2000). *Integrating sustainability into agricultural education: dealing with complexity, uncertainty and diverging worldviews.* ICA, University of Gent, Belgium, pp. 1-45. *(This booklet can be obtained by emailing Simon Heath at the address below)*

Dr Simon Heath, LTSN Bioscience Subject Specialist and Co-ordinator of AFANet, Centre for CBL in Land Use and Environmental Sciences (CLUES), Aberdeen University. email: CLUES@aberdeen.ac.uk

[1] AFANet http://www.clues.abdn.ac.uk:8080/afanet

[2] accessed via the British Pharmacological Society web page:

EDINA SERVICES – LEARNING AND TEACHING DEVELOPMENTS FOR THE BIOSCIENCES

EDINA (Edinburgh Data and Information Access) is a JISC-funded national datacentre, offering networked access to a range of bibliographic and geo-data resources, many of which are relevant to the Biosciences. A full list of them may be found at:

http://edina.ed.ac.uk/services/agriculture.html

These services include BIOSIS Previews, CAB Abstracts, AGDEX, Digimap, UKBORDERS and Ulrich's International Periodicals Directory. If your institution subscribes to one or more of these services, they are free to you at the point of use. You can find out which of these services your institution subscribes to by consulting the appropriate EDINA web pages.

EDINA is currently undertaking project work that will make many of these services more relevant to L&T practitioners. This work is being funded by the JISC, under its Distributed National Electronic Resource (DNER) Development Programme. The DNER (which may well have been re-named by the time you read this article), is a managed environment for accessing quality assured information resources on the Internet. More information is available at: *http://www.jisc.ac.uk/dner/*

If you are interested in contributing to user requirements work for either or both of the following projects, Moira Massey would be very pleased to hear from you.

SUPPORTING LEARNING OUTCOMES FOR INFORMATION LITERACY AND STUDENT RESEARCH SKILLS

The DNER currently offers a range of high quality, specialised Abstracting & Indexing database services and electronic tables of contents services, providing key discovery facilities for references to journal articles that can be accessed from the desktop. However, there is evidence that they are under-used, especially in learning and teaching.

The effectiveness of learners at finding, using and evaluating information from primary data sources, and the development of research skills, is becoming an important concern for educators. There is an increasing recognition that undergraduates need support to become researchers in their own right. Furthermore, understanding how information is structured in bibliographic databases, and how to effectively search those databases and evaluate the references found, can lead to learning outcomes transferable to other important domains, such as the effective use of search engines on the web.

There is evidence that these are learning outcomes that need to be addressed within the curriculum, as undergraduates tend to exhibit an increasingly focused approach to their studies that bypasses wholly library-related initiatives.

EDINA is leading a DNER project, Xgrain, which is developing cross-searching facilities between relevant services in the DNER, and L&T materials to support learning outcomes as discussed above. We are working closely with ten 'L&T Associate Sites', one of which is the LTSN Centre for Biosciences.

Xgrain is part of the umbrella JOIN-UP Programme, which is addressing the linkage between references found in discovery databases, and the services that provide the full-text material, whether in printed or electronic form. We are working closely with our partners in the Docusend and ZETOC projects to this end.

Further information about JOIN-UP, Xgrain and the other projects, may be found at:

http://edina.ac.uk/projects/joinup/index.shtml

SUPPORTING SPATIAL LEARNING OUTCOMES WITH REAL-TIME, INTERACTIVE LEARNING MATERIALS

Another project of potential interest to the Biosciences community is Digimap e-MapScholar, which is aiming to provide a range of L&T materials to support learning about spatial concepts and the use of geo-spatial data.

EDINA Digimap is a JISC-funded web service that delivers Ordnance Survey (OS) cartographic products and digital map data across the Internet, via a simple-to-use interface. Evaluations revealed that the eLib Digimap Project, which preceded the current national service, both encouraged the use of OS data in teaching, and promoted the use of digital data in disciplines outside the traditional 'map domains' of geography and cartography. Over 80 per cent of users were non-geographers and 60% were undergraduates. A substantial proportion, over 5%, of current Digimap users are from the Biosciences.

Digimap has been used in L&T in the Biosciences in various ways, ranging from the production of simple maps on which the student can mark locations by hand, to the integration of other digital data on an OS backdrop.

Currently, there is a skills/concepts gap between creating a map, which is very easily accomplished, and downloading digital map data for use in Geographical Information Systems (GIS). This project aims to fill the gap, supporting both those learners who need to progress to using GIS, and also those whose needs are more simple: to understand how to use geo-spatial data more effectively. The project aims to support learning in this area, as well as the needs of teaching staff to provide new, exciting and interactive learning materials using geo-spatial data. These learning materials will be customisable, both by the lecturer and the student, and will offer the chance both to integrate other data, including data collected by the student, and undertake visual problem-solving exercises in 2D and 3D.

Further information about the e-MapScholar project may be found at: *http://edina.ac.uk/projects/mapscholar/index.shtml*

Moira Massey, Projects Co-ordinator/Learning and Teaching Officer, EDINA, Data Library. University of Edinburgh. email: Moira.Massey@ed.ac.uk

TEACHING INTERNET SKILLS FOR LIFE SCIENCES
The RDN Virtual Training Suite

The RDN Virtual Training Suite is a new national resource that can support the teaching and development of key skills in Internet information literacy within a subject context.

Launched in May 2001, it provides a set of 40 free 'teach yourself' tutorials delivered over the Web, all covering subjects taught at UK universities. Titles include:

► Internet Bioresearcher

► Internet for Agriculture, Food and Forestry

► Internet for Nature

► Internet Vet

► Internet Medic

These tutorials combine chatty text, examples and links into a tutorial on how the Internet can guide learning, teaching and research in the life sciences. Structured in small chunks, they have optional self-test quizzes and interactive exercises at the end of each section. There is no charge and no need to log on: just go to the URL *http://www.vts.rdn.ac.uk* and select the tutorial of interest. Each tutorial comprises four main sections:

► TOUR key Internet resources for the subject

► DISCOVER Internet search skills

► REVIEW the skills needed to critically evaluate resources

► REFLECT scenarios on how Internet resources can support academic work

As the Internet becomes increasingly important as a source of academic information, students, lecturers and researchers need to develop their 'Internet information literacy' – the ability to locate, evaluate and use information on the Internet for their work. The tutorials are designed to help the higher education community to learn more about using the Internet as a source of information in their field.

One way in which we hope this resource will be a great help to lecturers is as a resource to recommend to their students. The tutorial will demystify a lot of issues about the quality of Internet resources and will show how research on the Internet can support their learning. An intended result is that lecturers will have to field fewer questions about the basics of the Internet. If you are setting up a course Web page, linking to the tutorials can provide a good starting point for your students, in addition to leading them to further quality sites in the field.

The RDN Virtual Training Suite is just one of the services offered by the UK's Resource Discovery Network (RDN) *www.rdn.ac.uk,* a service designed to help the academic community get the best from the Internet. Within the RDN the Life Sciences are served by the BIOME *http://biome.ac.uk/,* a gateway to high quality Internet resources in the health and life sciences. The tutorials listed above, have been written by staff at: BIOME at the University of Nottingham, The Natural History Museum in London and CAB International.

The RDN and the Virtual Training Suite are funded by the UK Further and Higher Education Funding Councils, through the Joint Information Systems Committee (JISC).

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BENCH-MARKING AND THE NEW ACADEMIC REVIEW PROCESS
University of York 11 September 2001

In the light of the new academic review process and subject Benchmarking the LTSN Centre for Bioscience will be hosting an event to discuss these two issues.

The morning session will cover information on how the new QAA process differs from the old and what will be required from each teaching subject unit. The afternoon session will offer an opportunity to submit feedback on the Benchmarking draft documents in subject specific groups (Bioscience, and Agriculture, Forestry, Agricultural & Food Sciences) or in a generic group to provide information and discussion on the progress of Benchmarking.

Further details and registration form: http://bio.ltsn.ac.uk/

ENQUIRY HELPDESK

The LTSN Centre for Bioscience runs an enquiry helpdesk to answer all your questions on bioscience teaching and learning. Subject Specialists in all areas of the biosciences will be pleased to respond to your enquiries. Please contact us on *0113 233 3001* or by email at: *ltsnbioscience@bmb.leeds.ac.uk.*