

[P22] Embedding ethics into the undergraduate and postgraduate curricula in biological sciences

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Introduction

Biological Sciences cover an enormous range of disciplines, many of which incorporate sensitive and contentious areas which have major ethical implications. Indeed, the Biosciences benchmark statement requires students *'to be confronted by some of the scientific, moral and ethical questions raised by their study discipline, to consider viewpoints other than their own, and to engage in critical assessment and intellectual argument'* (QAA, 2002). The provision of training in ethics is also a key requirement of the Research Councils'/AHRB joint statement on skills training for postgraduate students (Research Councils, 2001).

Whilst we provide some ethics teaching within individual undergraduate and postgraduate degree programmes offered by the Faculty of Biological Sciences, University of Leeds, it is not available to all students, nor is it provided in an integrated way. The award of a Centre for Excellence in Teaching and Learning in Interdisciplinary Ethics (IDEA CETL) to the University has provided a unique opportunity for biological scientists and ethicists grounded in philosophy to work in partnership to address this problem.

Our aim is to provide a comprehensive and progressive training in ethics throughout individual degree programmes within the Faculty, covering both discipline-specific issues and also generic issues that are applicable to all biological scientists. Given that the framework within which each graduate can make their own ethical decisions is often not presented to students, and the range and variety of values which underpin these decisions are not made explicit, we seek to remedy this situation. In addition, many biological sciences graduates take jobs outside the discipline and therefore we wish to equip our graduates with the ability to think through ethical issues which they may encounter in future employment, regardless of career chosen. In developing this new provision, we see no purpose in replicating case studies or teaching material in areas where these already existed, but would produce subject-specific materials in areas where these are not available in order to fulfil our objectives.

Implementation of new provision

A position audit of current provision and how individual module leaders and programme managers wished to develop ethics teaching within their respective modules and programmes was undertaken. Student opinion was also sought. As a result of these audits, the decision was taken to embed any new provision for Level 1 and 2 undergraduate students

within existing professional skills, tutorial or practical modules rather than to develop specialist, 'stand alone' ethics modules for each programme/level. However, an optional ethics module would be developed for those Level 3 students who were interested in ethics and ethical issues and who wished to be provided with further training in this area. This process of the development and subsequent implementation of new ethics teaching and training throughout all of our undergraduate programmes has been greatly facilitated by the planned restructuring by the Faculty (2007/2008) of the curricula of all of these programmes. At postgraduate level, new provision would be imbedded into existing skills modules and training courses/workshops for taught masters and research students respectively. All of this new ethics provision will be delivered using predominantly case studies or role play, supplemented by the occasional lecture where appropriate.

For undergraduates, we aim to introduce students to ethics and ethical thinking at Level 1, with topics covering three non-discipline specific issues (*Life skills, Teamwork, Plagiarism*) and a discipline-specific issue which requires limited subject-specific knowledge (e.g. Drugs in the third world). In 2006-2007, one or more of these topics has been piloted in all degree programmes within the Faculty. At level 2, we wish to provide additional training in generic issues (e.g. *ownership and confidentiality; scientific integrity*), these topics designed to provide specific training prior to students undertaking research projects at Level 3. In addition, all students will be provided with discipline specific training relevant to their individual programmes. Thus, all students who use animals or animal tissue in the course of their studies will attend a seminar on '*the use of animals in scientific research*' whilst those who undertake studies involving humans will be provided with training in '*the use of human subjects and the principles of informed consent*'. Both of these seminars cover the relevant law and wider ethical implications of such studies. In 2006-2007, the '*animal studies*' seminar has been incorporated into all relevant degrees programmes, the '*informed consent*' lecture and seminar has been piloted in the BSc Physiology degree programme. We have also introduced a specialist level 3 module (BMSC3226 Ethical Issues in Biomedical Sciences) for students registered on the biomedical sciences group of programmes, this module covering topics relevant to these students e.g. '*Reproductive medicine*'; '*Organ transplantation*'. In 2007-2008, the range of topics will be expanded to encompass ethical issues spanning across the Biological sciences therefore making it suitable for all level 3 students across the Faculty.

Similarly, we wish to provide training in both generic and discipline specific issues for both our taught and research postgraduate students. Thus, in 2006-2007, all postgraduate students attended seminars on '*plagiarism*' and '*avoiding misconduct in biosciences research*', an additional seminar on '*values in research: ethical issues concerning ownership*' was also provided for research students. The latter students also received discipline-specific training relevant to their research project e.g. '*the use of animals in scientific research*' or '*human subjects and the principles of informed consent*'. This discipline-specific provision will be incorporated into taught masters courses in 2007-2008.

Feedback from students and staff

After delivery of each new 'block' of ethics provision to individual programmes or levels, we have sought feedback from both staff and students. Feedback has been extremely positive, both with regard to methods of delivery and content. In addition, individual teaching sessions have increased student awareness of specific ethical issues, provided essential knowledge (e.g. current legislative or ethical requirements) and removed popular misconceptions (e.g. regarding the use of animals in scientific research). We will incorporate this feedback into the development and expansion of provision for the next academic year.

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References

The Quality Assurance Agency for Higher Education (2002) <http://www.qaa.ac.uk/academicinfrastructure/benchmark/honours/biosciences.asp#1>

Research councils skills statement (2001) http://www.bbsrc.ac.uk/funding/training/skill_train_req.pdf

Interdisciplinary Ethics Applied Centre of Excellence in Teaching and learning (IDEA CETL). <http://www.idea.leeds.ac.uk>