

"Excellently organised, very constructive, exchange of good practice"

"Very useful to interact with other teachers of bioethics and hear different approaches to teaching"

"Also, enjoyed keynote speaker. Always interesting to hear a philosopher"

This event provided an opportunity for colleagues to discuss practice and share ideas on how best to prepare students to deal with issues associated with environment and sustainability. The day consisted of presentations from bioscientists describing the delivery of environmental ethics teaching and practical examples of effective approaches, techniques and methods.

Delegates had the opportunity to:

- Hear views of why it is important to teach environmental ethics and help bioscience students to develop their ethical decision-making skills
- Listen to accounts of practical examples of appropriate approaches, techniques and methods for teaching environmental ethics to bioscience students

The event also contained a swapshop session, giving delegates the opportunity to share ideas and practice in a short presentation.

Welcome and Introduction to the day

Steve Maw, UK Centre for Bioscience

Steve welcomed delegates to the event and outlined the programme and activities for the day

The challenges of teaching environmental ethics

Professor John Bryant, University of Exeter

John discussed some of the challenges of teaching environmental ethics, focussing on one of the major current concerns – climate change. The three major challenges in teaching he focussed on were the philosophical / theoretical (joining the environmental and the ethical and different ethical frameworks), practical (enabling students to develop the skills to think and argue rationally) and social (balancing human need and environmental concern).



Keynote: Precaution, sustainability and Copenhagen: teaching ethics to scientists

Professor Robin Attfield, Cardiff University

Robin discussed his teaching of ethics to bioscience students, initially teaching genetics students about the precautionary principle and how it should be considered in relation to genetic engineering. The precautionary principle looks at interventions to prevent actions with the potential for serious impacts in advance of there being a full scientific consensus. Robin outlined how this could be useful in discussion of anthropogenic global warming.

Sustainability issues also formed part of Robins talk including the Brundtland Definition of sustainable development, he spoke about how the issues surrounding the report need to be taken into account when teaching environmental ethics, for example the differing interpretations of what sustainable development is. Robin highlighted the need to use local issues when teaching, but also

the need to emphasise global issues as sustainable development needs to be taken up globally to succeed.

Robin also spoke briefly about the different focus of ethics in the biosciences. For example biomedical ethics tends to be interpersonal issues, where as environmental ethics is global and intergenerational and also looks at the standing of other species.

References from Robin's presentation:

- Robin Attfield, *Environmental Ethics: An overview for the 21st Century*, Cambridge: Polity, chapter 5, pp126-158
- Jenneth Parker, Precautionary Principle, in Ruth Chadwick (ed), *Encyclopaedia of Applied Ethics* (4 vols) San Diego: Academic Press, 1998, vol 3 pp 633 – 641
- Poul Harremoës et al, *Late Lessons from Early Warning: the Precautionary Principle 1896-2000*, European Environment Agency, Environment Issue Report 22: www.eea.eu.int
- World Commission on Environment and development, *Our Common Future* ('the Brundtland Report), Oxford: Oxford University Press, 1997
- Mary Tiffen, Michael Mortimore and Francis Gichuki, *More people, Less Erosion: Environmental Recovery in Kenya*, Chichester: Wiley, 1994
- Kenneth Goodpaster, 'On being Morally Considerable', *Journal of Philosophy*, 75, 1978, 308-325
- Paul Baer, Tom Athanasiou and Siavn Kartha, *The Right to Development in a Climate Constrained World: The Greenhouse Development Rights Framework*, EcoEquity, 2007: www.ecoequity.org/docs/TheGDRsFramework.pdf

Teaching environmental ethics: gate-crashing, star-gazing and mud-wrestling

Mark Huxham, Edinburgh Napier University

In his talk Mark focussed on making environmental ethics interesting and relevant to students and looked at three approaches he had used with undergraduate and Masters students.

Introducing ethics into statistics sessions prompted debate on ethical issues, looking at "outliers" and interpretation of data can encourage students to think about environmental issues from a different angle. Mark also spoke about how the scientific method of writing impersonally can enable students and scientists to detach themselves from the ethics of their work. Examples of personal behaviour can be used to highlight ethical issues and concerns, the example Mark gave was that of the overseas fieldwork undertaken by his students, one of the learning outcome was to 'evaluate the ethical issues involved in overseas fieldwork, decide whether carbon offsetting is appropriate and if so make a commitment to a particular method'.



Applied Bioethics: Bioethics of Food and the Environment

Kate Millar, Centre for Applied Bioethics, University of Nottingham

Kate looked at a variety of ways of introducing ethics to bioscience students, including relating bioethics to student's future lives, developing the skills to explore ethical issues and thinking about career opportunities. Ethics can provide the opportunity to develop communication skills and the skills employers value in terms of corporate social responsibility.

Internationalisation can also be an important consideration in ethics, for example is much of the ethics focussed on a Christian viewpoint? What about the ethical views of international, secular or atheist students? Kate also discussed the interdisciplinary nature of ethics, bringing in political scientists and sociologists and discussed how popular culture examples can be used in ethics teaching.

For more information about the Centre for Applied Bioethics please see www.nottingham.ac.uk/bioethics/index.html

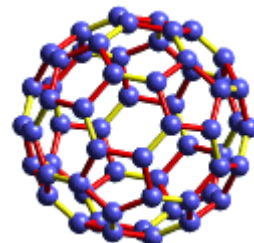
Parallel workshops

Delegates divided themselves into two groups and discussed the environmental aspects of nanotechnology or nuclear power.

Exploring the environmental aspects of nanotechnology – a case study approach

Donal O'Mathuna, Dublin City University

The discussion in Donal's session focussed on the development and use of nanotechnology. Nano molecules are already being used in products such as sunscreen and safety regulations for nanoparticles have been based on the regulations for larger particles which have very different properties. The precautionary principle was discussed in relation to the use of nanoparticles. Nano toxicity was also discussed and the potential for nano technology to provide new methods of drug delivery.



Nuclear Power - the Bright Future?

Chris Southgate, University of Exeter

Chris facilitated discussion around nuclear power, in particular the audience's perception of whether 700 1GW nuclear plants ought to be used as one of Pacala and Sokolov's 7 'wedges' to restrict the impact of climate change. Discussion was wide-ranging from questioning the benefits of nuclear power and the merits of the other wedges, debate over society's needs as opposed to wants, as well as, the recognition of the importance of alternative energy sources which may be used for travel.

For further information see:

Pacala, S. and Socolow, R. (2004) Stabilization Wedges – Solving the Climate problem for the Next 50 Years Using Current Technologies, *Science* 305 (5686), August 2004, pp. 968-72 and comment in Mark Lynas, *Six Degrees: Our Future on a Hotter Planet*, London: Fourth Estate, 2007, pp. 293-98).

Swapshop session: short informal contributions from delegates - an opportunity to share ideas or practice on aspects of ethics teaching and get feedback from colleagues.

Videos and bioethics - Chris Willmott (University of Leicester) showcased a module in which students produced short videos on a variety of bioethical topics. Students researched the topic and produced a 3-4 minute video aimed at their peers.

Scenario-based approaches to Environmental and Conservation Ethics - Roger Downie (University of Glasgow) described a scenario based approach to teaching environmental ethics. Students were given both local and international examples of conservation and environmental ethics scenarios. Local examples raised awareness among students about local issues and international scenarios covered a wide range of ethical topics.

Introducing bioethics: the 'ethics committee' and the 'focus group' - Mark Goodwin (GENIE CETL) described how ethics and bioethics had been used in outreach and community based events. Mark also discussed sessions in which he had used clickers to enable students to discuss and explore ethical issues step by step using yes / no responses.

An Introductory Exercise in Articulating Values in Environmental Ethics - Iain Matthews (University of St Andrews) described an interdisciplinary module in which an ethical problem (the

lifeboat exercise) is used to introduce a variety of themes and key concepts in environmental ethics to students.

Teaching Nanoethics Using Science Fiction - Donal O'Mathuna (Dublin City University) discussed how sci-fi can be used to bring out thoughts and ideas on ethical issues that might not otherwise be voiced

Reflections on the day and close

Chris Willmott (University of Leicester) reflected on what he would be taking away from the day and his highlights from the day's talks.

Presentations from the day and related resources are available from www.bioscience.heacademy.ac.uk/events/cardiff091209.aspx

