Geography in Higher Education

Royal Geographical Society with IBG

Advancing geography and geographical learning

The case for teaching funding for geography

A case is being made by the Royal Geographical Society (with IBG) and the UK's geographical community for teaching funding support for geography in higher education. We are asking that the combination of technically-sophisticated field, laboratory and computing infrastructure and teaching programmes is recognised with support that will enable them to continue to produce highly employable, well trained graduates. Geographers, trained in both science and social science deal with some of the most pressing environmental and social issues facing the nation and the world. They are also at the centre of the rapidly growing field of geo-spatial data applications (GIS) for private and public sectors.

1. The nature of Geography

Geography is an holistic and integrative discipline that is unique in bridging the contemporary natural and social sciences. Physical and human geography are both at the core of the discipline and the QAA benchmark standard for geography incorporates training in both aspects within geography degree programmes, both BA and BSc. Physical geography is a field-based science which involves significant laboratory work with sophisticated and specialist laboratory facilities and a high-end technological base that incorporates computer modelling, remote sensing and geographical information systems. It underpins our understanding of earth surface environmental processes and change and the impacts of society upon these. Human geography also requires extensive fieldwork, the use of Geographic Information Systems (GIS) and the statistical analysis of large data sets such as census records. This means that all geography students are exposed to significant non-classroom teaching (field, lab and computer-based) throughout their undergraduate courses.

Thus, geography teaching at university is not only half science-based but its social science aspects are distinct from many other social science and humanities disciplines, notably in the computer-based teaching requirements of GIS and dataset analysis and fieldwork. Critically, it is this training, in its breadth and depth, that provides the skills, knowledge and understanding characteristic of a university geography degree that meets needs of UK business and the public sector and makes geographers employable, as set out below.

The case for geography teaching funding that acknowledges the science-based and other high cost elements of the subject has been made by the Society, and accepted, three times before – by UGC/UFC in 1985/6 and 1989/90 and by HEFCE 1996/97. In addition, the part-STEM nature of geographical research was recognised by HEFCE in the context of research (QR funding) early in 2010. That was based on the fact that scientific geographical research requires and attracts significant funding to ensure the necessary science-based infrastructure is in place. This is evidenced by SRIF investments; the nature of the research submitted to RAE2008 according to the assessment of the RAE Sub-Panel; the journals that the research was published in; and the research councils and charitable funding sources that supported it.

2. Essential high cost teaching elements: Laboratory, Field and Specialised IT

The part-STEM character of geography has profound implications for its methods and costs of teaching. The direct capital and recurrent costs of equipping laboratories (scientific and computer based) are significant. Fieldwork is at the heart of the discipline, bringing substantial costs for equipment and for the fieldwork programmes and visits themselves. Moreover, field and laboratory teaching are labour intensive and result in considerable costs of academic and technical staff

time. These costs are incurred in every year of a geographer's undergraduate course in higher education. In addition, in some 3rd year undergraduate courses and dissertations students make use of particularly expensive equipment such as atomic absorption spectrophotometry, scanning electron microscopy, micro-meteorological instruments and dataloggers. In many respects there is little to differentiate the delivery of the physical geography elements of geography degrees from those in earth and environmental sciences.

The teaching and training involving high cost methods and equipment occurs especially in courses that address topics such as flooding, climate change, water resources, environmental quality, soil erosion, biodiversity, regional economic development and social cohesion. The relevance of this training to some of the challenges facing the UK and the world is obvious.

3. Demand for Geography - skills, knowledge and understanding wanted by employers

Geography is an intellectually challenging subject. It requires:

- An understanding and application of scientific logic, principles, methods and laws
- Flexibility and openness of mind to deal with a range of different conceptual paradigms in both human and physical geography (transcending the natural and social sciences and humanities)
- An ability to develop and test hypotheses and to integrate ideas
- Analytical capabilities to collect/select, analyse, present and interpret primary and secondary datasets, especially spatial data, and to understand and visualise complex data.

Most geography graduates are numerate, literate, good team workers, can think analytically and critically, and are highly computer literate. Geography consistently attracts large numbers of high quality students with excellent A level grades and a wide range of A levels often including at least one other science subject.

The nature of the discipline combined with the training geography students receive at university make graduate geographers employable:

- The most recent HESA survey of university graduates showed the unemployment rates for geographers to be among the lowest recorded, second only to law.
- Analysis of a randomly selected sample the Quarterly Labour Force Survey (First Quarter 2010) substantiates this. Using graduates of sociology, media studies, history, and chemistry/physics as a varied group of comparators: geography graduates show a relatively high employment rate (85% in full time or part time jobs, overall average 82%; chemistry/physics 78%); 67% of geography graduates in employment work in professional and managerial jobs (second highest to chemistry/physics (78%), and significantly higher than media studies (54%) and sociology (56%);and 74% of geography graduates earn more than £20,000 per year, above the overall average of 70% (behind chemistry/physics 87%; but well ahead of sociology 68% and media studies 50%).
- A recent survey by ESRI (UK) (published November 2010) of 200 business leaders across the public and private sectors showed that the skills they are looking for in future employees are critical thinking (nominated by 78% of businesses leaders as key for graduates), advanced analytical skills (76%), understanding and interpreting complex data (71%), advanced technology skills (57%) and understanding socio-economic environments (54%) – all of which are gained through a geography degree.

In a modern world where an estimated 80% of business decisions are underpinned by location, it is hardly surprising that the geospatial industry is growing rapidly and of significant importance to the UK's technology base and international competitiveness. Knowledge of GIS and its applications in business to make money or to yield efficiency savings, and in the public sector to better target funding and resources, means that geography graduates who are able to illustrate an understanding of these technologies are increasingly sought after.

The environment sector is also a varied, vibrant and vital part of the UK economy and society. It relies on highly skilled people who, through their knowledge and innovation, ensure that the UK provides international leadership and solutions to the long-term challenges we face; continues to attract inward investment of high-value business; and becomes a world leader in new areas of growth such as low carbon goods and services. The NERC/Environmental Research Funders report (2010) on professional skills needs in the environment sector, which draws on the

perspectives of more than 140 employers, highlights 15 critical skills gaps. A training in geography contributes significantly to the development of between five and seven of those skills areas, depending on the specific geography programme. With their training transcending science, social science and humanities, geographers are unique in having an understanding of the methods and language of each. In addition, geography is a key provider of the knowledgeable personnel required across the wider business, management and commerce sectors as firms increasingly become environmentally aware and socially responsible.

The buoyant demand for geographers reflects the knowledge value-added in the course of their higher education, together with their strong transferable skills base.

4. Relevance and impact of Geography

The case for geography teaching funding support has been recognised repeatedly in the past. The case is even stronger today given the demonstrable ways in which geographical skills, knowledge and understanding are helping to address some of the key environmental, social, and economic challenges facing the UK, while also saving public money, improving quality of life and shaping government policies.

The relevance and quantified impact of geography is demonstrated by the case studies developed by the Society (see www.rgs.org/makingthecase). These exemplars highlight the many different ways in which geographers have a genuine economic and policy impact through the application of their research in the private sector, to the public sector and to enhance quality of life. From developing and selling new technologies for predicting ice on roads; to creating new methods of spatial analysis to help local authorities to optimise the provision of services and to identify areas of greatest financial need for assistance; and establishing more cost-efficient approaches to flood management, geographical research has a clear impact.

Given that economic and environmental processes and their effects will continue to be differentiated spatially across England, the UK and the world, geography will undoubtedly continue to be essential to policy, practice, business and to the public. We cannot do without well trained geographers.

5. The request of HEFCE

Not allocating teaching funding to recognise and support the field, lab and IT/GIS training integral to quality higher education provision in geography will seriously undermine the teaching of the discipline and the quality, value and employability of the discipline's graduates.

We believe that the absence of teaching funding will lead to a substantial weakening in the facilities for teaching and learning and the ability to deliver essential key aspects of geography programmes, including the breadth of fieldwork and the depth of laboratory work and GIS training. It will also weaken the integrative nature of the subject, which is one of its defining characteristics and strengths.

This in turn will make the study of geography less attractive to high quality students, who relish the scientifically and technologically sophisticated aspects of the subject and who are increasingly recognising the employability and relevance of the discipline.

All geography departments will be severely affected. The impacts would be greatest for those that are acknowledged leaders in the field, those with extensive laboratory-based teaching of physical geography, and those which are suppliers of highly skilled labour to users of GIS and remote sensing technologies, a major growth area in the UK economy.

Geography in the UK is world leading – it is one of the British academic success stories. We urge HEFCE to consider carefully and to provide teaching support for geography in line with its part-STEM nature to ensure the continuing contribution of highly qualified geography graduates to the UK, its public life and economy.