



LAS-Learning

Trainees Instructions

EU Module 9 - Ethics, Animal Welfare and the Three Rs - Level 2

Development of interactive e-learning modules on specific areas of the Education & Training framework facilitating implementation of DIR 2010/63/EU

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1. Module Description

1.1 Overview

This module - Ethics, Animal Welfare, and the Three Rs, level 2 - will explore the ethical considerations and the Three Rs concerning animal use. We will look at various perspectives on animal science within Europe and globally. The module will discuss the connections between ethics, the Three Rs, and scientific validity and applicability of research results. Legal and policy constraints on animal research will also be addressed. We will examine the harm-benefit analysis tool in detail. Furthermore, we will highlight the importance of transparency and dialogue when communicating with the general public, including using non-technical summaries.

This module will cover five topics: Different views on animal experimentation, Science and the Three Rs, Legislation and Ethics, Project review and harm-benefit analysis, and Dissemination and dialogue.

If you are visiting the site independently, you should consult the EC Training and Education framework [guidance document](#), which provides an overview of training requirements for individuals with different responsibilities under their relevant national legislation. Additional education and training may be necessary to meet national or institutional requirements.

This document offers suggestions for supporting your training. Each module aligns with the learning outcomes specified by the EU Education & Training framework for laboratory animal science. This module was developed by Anna Olsson and Paulin Jirkof, two renowned experts with extensive experience researching, publishing, and training in animal welfare, animal ethics, and the Three Rs. In addition, an international Reflection Group panel has further refined the content, while Nuno H. Franco managed overall coordination.

Your collaboration and feedback are greatly appreciated, as the module is currently in the testing phase.

1.2 Topics Covered

- Different views on animal experimentation
- Science and the Three Rs
- Legislation and Ethics
- Project review and harm-benefit analysis
- Dissemination and dialogue

1.3 Learning Objectives

- Understand and critically evaluate various ethical, scientific, and societal perspectives on animal experimentation.
- Apply the principles of Replacement, Reduction, and Refinement (Three Rs) to promote ethical and responsible animal research.



- Identify and interpret key legal frameworks and ethical guidelines governing animal experimentation.
- Assess the ethical justification of animal research projects through harm-benefit analysis and review processes.
- Effectively communicate research findings and engage in informed discussions on animal experimentation with diverse audiences.

To support your ongoing learning, each module concludes with a curated list of recommended readings and cited references. Whenever possible, these references are linked to facilitate further exploration.

2. Prerequisites and Requirements

No specific prior knowledge is required. However, a basic understanding of searching bibliographic databases and a background in laboratory animal science and/or non-animal methods can be advantageous.

This module is designed to guide you step by step, eliminating the need for prior study.

2.1 Requirements

- Completion of lessons and understanding of learning objectives.
- Participation in knowledge checks and assessments to evaluate understanding.

3. Grading and Completion

Grading will be based on the successful completion of knowledge checks and assessments provided at the end of each module. Upon finishing all parts of the module, students will receive a certificate of completion. If proof of completion for a specific section is required, learners may be asked to take a screenshot of the screen, as each part's completion is indicated. This ensures transparency and verifiability of progress.

4. Textbooks and Reading Materials

The **“References and Further Reading”** lesson provides most references and readings. They comprise scientific articles, sections of books, websites, and videos. Clicking on any link will open a new window to download or visualise the additional material. Several links to further resources can also be found in the module contents to better guide the reader.

The additional materials provide more information on specific topics, tools, and resources.



5. Course Program

The module is organised into seven chapters, with lessons and learning objectives as follows:

Chapter	Lesson	Learning objectives
Introduction	1	Get to know the learning objectives
Different views on animal experimentation	2-6	<p>Explain the importance of studying public opinion and the factors affecting public acceptance</p> <p>Discuss how animal experimentation has been criticised for almost as long as it has existed</p> <p>Discuss "From the first EU legislation to Directive 2010/63/EU"</p> <p>Understanding the dilemma of using animals in experiments in the light of ethical theories</p> <p>Assess your knowledge</p>
Science and the Three Rs	7-9	<p>Explain the challenges of translation and validity of animal research in science</p> <p>Describe the Three Vs of validity in animal research</p> <p>Describe the Three Rs in Europe</p>
Legislation and ethics	10-12	<p>Discuss the limits to research in Directive 2010/63/EU</p> <p>Describe the National initiatives and Institutional limits</p> <p>Self-reflection on Directive 2010/63/EU and ethics: limits from a personal and professional perspective</p>
Project review and harm-benefit analysis	13-15	<p>Explain the project review in a legal and historical context</p> <p>Describe the 4 more general points on how to perform the project evaluation</p> <p>Discuss project review and harm-benefit analysis; whom, when and how?</p>
Dissemination and dialogue	16-18	<p>Discussion "Do scientists have to engage in dialogue?"</p> <p>Describe Non-technical summaries (NTS) and auto-assess them for being understandable to a non-scientist</p> <p>Describe and discuss "Critical discussion of cases: Scientist to scientist communication"</p>
Summary and knowledge check	19-21	<p>Module summary</p> <p>List of references and further reading</p> <p>Assess your knowledge</p>

Table 1 - Learning objectives per parts and lessons.



5.1 Progress Tracking

Once you begin working through a module, your progress is tracked, and you can break off and resume your studies at any point. Once the module is completed, the trainee can access any section to refresh their understanding of a topic.

5.2 Module Structure

The module is divided into several parts, and although they were designed to be followed sequentially, they can also be taken iteratively. Please note that a certificate of completion is only issued to learners who complete all module parts. If proof of completion for a specific part of the module is required, the trainee should provide a snapshot of the screen because the module indicates progress after each part is completed.

5.3 In-Depth Explanation Lesson by Lesson

Lesson	Title	LO	Explanation
1	Introduction		Image and tagline.
2	Public opinion and animal research	9.1	Image and short introduction Eurobarometers measure the attitude of Europeans illustrated with a diagram and description. Factors affecting public acceptance represented with 2 flip-cards. Geographic and cultural diversity represented with text and bar charts
3	Experiments and antivivisection - a historical perspective	9.1	References to important books and campaigns represented with text and images. Example of protests and legal actions illustrated with 1 image and 1 book quote.
4	The animal research dilemma in contemporary Europe	9.1	Description of the first EU legislation to Directive 2010/63/EU illustrated with one image. Differences between Campaigns and public opinion
5	Understanding the dilemma in the light of ethical theories	9.1	Introduction to the debate about the rights and wrongs of animal experimentation illustrated with 2 images. Contractarianism represented with descriptions and 5 quotes. Animal rights view represented with 1 image, 1 quote and 2 flip-cards.



6	Knowledge-check		Assesses your knowledge
7	The challenges of translation	9.2	Translation and validity of animal research represented with one image, 2 flip-cards, 2 images of articles, Observations of experimentalists illustrated with lists and a 3 tile collapsible.
8	The Three Vs of validity in animal research	9.2	The 3Vs of validity represented with 1 image, 1 matching quiz and 3 flip-cards. Validity of animal models represented with a timeline and 3 flip-cards. List of questions to think about validity. Experimental design and practice description represented with 1 image and a 3-tile collapsible. Assessing the impact of good experimental practice and quantifying the impact of human bias represented with one diagram and 1 table. Valid experiments require valid design represented with one video, 2 flip-cards, 2 diagrams and 1 photo. Non-interactive exercise represented with 2 lists and one diagram.
9	The Three Rs infrastructure in Europe	9.2	Description represented with 3 flip-cards, 1 image of 2 bar charts and 1 diagram. Newly established centers represented with 2 images and 1 chart. 3Rs Centres in Europe represented with 1 photo and 3 lists. Producing and synthesising knowledge to move the field forward represented with 2 lists and 4 images.
10	Limits to research in Directive 2010/63/EU	9.3	Different types of limits are represented with 1 diagram, 1 list and a 4-tile collapsible. Sentience and legislation description represented with 1 list, 1 video, a 4 tile collapsible and a 2 window tab. Limits for research on great apes represented with 5 images and 1 list.
11	National and institutional limits	9.3	A level playing field within the EU description with an image. National initiatives description represented with 3 images.



			Institutional limits description represented with a list.
12	Directive 2010/63/EU and ethics: self-reflection	9.3	Reflecting further on limits represented with 1 collapsable, 1 short answer quiz and 1 multiple choice quiz.
13	Harm-benefit analysis: principles and methods	9.4 9.5	Project review in a legal and historical context, description with 1 image. Terminology description What should the project evaluation do? represented with 2 lists.
14	Harms and benefits - what are they?	9.4 9.5	Project review in practice represented with 3 lists. How to perform the evaluation? Represented with 4 lists, 1 image and one slack of 3 flip-cards. Severity classification represented with 1 list and 1 image. Important questions to ask, represented with 1 quote. Aspects to consider in project evaluation represented with 3 lists, 1 image, 1 video and 1 diagram. Consider benefit and harm represented with 1 image, 2 lists and 2 tables. Cases descriptions for primates, mice and dogs, represented with a 10 window process and 1 table each.
15	By whom, when and how? Challenges.	9.4 9.5	Project review and harm-benefit analysis represented with 3 quotes. Different types of expertise represented with 5 lists, 1 photo and 1 interactive labelled graph.
16	Science with and for society: transparency and dialogue	9.6 9.7	Scientists engaging in dialogue represented with 1 image, 1 multiple choice quiz and 1 quote. Science in society, represented with 3 images, 1 interactive scenario and 1 bar chart.
17	Non-technical summaries	9.6 9.7	NTS – from researchers to the lay public represented with 3 flip-cards, 1 image and 1 list.



			How to write a non-technical summary represented with 1 list, 1 process with 6 windows and 1 citation. Exercise about translating academic writing with 2 short answer quizzes.
18	Critical discussion of cases	9.6 9.7	Scientist to scientist communication represented with 3 images and 2 multiple choice quizzes. The ARRIVE guidelines represented with 1 image, 1 process with 10 windows, and 2 lists.
19	Summary		Module summary
20	References and Further Reading		References for additional materials
21	Knowledge-check		Assesses progress and knowledge acquired during the module

Table 2 - Explanation lesson by lesson.

6. Target Audience

This module is intended for (bio)medical researchers, participants in laboratory animal science courses, university students, biology/medical teachers, animal welfare body members, regulators, and anyone interested in learning more about animal research ethics and the principles of Replacement, Reduction, and Refinement of animal use for scientific and educational purposes.

7. Notes

As this is a test run, we kindly request one feedback form for each tested module to ensure we gather thorough insights for every tested module. The majority of the modules are designed to complement other components of your training, and the content should be accessible even if you have relatively little experience working with laboratory animal science. Where appropriate, the introduction to the module suggests pre-reading and suggested training that should be completed before continuing with the module.

7.1 Testers' Feedback Form

We would greatly appreciate your valuable insights and detailed feedback regarding the instructions provided. Your input will help us ensure clarity, accuracy, and overall effectiveness in conveying the necessary information.

https://forms.uu.nl/universiteitutrecht/TestReview_LASLearning_instructions