



# **Evaluating the provision of training in in-vivo sciences within UK Bioscience undergraduate degree programmes**

**Dave Lewis**

IMSB & IDEA CETL

**Terry McAndrew**

IMSB & Centre for Bioscience

# Aims of the project

- Survey extent of provision of training in in-vivo sciences in UK Universities
- Identify gaps in provision
- Gather and publish best practice/teaching materials
- Improve training → improve animal welfare

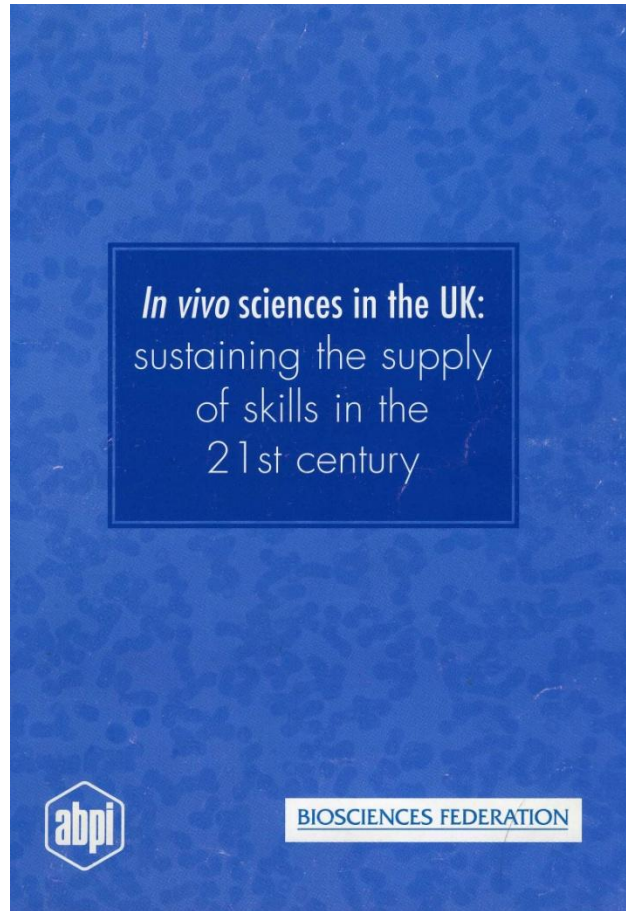
# UK law governing animal experimentation

## Animal (Scientific Procedures) Act 1986

- “Protected animal” - vertebrates
- Home Office licences
  - Personal licence (PIL)
  - Project licence (PPL)
  - Certificate of designation
- Home Office modules 1-5
- In-vitro experiments- Schedule 1 culling

# What training should we be providing?

## What do employers want?



- Animal (Sci. Proc.) Act
- Knowledge & understanding 3Rs
- Animal handling
- Experimental design
- Statistical design
- Animal models of disease
- Animal welfare
- Recognition of normal / ill-health
- Ethical review processes
- Harm / benefit analysis
- Arguments for & against
- Science and society training
- Alternatives

# Determining the extent of provision of training in in-vivo sciences & gathering best practice

- On-line questionnaires
- Expansion of remit – other disciplines & Industry
- Distribution
- Undergraduate survey

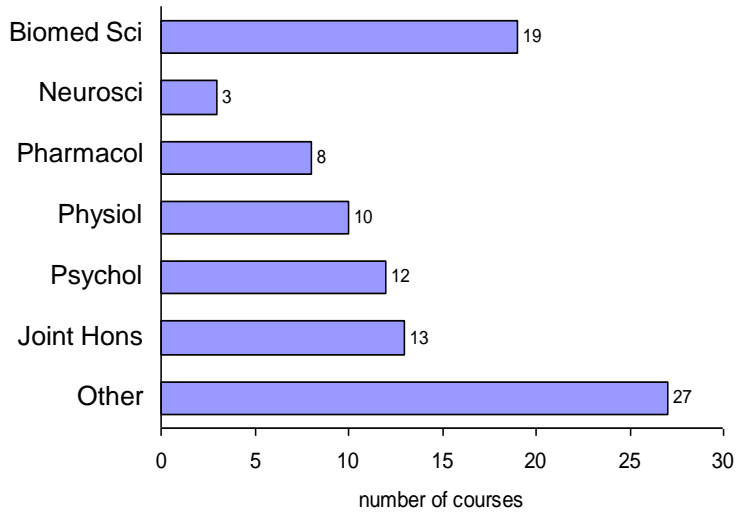
# Key questions regarding undergraduate training in in-vivo sciences

- Do we provide any training for students who use isolated tissues/cadavers?
- What training is provided for PIL holders in addition to HO modules 1-3?
- Do any students receive “Science and Society” training?
- What training do Staff think should be provided?
- Examples of best practice and/or teaching materials
- Are there any gaps in provision and/or lack of suitable teaching materials?

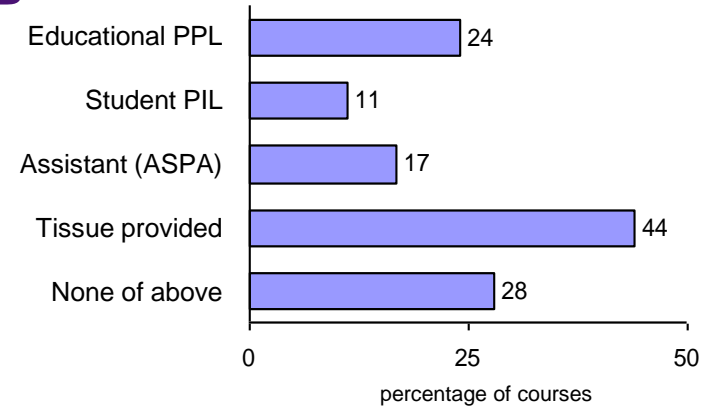
# The survey

## Degree programmes & licences

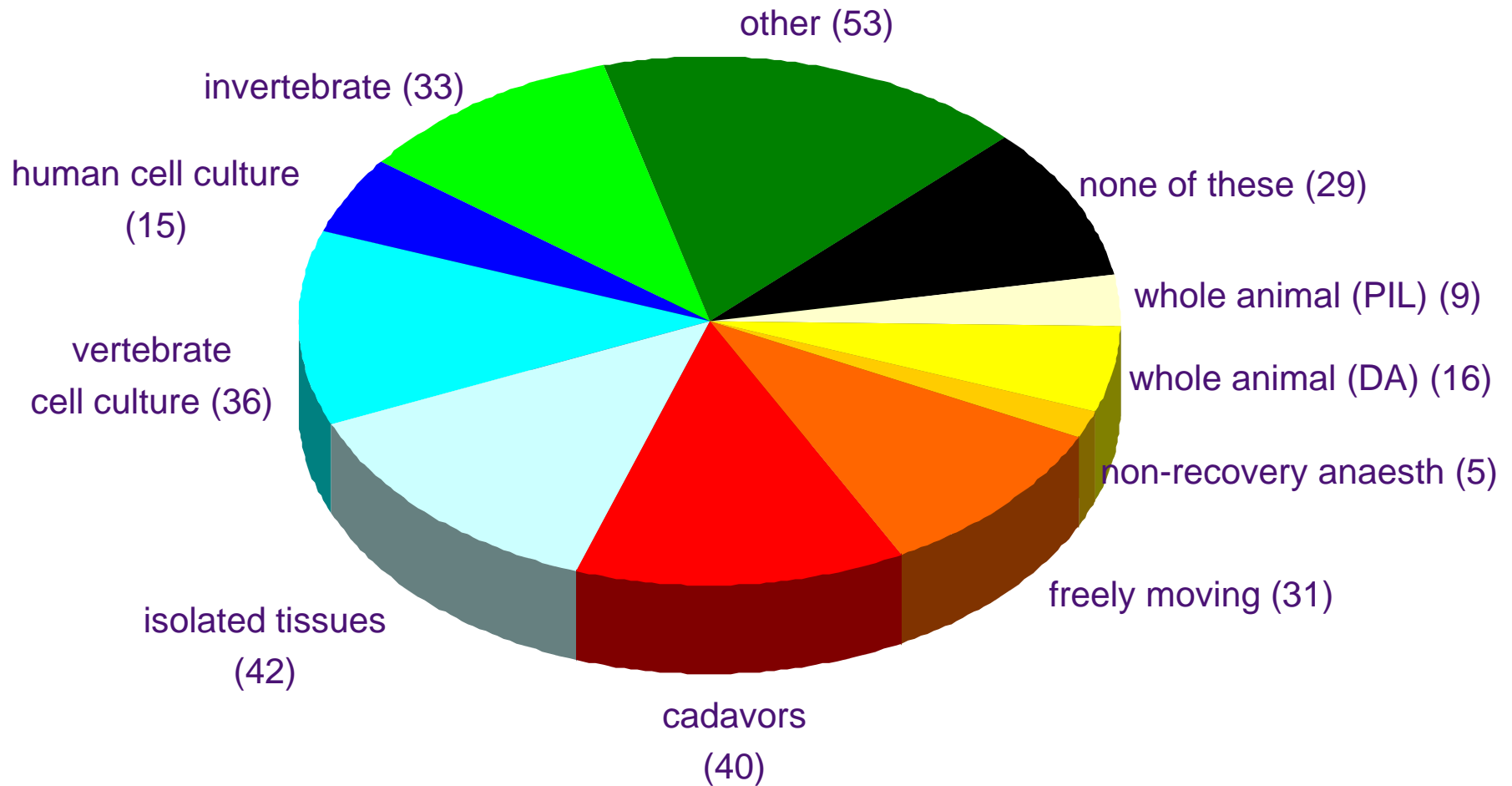
**A**



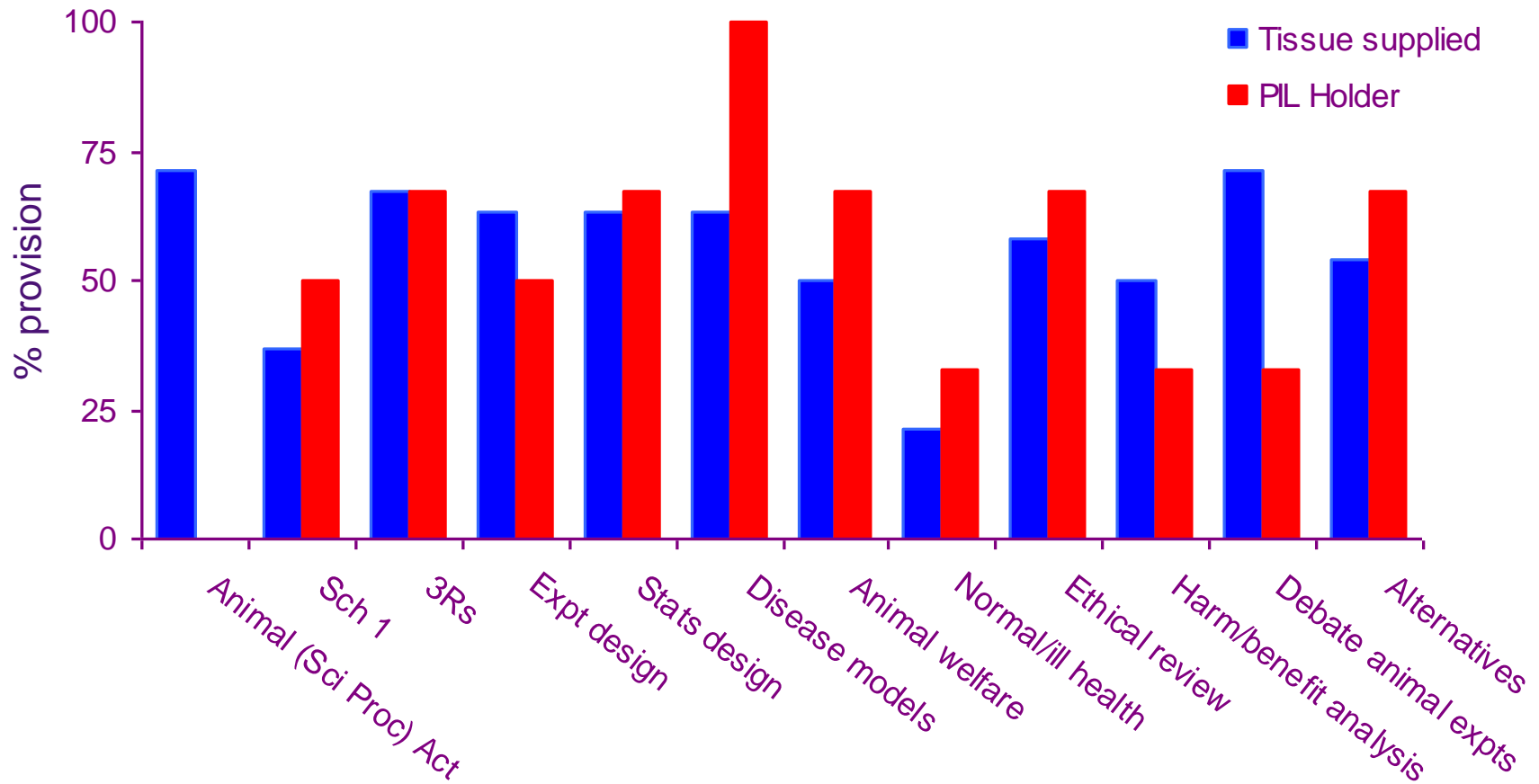
**B**



# Student use of animals and animal tissue

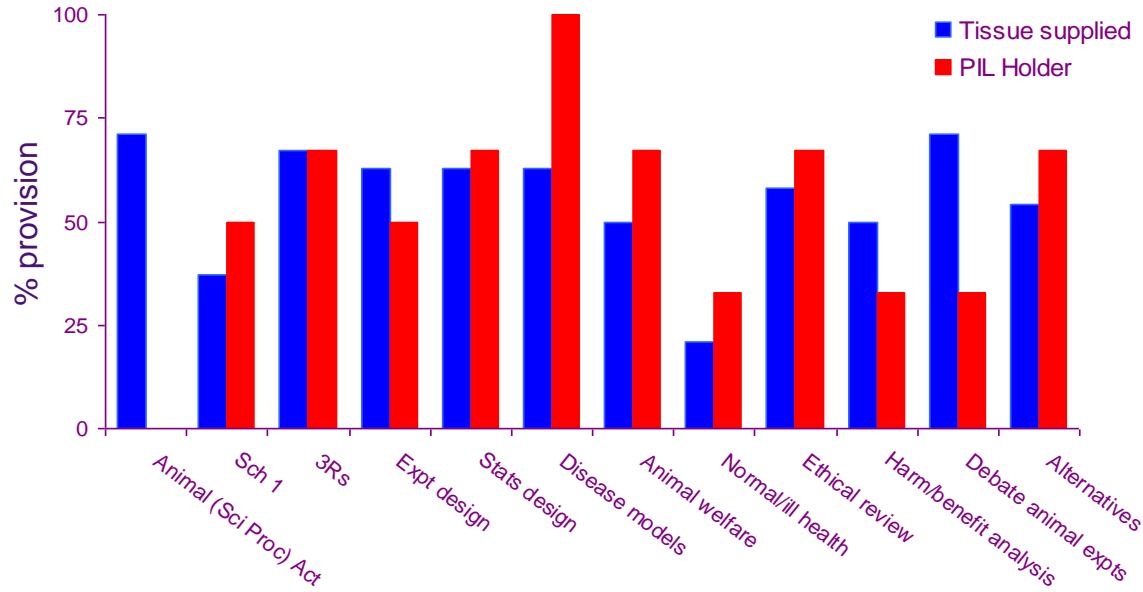


# Training provided for Undergraduates

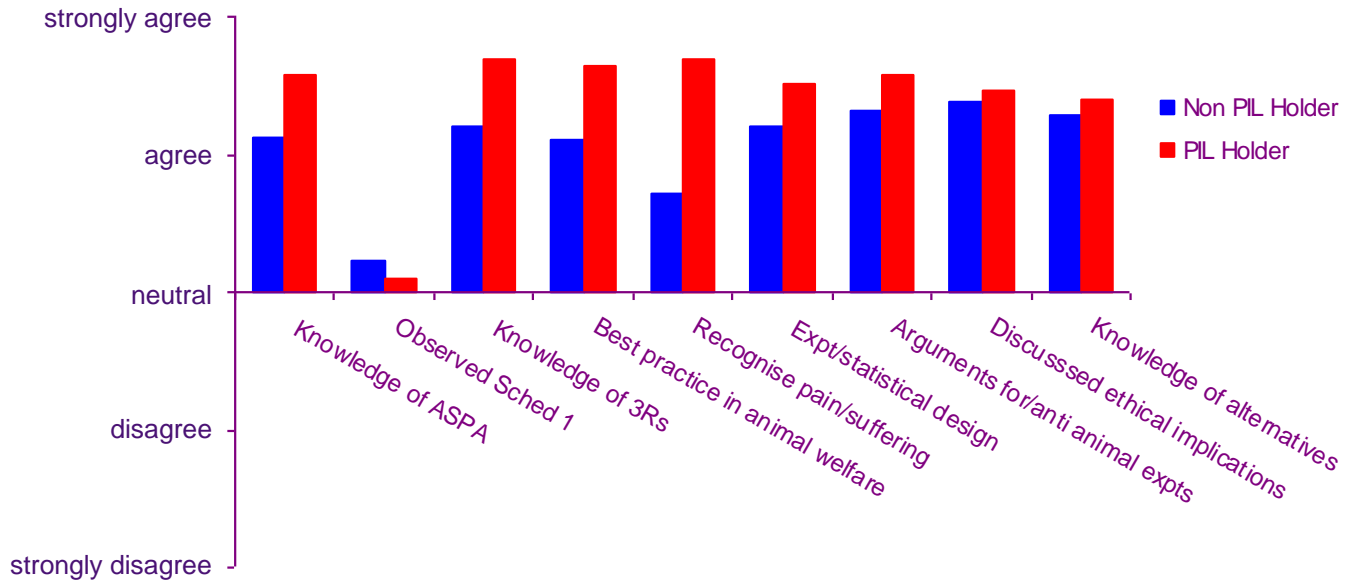


# Current provision versus staff expectations

**A**



**B**



# Increased ethical awareness & knowledge of ethics/law for students who use animal tissues

- Aim: To enable students to make an informed decision on the use of animals in research
- Format: Short presentations followed by roundtable discussion
- Presentations:
  - Role play, delivered from perspective of anti-vivisectionist, reductionist, patient/clinician or scientist
  - Provides background knowledge
- Roundtable discussion
  - Covers ethics, law & compliance, alternatives, “Science and Society”
  - Enables students to consider/confront their own viewpoints

**Institute of Membrane & Systems Biology**  
FACULTY OF BIOLOGICAL SCIENCES

**UNIVERSITY OF LEEDS**

**SEMINAR 1: STUDENT HANDOUT**

**CAN THE USE OF ANIMALS IN SCIENTIFIC RESEARCH BE JUSTIFIED?**

The use of animals and/or animal tissue in scientific or medical research raises strong emotions, with individuals either fundamentally opposed to or strongly supportive of such experimentation. Can it be justified either ethically or on scientific grounds? The aims of this seminar are to:

1. explore the case both for and against the use of animals in scientific and medical research
2. increase awareness of the ethical issues and legislative requirements surrounding such studies

**Seminar organisation and assignments:**

The session will be based around a series of short presentations followed by a group discussion of issues raised. Students will be divided into groups, with each group being required to prepare **one presentation** lasting a maximum of **7 minutes** (as a PowerPoint presentation or with overheads) to promote the case for one particular point of view or interest group. Any group going over this time limit will be stopped mid-presentation. These topics will be assigned to the sub-group randomly by the tutor to ensure that all topics are covered. The presentation should not just be a list of facts but should be a reasoned, logical argument which seeks to persuade the audience to a particular point of view (your allocated topic). Your presentation should not comprise of a list of groups that support your cause or a list of their aims or objectives. Instead, it should comprise of an introduction, the main body of the talk which provides evidence to support your cause and a conclusion. You can use emotional arguments but these should be supported by scientific facts. Even if you don't agree with your allocated viewpoint, for the purposes of this presentation you should adopt the position of a committed believer of your cause. Following these presentations, there will be a roundtable discussion of the issues raised.

Before the seminar, all groups should also prepare a **one page summary**, in bullet point format, of the key facts underlying their argument. This should be emailed to (tutor name) a minimum of **48 hours** before the seminar. Assessment for this tutorial will be based on your summary, the presentation itself and your individual contributions to the subsequent round table discussion.

**Organisations campaigning for laboratory animals**

- British Antivivisection Organisation <http://www.bava.org.uk/bavonorder.co.uk>
- British Union for the Abolition of Vivisection <http://www.buav.org>
- Animal liberation front <http://www.animalliberation.net>
- Stop Huntingdon Animal Cruelty <http://www.shac.net>
- Uncaged <http://www.uncaged.co.uk/iams.htm>
- People for the Ethical Treatment of Animals <http://www.peta.org.uk/>

**Organisations working on animal welfare and the 3Rs (refinement, reduction and replacement of animal use in research)**

- Fund for the replacement of animals in medical experiments <http://www.frame.org.uk>
- RSPCA <http://www.rspca.org.uk>
- National Centre for the 3Rs <http://www.nc3rs.org.uk/>
- Universities Federation for Animal Welfare <http://www.ufaw.org.uk/>

**Scientific bodies explaining the need for animals in medical research**

- Research Defence Society <http://www.rds-online.org.uk>
- Association of Medical Research Charities <http://www.amrc.org.uk>

**Patient groups supporting the need for animal studies**

- Pro-Test <http://www.pro-test.org.uk/>
- Coalition for medical progress <http://www.medicalprogress.org/>

Additional links can be found on the Research Defence Society website: <http://www.rds-online.org.uk> and the Home Office website: <http://hps.encaandresearch.homeoffice.gov.uk/animal-research/reference/>

**Inter-Disciplinary Ethics Applied**  
A Centre for Excellence in Teaching and Learning

IDEA CETL [www.idea.leeds.ac.uk](http://www.idea.leeds.ac.uk)

# “Science and Society” Training

## Debating the arguments for & against animal expts

- Aims:
  - Training in debating animal experimentation
  - Consider alternatives to animal use
- Role play: 4 groups anti-vivisectionist, reductionist, patient/clinician or scientist
- 10 minute presentation
- Debate- 15 min defending their “cause” in response to questions from opposing groups
- Blog personal reflections after the teaching session

*“Before, if offered the choice between a computer and a mouse disease model, I'd gone for the animal method straight away. Computer modeling was something a bit geeky - not for 'proper' scientists. I am now slightly ashamed of this narrow-minded view and am much more open to at least trying alternative methodologies.”*

Institute of Membrane & Systems Biology  
FACULTY OF BIOLOGICAL SCIENCES

UNIVERSITY OF LEEDS

STUDENT HANDOUT

**PUBLIC COMMUNICATION OF SCIENCE: CAN THE USE OF ANIMALS IN RESEARCH BE JUSTIFIED?**

The use of animals and/or animal tissue in scientific and medical research raises strong emotions, with individuals either fundamentally opposed to or strongly supportive of such experimentation. Can it be justified either ethically or on scientific grounds? The aims of this seminar are to:

1. explore the case both for and against the use of animals in scientific and medical research
2. provide knowledge of the main arguments utilised by both sides
3. through debating the use of animals in scientific research, provide training in the public understanding of science thereby equipping you to be better able to justify your own work in the future

**Seminar organisation and assignments:**

The session will be based around a series of short presentations followed by a group discussion of issues raised. Students will be divided into groups, with each group being required to prepare one presentation lasting a maximum of 10 minutes to promote the case for one particular point of view or interest group (scientist, patient, anti-vivisectionist, reductionist). These will be assigned to the sub-group randomly by the tutor to ensure that all topics are covered. The presentation should not just be a list of facts but should be a reasoned, logical argument which seeks to persuade the audience to a particular point of view (your allocated topic). Your presentation should not comprise of a list of groups that support your cause or a list of their aims or objectives. Instead, it should comprise of an introduction, the main body of the talk which provides evidence to support your cause and a conclusion. You can use emotional arguments but these should be supported by scientific facts. Even if you don't agree with your allocated viewpoint, for the purposes of this presentation you should adopt the position of a committed believer of your cause.

Whilst you should all assist with the preparation of the presentation, it should be delivered by just one member of the group. There will be no access to the University network so you should bring your presentation on a memory stick or CD. Following these presentations, each group will have 15 minutes to respond to questions from the opposing groups and to defend their cause.

Before the seminar, all groups should also prepare a one page summary, in bullet point format, of the main points of their argument to include supporting facts. This should be emailed to Tutor name 48 hours before the seminar, who then will circulate it to the other groups. Opposing groups' summaries should be utilised to prepare a defence for your arguments in the subsequent debate.

**Organisations campaigning against the use of animals in research**

- British Antivivisection Organization <http://www.sava.psv.bvsvonder.co.uk>
- British Union for the Abolition of Vivisection <http://www.buav.org>
- Animal Liberation Front <http://www.animalliberation.net>
- Stop Huntingdon Animal Cruelty <http://www.shac.net>
- Unisageit <http://www.unisageit.co.uk/ama.htm>
- People for the Ethical Treatment of Animals <http://www.peta.org.uk/>

**Organisations working on animal welfare and the 3Rs (refinement, reduction and replacement of animal use)**

- Fund for the replacement of animals in medical experiments <http://www.frame.crc.uk>
- RSPCA <http://www.rspca.org.uk>
- National Centre for the 3Rs <http://www.nc3rs.org.uk/>
- Universities Federation for Animal Welfare <http://www.ufaw.org.uk/>

**Scientific bodies explaining the need for animals in medical research**

- Research Defence Society <http://www.rds-society.co.uk>
- Association of Medical Research Charities <http://www.amrc.org.uk>

**Patient, clinician and other groups supporting the need for animal studies**

- Patients voice for medical advance [www.patientvoice.org.uk](http://www.patientvoice.org.uk)
- Pro-Test <http://www.pro-test.org.uk>
- Coalition for medical progress <http://www.medicalprogress.org/>

Additional links can be found on the Research Defence Society website: <http://www.rds-society.co.uk> and the Home Office website: <http://www.homeoffice.gov.uk/animal-research/evidence/>

 Inter-Disciplinary  
Ethics Applied  
A Centre for Excellence in Teaching and Learning

IDEA CETL [www.idea.leeds.ac.uk](http://www.idea.leeds.ac.uk)

# Ethics in dissertations

- Direct ethical issues and wider social implications
- VLE discussion forums for collaborative learning

The screenshot shows a Blackboard VLE interface. The top navigation bar includes 'Home', 'Content Collector', 'Resources', 'My Tab', and 'Help'. The University of Leeds logo is in the top right. A left-hand navigation menu lists various site functions like 'Announcements', 'Administration', and 'Navigation'. The main content area displays a forum thread titled 'Thread Detail' for 'Ethical Considerations for an In Vivo Project'. The thread has 2 total posts and 0 unread posts. The first post is by Keturah Darbyshire, dated 4/23/09 2:48 PM. The second post is by David Lewis, dated 4/24/09 6:59 AM. Below the posts, the thread details show the author as Keturah Darbyshire, posted on Thursday, April 23, 2009 at 2:48:35 PM BST, with 113 total views and 18 user views. The thread content discusses the ethical implications of an in vivo project involving rats, specifically focusing on the effects of postnatal overnutrition on brain pathways and the use of animals in research. It mentions that the project was approved by the University of Leeds Ethical Review Committee and describes the experimental procedures, including the use of anaesthesia and the monitoring of vital signs. The text also discusses the ethical justification for using animals in this research, noting that the benefits of understanding obesity outweigh the moral cost of animal suffering.

Powered by Blackboard

# Acknowledgements



National Centre for the Replacement, Refinement  
and Reduction of Animals in Research

British Pharmacological Society  
Physiological Society  
Institute of Biology  
Heads of University Biological Sciences (HUBS)  
HEA Centre for Bioscience  
HEA Psychology Subject Centre  
British Neuroscience Association  
Society for Experimental Biology  
British Psychological Society