



LTSN Physical Sciences News

...supporting learning and teaching in chemistry, physics and astronomy

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Is the future of Physics flourishing?

Special points of interest:

- The future of undergraduate physics teaching
- The increase in the teaching of Forensic Science in universities
- New staff at the Centre

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The recently published Institute of Physics report on the enquiry into undergraduate physics has provoked a number of letters and some discussion at the Institute Congress, although attendance at the session was disappointing. The report made five main recommendations, summarised as:

- that efforts should be made by Government and the Institute to raise the status and profile of a physics education, thus enthusing larger numbers of young people to undertake our courses.
- that the critical shortage of physics teachers and its effects should be addressed by government (to improve conditions, pay, student access to subject specialists) and by HE (to offer support and subject advice) with help from the Institute.
- that the current MPhys and BSc degrees remain the primary mode of training physicists, although with modifications to strengthen mathematical and transferable skills.
- that there should be a New Degree with a physics basis but with a more interdisciplinary approach and accessible to students with less mathematical skill.
- that funding of HE physics departments should be changed and the current wave of departmental closures should be halted.

Responses have varied from disappointment that the report did not go far enough in addressing early problems with science in schools, to concern about the concept of training non-“seriously numerate” physicists.

It is easy to dismiss many aspects of the report’s conclusions as being too dependent upon the actions of others. Government is being urged to act in areas in which it has traditionally been reluctant to intervene, and about far less exposed and popular issues than others where it has also failed to act. It is particularly encouraging therefore, that the report of Sir Gareth Robert’s Review should be published with so many congruent conclusions and suggestions.

The Robert’s review addressed “the supply of people with science, technology, engineering and mathematical skills”, and was thus concerned with all three levels of education. The wider remit, however, does not diminish its applicability to the situation in our discipline and the conclusions and recommendations can only be of help. Some of the suggestions in the report that, if acted upon, will implement recommendations from the Institute’s report are:

- that Government should increase the pay offered to school teachers of subjects where there are teacher shortages.
- that Government and LEA’s should prioritise school science, and Design and Technology laboratories, ensuring that money is made available to bring all such facilities to a good standard.
- that the environment in which science and D&T are taught, be improved by a new programme that Government should introduce to pay undergraduates and postgraduates as teaching assistants in schools.

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Special Interest Groups

The Centre is keen to support special interest groups. These groups allow academics interested in a common learning, teaching or assessment theme in the physical sciences to meet. The aims are to share expertise, materials etc and subsequently to develop and disseminate resources, guidelines etc to the community. So far the Centre has commissioned four special interest groups.

Simulations in Physics and Astronomy

Convenor: Bruce Sinclair, School of Physics and Astronomy, University of St Andrews
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Context-based Learning

Convenor: Karen Moss, Dept of Chemistry and Physics, Nottingham Trent University
karen.moss@ntu.ac.uk

Forensic Science

Convenor: Peter Wearden, Forensic Science, University of Central Lancashire
pwearden1@uclan.ac.uk

SToMP

Convenor: Dick Bacon, LTSN Physical Sciences, University of Surrey
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Output is expected to be a survey of materials that are currently available, or guidelines to the successful implementation of such materials.

If you are interested in joining a group contact the convenor or the Centre. If there is another group you would like to start contact the Centre.

Crime pays?

The Forensic Science Special Interest Group

A few short years ago Forensic Science was not an academic discipline that was taught in very many science departments. The pressures of trying to recruit students to science departments has meant that academics have had to be creative in developing courses which are attractive to today's students who are presented with ever increasing choice of courses. Thus, Forensic Science is growing rapidly as we try to capitalise on this current trend before the bubble inevitably bursts. In many institutions Forensic Science is responsible for keeping chemistry departments afloat and chemists in gainful employment. There are currently 150 courses with 'Forensic' in the title being taught at 56 institutions. The extent of the Forensic content varies enormously, from a single module within a chemistry or bioscience programme degree to a whole degree in Forensic Science with some degree of accreditation by the Forensic Science Society. This trend is set to grow as we try to exploit the latest 'sexy' course title.

Of course, because these courses are so new, there is little subject specific expertise within the academic community, although many institutions are working closely with Forensic Science professionals to deliver modules. Most academics are having to start from scratch in order to develop realistic, appropriate and academically rigorous materials in a subject which is most likely to be outside of their usual area of expertise. The reason for establishing the Forensic Science Special Interest Group was to facilitate sharing of those resources for the benefit of all academics, and students.

The LTSN Bioscience and LTSN Physical Sciences worked together to present a Swap Shop in Forensic Science on the 6th March 2002 hosted in the Learning and Development Unit in conjunction with the Centre for Forensic Science at the University of Central Lancashire. This was the inaugural meeting of the Forensic Science Special Interest Groups of both the LTSNs and the main aim of the Swap Shop was to stimulate

networking and generate both an electronic distribution list for the members of this subgroup and, from brainstorming sessions, to discover what the subgroup required in further meetings.

The meeting overall was a great success. We were expecting a fairly modest turn out but were almost overwhelmed by the response and interest, attracting in excess of 50 participants from 36 institutions covering all areas of the UK. Ireland, Scotland, Wales and England were all represented and interest was also expressed from as far away as Australia.

After an introductory session on problems associated with the development of forensic science courses and a discussion of standards, the meeting went



Hard at work at the Swap Shop!

on to look at examples of crime scene simulations and workbook based assessments as well as CDROMs and IT based means of student support. Murder was a recurring theme and we heard details of 'The Pale Horse' problem solving case study as well as taking part in the "Stag Night Murder", which was very kindly supplied by David Bremner from Abertay University (who also supplied the photograph) and proved to be a stimulating and enjoyable experience. In addition, several colleagues brought examples of laboratory activities with them which were circulated after the meeting.

It was clear that studying forensic science supports the development of

Crime pays?

The Forensic Science Special Interest Group

many key skills that graduates are now expected to possess, not least, written and oral communication skills, as well as the ability to analyse and appraise information working individually and as part of a team.

The feedback from the meeting indicated that many new friends and links were formed and the basis had been prepared for an extremely active and large specialist subgroup within the LTSN network. It was agreed that an email discussion list would be set up and that a further meeting would be organised for the next academic year.

The Forensic-education jiscmail discussion list has now been established. To join it send the message

Join forensic-education *yourfirstname yourlastname*

(substituting *yourfirstname yourlastname* with your actual name)

to jiscmail@jiscmail.ac.uk.

To send a message, email to

forensic-education@jiscmail.ac.uk.

Please use this list to instigate discussion, share ideas and resources etc. in the area of forensic science.

A list of useful Web addresses is being compiled and will appear on the Forensic Science Special Interest Group page on our website. A full report of the meeting can also be found on our website. If you would like a copy of the materials from the meeting please email ltsn-psc:hull@ac.uk for a copy.

This looks like being an active and useful group. Watch this space!

Report compiled by...

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Is the future of Physics flourishing?

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They would act as role models, as well as improving the pupils' learning experiences. It would also be of benefit to the university students themselves.

- that Government should establish a small central team of advisors to assist teachers, parents and other advisers in changing the perception of pupils that the study of science, mathematics and engineering narrows their choice of career rather than broadening it.
- that Government should be ready to forward the actions to be identified by initiatives such as Baroness Greenfield's study on improving the participation of women in science and engineering.
- that Government should introduce a new funding stream to equip and refurbish university science and engineering teaching laboratories.
- that HEFCE should review and revise its subject teaching premiums, so that levels of funding of undergraduate study in science and engineering accurately reflect the costs involved in teaching these subjects.
- that access and hardship funds should be made more effectively available to undergraduate students of science and engineering who, due

to the demands of their courses, are not so well able to fund themselves by part time employment as students in other disciplines.

- that Government should provide permanent additional funding to permit universities to offer better employment prospects to staff to aid effective recruiting in these disciplines.

There are also some recommendations that might not be quite so welcome, such as the one that pupils should have an equal chance of getting high grades in all subjects, and that it should therefore "not be more difficult to achieve high marks in science and mathematics, as currently appears to be the case". This is clearly a function of the quality with which the subjects are taught as well as of the setting and marking of the assessment. If only the assessments are adjusted to achieve the 'level playing field', then clearly the needs of the sciences will not be met.

The temporal proximity of these two reports and the similarity of the conclusions must, however, be grounds for optimism for all those who agree that the need for more people to be better trained in science has never been greater.

The Institute of Physics report on the inquiry into undergraduate physics can be found at <http://physics.iop.org/Policy/UPI/index.html>

The Robert's report can be found on the HM Treasury web site (<http://www.hm-treasury.gov.uk>) at http://www.hm-treasury.gov.uk/Documents/Enterprise_and_Productivity/Research_and_Enterprise/ent_res_roberts.cfm

Dick Bacon
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New Centre Manager

Hello everyone, my name is Paul Chin and I've recently been appointed as the new Dissemination and Networking Manager for the Centre, based here in Hull. I officially joined the Centre on 1st May 2002 so by time you read this I will already be in post and eagerly preparing to support you all in your various teaching and learning activities.

Ok, so what's my background and how have I come to work for the LTSN Physical Sciences Centre? Well, I studied Biology for my degree. After completing my degree I went on to do a Masters course in computing and it was here I first became interested in teaching and learning whilst doing a research project in Computer Assisted Learning. After this I came to Hull and the department of Biological Sciences as part of the phase 2 TLTP 'Bionet' project.



After Bionet I became involved in supporting the other science and engineering departments at Hull and eventually took on a similar role for the whole University. Over the years I have become quite experienced in the area of elearn-

ing and from last August I was drafted into a new 'eLearning Team' as an eLearning Adviser until my move to the LTSN.

In addition to my learning technology duties I continued my interest in teaching and learning by undertaking a SEDA accredited Higher Education Teaching Diploma, delivered by the University's Educational Development Team (EDT). I later went on to join the team and have now spent about 6 years as an EDT member, helping develop the course and deliver it to new staff. The course is now accredited by the ILT, of which I am a member. In addition to the postgraduate EDT teaching, I teach at undergraduate level.

I see my new job as an exciting opportunity to promote teaching and learning in the physical sciences so that more students will not only realise that there are very good careers in this field but that science can be lots of fun too. I therefore look forward to working with you and helping support you in all aspects of your work in the near future.

Goodbye Jean, hello Arlene!

A new Centre Administrator



Our administrator, Jean Quantrill will be leaving the Centre soon to take up her long promised retirement. Since the start of the Centre the administrator's post has grown from a part-time activity to that of a full-time post and Jean with her many outside interests feels unable to take on a full-time commitment. Jean has worked tirelessly in providing the essential administration support for the Centre (and previously for the FDTL project IMPROVE) and many of you will know her and miss her, as will we in the Centre. Our very best wishes go with Jean as she takes this next step. Hopefully as she is not so far away we will hear from her from time to time.

In Jean's place, Arlene Cope joins the Centre as full-time Administrator. Arlene has an honours degree in Communications and is currently studying part time for an MA in Contemporary Literature & Film. Arlene has been working as the programmes secretary in the department of Nursing in the Faculty of Health at the University of Hull. She is looking forward to meeting many of you over the coming months as she settles into supporting the work of the Centre.

Arlene Cope



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Events —2002—

- Departmental Representatives Meeting, 8th May, UMIST
- Promoting Effective Independent Learning in Physics and Astronomy, 29th May, Leeds
- SToMP Special Interest Group Workshop, 12th Jun, Salford
- Evolving Science - New Courses for New Students, 12 June, University of West of England
- Variety in Chemistry Teaching, 9-10th Sep, Keele
- Physics Discipline Network Workshop, 12-13th Sep, Leeds

Contact us or visit our web site for details.