

HUBS Spring Meeting 2010 – The recognition and accreditation of bioscience degrees
May 11 – 12 2010
Weetwood Hall, Leeds

Summary:

The HUBS Spring Meeting 2010 brought together members of the bioscience community with those who have experience/specialised knowledge of degree accreditation to discuss the motivations and mechanisms behind the proposed degree accreditation in addition to the potential impacts such a scheme may have.

From the Society of Biology website:

The Society of Biology will identify and accredit UK Bioscience Integrated Master's programmes (MSci or MBiol) which provide outcomes to a defined and focused set of criteria.

The student learning experience, including practical skills and competencies, is of utmost importance and should be clearly defined and stated in the degree programme learning outcomes. The Society of Biology will therefore develop a set of criteria that ensures the student experience underpins all aspects of an accredited degree.

In the first instance, the Society of Biology will be looking to work with any UK HEI who is already offering students an option to study an Integrated Masters programme, or who may be interested in developing, or is currently developing such a course, in the areas of in vivo skills training, or laboratory and/or field research training. It is likely that a small number of courses will be chosen as pilot exemplars for the process.

<http://www.societyofbiology.org/education/hei/accreditation>

The Society of Biology is working with the Office of Life Sciences and the Association of British Pharmaceutical Industries.

May 11 2010

Dr David Barr –Royal Society of Chemistry

[View presentation slides online](#)

In his role as Membership and Qualifications Manager at the Royal Society of Chemistry (RSC) David is responsible for the coordination of their accreditation programme. The RSC have been accrediting for around 20 years and during this time the attention has shifted from bachelor level accreditation to integrated Masters Courses in 2001. Within their accreditation process the focus is on outputs with an emphasis on problem solving, no syllabus specifications are made. The RSC, students, Universities and employers are all seen to be benefit from the accreditation scheme.

In discussing what the Society of Biology could learn from the RSC scheme, the following observations were made:

- It is important to say 'no' when appropriate to uphold standards
- Rigid criteria will cause problems – a flexible scheme will accept and recognise innovation and allow the scheme to reflect up to date course compositions and methodologies

The RSC accreditation process is peer reviewed and runs on a 5 year cycle for 40 Higher Education Institutions (HEIs). The accreditation committee meets 4 times a year and considers two submissions per meeting. The process has more recently begun to include visits to HEIs and this has been seen to increase efficiency and the speed of submission.

Discussion/observations:

- The inclusion of 400 hours of practical skills in the accreditation requirements was seen to be a double edged sword. Where it could be seen as safeguarding practical work as a course component, it was also felt that it could result in some courses being seen as too expensive and unsustainable.
- The focus on problem solving e.g. open book exams have been better received in later years

Dr Steve Hubbard – University of Dundee

[View presentation slides online](#)

During his time at the University of Dundee Steve has been involved in the creation of two MRes programmes as a result of the identification of a skills need by the Natural Environment Research Council (NERC). The curriculum for these courses was created and proposed to NERC by staff from the University of Dundee and University of St Andrews. The aim of these programmes is to increase the number of scientists working in environmental biology research with strong quantitative skills. In short, the programme translates maths and physics graduates into environmental biologists.

The intake profile of this programme has changed since its inception in 2000 with the % of international students rising from 8% in 2000 to 40% in 2010. The majority of students hold degrees in biotechnology. Despite funded places, it has still been difficult to fill the course and this raises questions about sustainability. The employment/skills need identified by the Research Council does not relate the student demand or interest in this area despite this course being regarded as the best course of its kind in the UK. The course is funded on a five year basis and funding renewal depends on the assessments of content and outcomes.

Discussion/observations:

- It was felt that the difficulty in attracting students to these courses could be explained in part, by the difficulty that teachers have in teaching plant science in an engaging and interesting way. Could this be addressed by a widespread effort to get young plant science researchers into schools?

Dr Ian Lyne – BBSRC

[View presentation slides online](#)

Dr Ian Lyne is Head of Skills and Careers at the Biotechnology and Biological Sciences Research Council (BBSRC). The BBSRC are directly involved with the Society of Biology's proposed accreditation scheme, funding a short-term project officer post at the Society in order to help with the development of the pilot scheme..

BBSRC holds that the accreditation of specific research pathways within biology degrees could offer significant benefits for students, departments and future employers (including universities recruiting PhD students). However, BBSRC is keen to ensure that the

accreditation *pilot* is just that. The pilot must examine the benefits as well as the risks, with minds kept open. 1 Points of consideration:

- New approaches to accreditation should be considered, not simply the adoption/modification of an existing model
- Accreditation should not simply be a quality mark. Biology degrees prepare people for a wide variety of careers and an accredited research pathway is unlikely to be right for all students
- The process must be robust enough to be meaningful to employers and students, but also cost effective and not impose too high an administrative burden
- Accreditation should reflect the needs of different fields of research, but without causing confusion through multiple forms of accreditation

The focus on the accreditation of integrated degrees is seen to provide students who are aiming for a career as a researcher with a clear and robust pathway. In addition, accreditation would ensure that students had the required high levels of mathematical and experimental training required for further research.

Discussion/observations:

- Could accreditation send the message into schools that maths is important?
- Unless there is a clear employment route, is it possible that students will opt to do other courses (without the high level of maths/experimental training)?
- BBSRC focus is on the bioscience research workforce, not the graduate workforce. Is this a key difference between the RSC accreditation process which looks more broadly?
- Will an accredited course require additional resources? If so, where will these come from and where is the value?

May 12 2010

Professor Robert Freedman – University of Warwick/Society of Biology

[View presentation slides online](#)

As Chair of the Society of Biology's Education, Training and Policy Committee and a Professor at the University of Warwick, Robert views accreditation from two perspectives.

From an academic perspective, the current diversity of subject/skills in bioscience degree content raises a number of issues for both potential students and potential employers. For employers, this diversity results in difficulty understanding what students have been taught (in terms of both subject and skills content) and this is reinforced by degree classifications which provide only limited information. For the students when choosing a degree they are faced with a huge array of choice, offered for varying levels of academic achievement, and with little information on skills.

These issues are, of course, seen in other disciplines. In engineering and most other sciences, there is a 4-year degree pathway to an 'undergraduate Masters' degree (MChem, MEng etc) with an option to exit after three years with a BSc/BEng. This extra year provides scope for solidification of skills and professional training. As discussed previously, professional bodies including the RSC and engineering institutes accredit these four year programmes only.

Accreditation is seen to offer a partial answer to some of the issues raised, in particular the identification of appropriately trained graduates by potential employers. With this in mind, it seems to the Society of Biology to be logical to begin with accrediting those programmes that are most similar to MChem and MEng courses. It is important to acknowledge, however, that there is the possibility that the accreditation process may uncover more issues than solutions and as a result, the pilot exercise will be as rigorous as possible.

Discussion/observations:

- Attendees at the meeting were unaware of any evidence which showed that students on these four year programmes go into industry
- As an employer of only a small number of graduates, the role of the pharmaceutical sector in the development of the accreditation scheme could be seen as too large/influential. Sector Skills Council, NHS and HUCBMS were suggested as bodies whose opinion should be sought
- Will the accreditation scheme add another layer of bureaucracy and if so, would it be more effective to aim to enhance existing programmes without accreditation

Liz Lakin – University of Cumbria/Society of Biology

[View presentation slides online](#)

As Chair of the Society of Biology's Accreditation Working Group, Liz was able to share the current thinking behind the accreditation of bioscience degrees. Accreditation is being driven by the concern voiced by employers about the skills levels of graduates in relation to employability and in turn, this concern has been heard by the Government's Office of Life Sciences (OLS). The OLS produced a 'Life Sciences Blueprint' last year which supports the Society of Biology's plans to begin the accreditation process.

The intention is to identify UK Bioscience Integrated Masters programmes (MSci or MBIol) which provide outcomes to a defined and focused set of criteria. The focus is on the student learning experience, including practical skills and competencies which should be stated in the degree programme outcomes.

Timeline overview:

July – Dec 2009	Workshop with member organisations Workshop report published online Open consultation on accreditation
January – April 2010	SB away day for discussion and development of a statement for accreditation Statement of accreditation published online Pilot HEIs sought BBSRC funding secured for next development phase

The BBSRC funding will allow the Society of Biology to recruit for a Higher Education Policy Officer to drive the accreditation work forward. The pilot programme will be launched in Autumn 2010.

Discussion/observations:

- Is the real problem that of the skill level of students coming to Universities, in which case should efforts be made to address this?
- Many of the responses to the consultation were provided by academia, as opposed to industry

Dr David Hollinshead – AstraZeneca

[View presentation slides online](#)

In his role as Associate Director / Science Policy - Science Affairs at AstraZeneca, David was able to provide the perspective of the potential employers and his experience within chemistry. In considering what it will take for UKplc to be successful in the future we need to ensure that the UK remains a country of choice for the global life science industry. This requires:

- A sustainable skills base and pipeline for the future
- Access to a vibrant SME community
- A world-class university sector

The key issue is seen to be the modular nature of undergraduate degrees which enable students to opt out of the more 'difficult' units, typically those which include a large maths component. Employers find it hard to understand the diversity of composition of degrees and identify those students who have the skills they require.

Accreditation is seen to be one solution to ensuring that 'biology' courses contain sufficient discipline rigour, maths content and practical work. It is recognised that the funding formula of accredited courses would need to be adjusted to accurately reflect the cost of practical work.

AstraZeneca employs 26 'varieties' of bioscience graduates, with this variety resulting from the tendency of bioscience graduates to describe themselves by their area of specialisation. It has been found that most bioscience graduates do not meet AstraZeneca requirements for practical experience or mathematical skills, therefore PhDs and Post-docs tend to be employed. The experience gained through sandwich courses is almost 'essential' for graduate recruitment in biological sciences.

Discussion/observations:

- The focus of accreditation should be on competencies and outcomes rather than inputs e.g. level of maths
- Accreditation could be a way of raising the profile of UK biology
- Footprint of large pharmaceutical companies is getting small, but the size of science undertaken is not decreasing. Lots of science is now being done by academic, SMEs and contract research organisations, but a challenge for the UK will be to ensure that much of this increased externalisation remains within the UK for the reasons given.
- In looking at skills globally, analytical chemistry is a little underdeveloped in the UK in comparison to Europe. In East Asia, the skills level in biosciences has risen dramatically with the focus on maths making a large contribution to this.
- In relation to adjusting the funding formula, the example of the HEFCE tiered system for the integrated masters was given. However, this may be in conflict with the Society of Biology's focus on outputs when HEFCE is focused on inputs.

Discussion session summary:

The Society of Biology's accreditation scheme is being met by a mixture of support and wariness by the Heads of Biological Sciences community.

An accredited scheme was seen as an asset when discussed in relation to recruitment and this raised the question of where the responsibility lay for promoting the scheme. Is this with the institution or the Society of Biology? Parents were seen to play an important role in student's university choice and often have a better understanding of the meaning of accredited courses than the students themselves, with many attending open days with their children.

Accreditation is seen to be a 'standard' against which other courses can be measured. However, this differentiation between courses was seen to have the potential to be both positive and negative. On the positive side, this could drive recruitment (especially for post-92 institutions that have low graduate numbers) but negatively, if more and more institutions have accredited courses, where is the value? Do we risk creating a two-tier system?

During discussion on the skills required by industry as a driver, the idea of (as an example) the pharmaceutical industry offering comprehensive sector-specific on the job skills training as opposed to HEI accreditation was suggested.

Assessment was a key issue and discussed at length. As the focus of the accreditation scheme is to be outcomes, then it will be necessary to look at current assessment practice and assess how fit for purpose this is. It was felt that the nature of assessment needs to be considered beyond the scope of formal exams. The much cited anecdote of the inability of many students to make basic solutions raised the observation that these sorts of skills require the opportunity for repetition and this is often lacking due to resource constraints. There is a significant amount of literature on alternative models in assessment and it is hoped that this will be utilised in designing an accreditation scheme.

With increased administration/bureaucracy a key concern, it is hoped that the accreditation scheme will be able to harmonise with existing practices e.g. QAA, course approval/re-approval and if possible share some of the same documentation to reduce the amount of staff time needed. In examining the possibility of harmonisation further, it was felt that the accreditation process would need to be on a five year interval. The point at which courses would be accredited is unclear as it seems unlikely that it will be possible to wait to assess the skills of the first students to have completed a four year accredited integrated masters programme and if started soon could appear contradictory to the focus on outcomes.

In a show of hands, the majority of HUBS members felt that accreditation was something that the Society of Biology should be looking at through a rigorous and unbiased pilot scheme. In closing the meeting, two key questions were raised that resonate with much of the discussion that took place:

1. Do integrated masters result in better trained graduates?
2. Does accreditation help?

The HUBS Spring Meeting 2010 was organised by the HUBS Executive Committee and the Biochemical Society.

If you have any questions about this meeting report, please email:
rebecca.smith@biochemistry.org or call to discuss on 020 7685 2451.