Report of Industry Survey on Accreditation of UK Bioscience Degrees

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Executive Summary

1. This survey was carried out in 2010 and explored bioscience employers' views of:

    - the skills gaps documented in previously published reports
    - skills, knowledge and attributes that were lacking in bioscience graduates
    - degree accreditation as a mechanism to address the skills gap

2. Employers reported that recruitment of bioscience graduates was hampered by their lack of workplace experience, practical and analytical skills and employability skills. These findings mirror those of other published surveys on graduate skills gaps[1-4].

3. Employers wanted more information about course content and analytical skills of degree courses the majority wanted more information on the practical component of degree courses.

4. Most employers felt they had insufficient knowledge of degree accreditation and what it involved.

5. Most employers agreed with the initial recommendation to focus on accrediting 4 year Integrated Masters degrees where significant practical training including a research project at Masters level is included. Some employers also expressed the view that BSc courses with an industrial placement or research year should also be included in the Society of Biology's Degree Accreditation Programme.

6. The majority of employers expressed an interest in receiving more information on and contributing to the Society of Biology's Degree Accreditation Programme.

7. The Society of Biology has used the results of this survey to help shape the framework and standards for the Accreditation Programme to ensure it reflects employers' views and includes:

    - specific knowledge, understanding and skills for routes identified by the intended learning outcomes

    - a sizable research element, which provides the opportunity to develop skills in a range of research techniques and experience of planning and analysis of at least one substantial research project

    - an expanded focus including both Integrated Masters Programmes and BSc courses with sandwich placements in the Degree Accreditation Programme

    - increased communication from the Society of Biology via the Society of Biology web site and through the development of a quarterly news bulletin on the progress of the Society of Biology Degree Accreditation Programme

1. Cogent – Biovision: Skills for Growth in UK Bioeconomy (2010) www.cogent-ssc.com/research/Publications/BioVision.pdf
2. NERC-Review of the Skills Needs in the Environmental Sector (2011) www.nerc.ac.uk/funding/available/postgrad/skillsreview/
3. LANTA –UK Skills Assessment (2011) www.lantra.co.uk/stakeholders/research-documents/skills-assessment/
4. ABPI – Skills Needs fro Biomedical Research (2010) http://www.abpi.org.uk/pages/results.aspx?k=skills

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Introduction

Many reports from industry, research councils and sector skills councils have documented the skills gaps in UK bioscience graduates (references 1-4).

In 2010, the Society of Biology carried out a survey of bioscience graduate employers. The overall aim was to gauge employers' views of:

i) the skills gaps documented in previous reports.
ii) skills, knowledge and attributes that were lacking in bioscience graduates.
iii) degree accreditation as a mechanism to address the skills gap.

The overall aim of this survey was to gather and use the information provided to help shape the Society of Biology's Degree Accreditation Programme.

Methodology

The Society of Biology invited employers of bioscience graduates to respond to an electronic questionnaire. The survey was available on the Society's website and supporting organisations and networks were used to encourage employers to respond. The survey was available for five months.

The survey comprised of twenty-one open and closed questions designed to provide both qualitative and quantitative data about the organisation responding, its needs and its experiences of employing graduates in the biosciences.

Thirty three employers responded; approximately half listed their subsector as pharmaceutical, with the rest spread across a wide range of other bioscience areas including contract research, agriculture, plants, animals, food, biomedical, beauty and academic. The survey respondents included small, medium and large employers.

Results

Graduate Employability

Approximately 50% of employers were unsure that they recruited the correct level of graduate appropriate to the needs of the job.

The above fact was supported by asking employers their actual versus desired graduate recruitment levels over the past five years (Table 1). Although employers had a desire for most of their posts to be filled by applicants with a BSc qualification they were actually employing more postgraduates, including those with PhDs.

Table 1 - Graduates Recruited into Industry according to degree level

	Qualifications of graduate recruits (%)		
	BSc	MSc	PhD
Desired	60	30	10

Actual	45	20	33

When asked what had inhibited employing graduates with a BSc and/or MSc qualification approximately 50% of employers gave four major areas where BSc graduates lacked experience or skills:

- workplace experience
- employability skills
- practical experience
- analytical skills

The above can be summarised according to one employer who stated that *'work experience is a differentiator amongst graduates.'*

Skills needs in graduates

Employers rated all the skills in the table below as very important for bioscience graduates.

Table 2 – Employers' Skills Requirements

How important is it for bioscience graduates to have the following knowledge, skills and attributes when entering into graduate entry level employment within your organisation?		
	Employers who felt it was important or extremely important (%)	Rank
Communication skills	96	=1
Maths/numeracy	96	=1
Interpersonal skills (working collaboratively in a team)	93	3
Creativity & independent thought	93	4
Critical & analytical thinking	90	5
In depth scientific knowledge & understanding	90	6
Time management & organisation	87	7
Science literacy (utilising scientific literature for research)	81	8
Ethical awareness	78	9
Detailed knowledge relevant to your industry's requirements	72	10
Practical laboratory and/or field techniques	70	11
Experimental design	67	12

When asked what information on taught and/or practical experience is useful for employers, responses fell into three main areas (Table 3).

Table 3 – Information of value to employers

What information on taught and/or practical experience is most useful		
	Employers (%)	Rank
Practical-laboratory/field skills	60	1
Analytical (data handling, statistics, maths)	20	=2
Knowledge of degree content	20	=2

Degree Accreditation

Approximately 70% of employers stated that they had insufficient knowledge of degree accreditation and four respondents stated had never heard the term before (Table 4).

Accordingly, many employers were unsure if degree accreditation in the biosciences would influence their recruitment processes (Table 5). However, 36% of employers would be influenced by the introduction of degree accreditation and one employer stated that:

'Accreditation (provided it drove standards up) would allow us to pre-select those candidates which would be able to function within the laboratory environment, thus we would use it in the recruitment process.'

Table 4 - Employer knowledge of degree accreditation

Knowledge of degree accreditation	
	Employers (%)
Informed	30
Uniformed	70

Table 5 – Effect of degree accreditation on employer recruitment practices

Would degree accreditation influence your recruitment process?	
	Employers (%)
Yes	36
No	16
Unsure	48

The Society of Biology's Degree Accreditation Programme

Approximately 80% of employers agreed with the Society of Biology's initial proposal to accredit 4 year Integrated Masters degrees where significant practical training including a research project at Masters level is included.

One employer stated, '*Adding in the work placement and research project provides significant additional skills and competencies to an individual.'*

In addition some employers commented that, '*The initial proposal to limit accreditation to Integrated Masters courses is not appropriate and that BSc sandwich courses should be included.'*

Employers expressed the clear interest in being involved in the Degree Accreditation Programme:

- 70% expressed a desire to be kept up to date on the Society of Biology's Degree Accreditation Programme
- 60% expressed an interest in becoming part of a consortium sponsoring the start-up of the Society of Biology's Degree Accreditation Programme

Most respondents said they preferred to receive further information by e-mail. Other suggestions included bulletin, newsletter or on the website.

The information employers stated they would find useful included a clear explanation of what degree accreditation means and examples of how accreditation is used. Several employers wanted details of

exactly what a graduate with an accredited degree would have done and could be expected to know and be able to do.

Communication from Society of Biology

Employers were asked what the Society of Biology could do to remain up to date and informed on the knowledge, skills, and attributes industry requires amongst new bioscience graduates. Responses included:

- active engagement with other bodies such as trades associations, professional bodies, Knowledge Transfer Networks, Research Councils.
- increasing its visibility and relevance with employers through regular contact, consultation or sponsorship of seminars.
- inclusion of industry representatives on the Society's working groups and establishment of an Industrial Liaison Group/Committee.
- developing links with HR departments and specialist recruitment organisations could help the Society to understanding more about the sector's needs.

Conclusions

This survey has confirmed data from previous surveys (references 1-4) on the skills lacking in UK bioscience graduates that affect their employability. Employers reported that recruitment of bioscience graduates was hampered by their lack of workplace experience, practical and analytical skills and employability skills.

Most employers had insufficient knowledge of degree accreditation and wanted more information from the Society of Biology about what degree accreditation is, and about the Society's Degree Accreditation Programme.

Most employers agreed with the suggested focus on accrediting 4 year Integrated Masters degrees where significant practical training including a research project at Masters level is included. Some employers expressed the view that BSc courses with an industrial placement should also be included in the Society of Biology's Degree Accreditation Programme.

Next Steps

The Society of Biology has used the results of this survey to help shape the framework and standards for the Accreditation Programme to ensure it reflects employers' views and includes:

- specific knowledge, understanding and skills for routes identified by the intended learning outcomes
- a sizable research element, which provides the opportunity to develop skills in a range of research techniques and experience of planning and analysis of at least one substantial research project

- an expanded focus and to include both Integrated Masters Programmes and BSc courses with sandwich placements in the Degree Accreditation Programme

- increased communication from the Society of Biology via the Society of Biology web site and the development of a quarterly news bulletin on the progress of the Society of Biology Degree Accreditation Programme

References

1. Cogent – Biovision: Skills for Growth in UK Bioeconomy (2010)
   www.cogent-ssc.com/research/Publications/BioVision.pdf

2. NERC-Review of the Skills Needs in the Environmental Sector (2011)
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3. LANTA –UK Skills Assessment (2011)
   www.lantra.co.uk/stakeholders/research-documents/skills-assessment/

4. ABPI – Skills Needs for Biomedical Research (2008)
   http://www.abpi.org.uk/pages/results.aspx?k=skills