LAS-Learning

Course Organisers Instructions

EU Module 2 - Ethics, Animal Welfare and the Three Rs - Level 1

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

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Suported by:

Partners:

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1. Module Description

a. Overview

This module, *Ethics, Animal Welfare, and the Three Rs, Level 1*, is an introductory course for beginners. In comparison, *EU Module 9* provides a more advanced and detailed exploration of these topics, making it better suited for participants with prior knowledge. While both modules can be delivered independently, we recommend starting with *EU Module 2* before progressing to *EU Module 9* to ensure participants build a strong foundational understanding.

This document provides guidance and suggestions to support the course organiser's efforts. Each module is aligned with the learning outcomes outlined in the EU Education & Training framework for laboratory animal science.

We recommend consulting the EC Training and Education framework guidance document if you are accessing the site independently. This resource offers an overview of training requirements for individuals with different responsibilities under their relevant national legislation.

Further reading and additional education and training may be necessary to meet national or institutional training requirements. At the end of each module, you will find a list of recommended further readings and references cited throughout the content. Links to these references are provided whenever possible.

This module was developed by Anna Olsson and Paulin Jirkof, two renowned experts with extensive experience in animal welfare, animal ethics, and the Three Rs. Their work spans research, publications, and training in these fields. The module was further revised by an international Reflection Group panel, with coordination led by Nuno H. Franco.

The module is currently in the testing phase. We appreciate your collaboration in integrating it into your courses and providing feedback. After completing a module, please fill out the form below with your feedback.

b. Learning Objectives

This module will equip participants with essential knowledge and skills to navigate animal research's ethical, legal, and practical aspects. The key learning objectives include:

1. Exploring Different Perspectives on Animal Procedures.
2. Understanding Ethical and Legal Obligations in Animal Science.
3. Introducing a Culture of Care and Good Scientific Practice.
4. Identifying Platforms for Staying Informed.

2. Course Program

The module is organised into different chapters, with lessons and learning objectives for the participants as follows:

Chapter	Lesson	Learning objectives
Introduction	1	Get to know the learning objectives
Animal research and the public	2-3	Describe the different views on animal experimentation within society and their consequences Describe the conditional acceptance of animal use Explain the role of the scientist in the public discourse
Responsibilities in animal research	4-5	Explore the main ethical theories that apply to animal use Discuss how ethical frameworks and public opinion lead to national and international legislation Describe how this relates to your work with animals Discuss how your choices impact your animals' well-being
Legislation and its scientific and ethical framework: the evaluation and authorisation of projects	6-9	Examine relevant EU legislation Perform a harm-benefit analysis for the project Discuss animal welfare concepts Learn about potential harms and severity classification Assess your knowledge Describe the Three Rs guidelines
Good scientific practice and the culture of care	10-12	Describe good scientific practice, animal welfare, and scientific outcomes Assess your knowledge Explain how the culture of care is used in animal research
Searching for information on alternatives	13-14	Examples of dedicated journals, websites and organisations Examples of search tools and methods to search for existing Three Rs knowledge
Trust and acceptance in scientific research	15	Explain the long-term trust in scientific research from the general public
Summary and knowledge check	16-18	Module summary List of references and further reading Assess your knowledge

Table 1 - Learning objectives per parts and lessons.

a. Progress Tracking

Once learners begin working through a module, their progress is automatically tracked. This allows them to pause and resume their studies at any point. Upon completing the module, learners retain access to all sections, enabling them to revisit and review specific topics to reinforce their understanding.

b. Model Structure and Implementation Guidance

The module is structured into several parts, which were designed to be followed in sequence but can also be taken iteratively based on the learner's needs. Please note that a **certificate of completion** is issued exclusively to learners who finish all parts of the module.

From a pedagogical perspective, each tutor is responsible for deciding which materials to use in face-to-face sessions, which parts learners should complete independently, and whether to mandate their completion. However, it is essential to consider the time required to complete the eModule or its parts to avoid overburdening learners.

We highly recommend completing the module to ensure it aligns with your course's content and scope. Familiarising yourself with the material will also enable you to engage more effectively with students on the various topics covered in the eModule.

c. In-Depth Explanation Lesson by Lesson

Lesson	Title	LO	Explanation
1	Introduction		Image and tagline.
2	Different views on animal experimentation within the society and their consequences	2.1	Image and a short introduction. Flip cards with relevant images and short details. Link to two initiatives. Image with highlights about conditional acceptance of animal experiments.
3	The role of the scientist in the public discourse	2.1	Image and a short introduction. Video about the role of the scientist in the public discourse.
4	Ethical theories shape public opinion and legislation	2.2 2.3	Image and a short introduction. Steps to introduce Animal Ethics. Knowledge check question.
5	Ethical and animal welfare issues in your own work	2.2 2.3	Image and a short introduction. Design of experiments flip cards. Performance of procedures and handling flip cards. Monitoring and mitigating measures flip cards. Culture of Care introduction and image.
6	Relevant EU legislation	2.5 2.6 2.7 2.8 2.9 2.10	Image and a short introduction. Collapsible with details about the Advancement of alternatives and high level of animal protection, the Principle of replacement, reduction and refinement and the Choice of methods.
7	The harm-benefit analysis - an essential part of	2.5 2.6 2.7 2.8	Image and a short introduction.

	the project evaluation	2.9 2.10	Collapsible with details about Article 36: Project authorisation, Article 37: Application for project authorisation and Article 38: Project evaluation. Description and image of the harm-benefit analysis. How to perform an HBA image and description. Assessment of the benefits is split into 3 tabs. Knowledge check question.
8	Animal welfare, harm and severity	2.5 2.6 2.7 2.8 2.9 2.10	Image and a short introduction. The Five Freedoms is split into 3 tabs. Image with highlights about The Five Freedoms Description of Other Animal Welfare concepts with multiple illustrative images. Harm and suffering description. Terms definitions are split into 4 tabs with videos and images to illustrate each term. Limits to suffering in animal research, description and image. Severity classification description and Severity categories are split into 4 tabs with images. Recitals and articles are presented in collapsible form. Re-use of animal description and legislation in collapsible. Knowledge check question.
9	The Three Rs	2.5 2.6 2.7 2.8 2.9 2.10	Image, a short introduction and illustrative diagrams and figures. Replacement of animal experiments is presented in 2 tabs with images. The reduction of animal experiments is presented in one tab with images. Refinement of animal experiments description and image. Refinement methods are presented in 4 tabs with images. Relevant articles are presented in collapsible. Interactive scenario.
10	Good Scientific Practice	2.11	Optimising the use of animals in research is presented in a 4-step process with images, vídeos, figures and illustrative diagrams.
11	Animal welfare and scientific outcomes	2.11	Good moral and ethical reasons to safeguard animal welfare are represented with an image and 2 short quizzes. Effects of analgesia and untreated pain presented in 1 short quiz
12	The Culture of Care	2.11	Description of Culture of Care is presented in a 5-step process illustrated with figures. The Animal Welfare Body is represented with images and a collapsible for the DIRECTIVE 2010/63/EU, Articles 26-27 (AWB).

			Challenging situations that one could encounter in animal research are represented with an interactive scenario.
13	Dedicated journals and organisations	2.13 2.14	Examples of sources of information are represented with figures and logos.
14	Search tools and methods	2.13 2.14	Description and examples of dedicated databases illustrated with one image. Description of Systematic reviews and meta-analyses presented in tabs with diagrams, 1 video and 1 multiple choice quiz.
15	Long-term trust in scientific research from the general public	2.4	Trust and acceptance are presented in a 3-step process.
16	Summary		Module summary
17	References and Further Reading		References for additional materials
18	Knowledge-check		Assesses progress and knowledge acquired during the module

Table 2 - Explanation lesson by lesson.

3. Participants' Profile

This module is tailored for a diverse audience, including (bio)medical researchers, participants in laboratory animal science courses, university students, biology/medical educators, animal welfare body members, regulators, and individuals seeking a deeper understanding of animal research ethics and the principles of Replacement, Reduction, and Refinement (the Three Rs) in scientific and educational contexts.

No specific prior knowledge is required to participate. However, familiarity with bibliographic database searches and a foundational background in laboratory animal science or non-animal methods may benefit participants. Organisers should consider this when planning the course structure and support materials.

4. eModule

The eModule provides clear definitions, essential knowledge, and interactive components designed to enhance understanding of key animal ethics theories and develop critical thinking skills. Participants will learn to ethically frame and evaluate animal research from a broad perspective and a case-by-case approach.

The content and references are curated from expert sources, including researchers and information specialists, ensuring high-quality and reliable information. The module is presented dynamically, combining text, images, built-in exercises, and videos to engage learners effectively. It can be integrated into courses as homework or used during a lecture day. Many lessons are designed to deliver comprehensive information and understanding without additional in-class interaction.

a. Limitations

It is impossible to cover every concrete example of animal use for scientific and educational purposes. Additionally, the module cannot address how to establish a Culture of Care in the specific context of every institution or organisation. Furthermore, the module cannot predict future scientific advancements that may expand the Three Rs possibilities nor anticipate societal or regulatory changes after publication. Despite these limitations, we hope this module will equip students with the skills and knowledge to adapt to an ever-evolving scientific, societal, and regulatory landscape.

b. Blended Learning Approach

E-learning modules offer significant advantages, particularly for learners who may find it challenging to attend traditional intensive training sessions spanning several days. Such sessions can disrupt work schedules and limit participants' ability to balance learning with other responsibilities. While this eModule covers all required learning outcomes, we do not advocate entirely replacing face-to-face teaching (or "live" online discussion sessions) with e-learning. Instead, we recommend a blended learning approach (hybrid or mixed-mode learning). This approach combines the flexibility of e-learning with the engagement of interactive, live sessions, ensuring that learners receive the necessary information while accommodating those who require greater flexibility.

The modules are split into short, manageable lessons, allowing participants to integrate learning activities into their daily schedules seamlessly.

5.Implementing Blended Learning Strategies

Flipped Classroom Arrangement

Before face-to-face classes, learners are introduced to the course contents (for example, by completing our e-learning modules). You can recommend that learners take the whole course (and request a certificate of completion) or focus on specific lessons or chapters.

This approach can:

- Familiarise learners with the content in advance, helping them better understand complex concepts.
- Prepare and motivate learners to engage more actively in their learning and during face-to-face classes.
- Harmonise learners' knowledge levels before in-person classes.
- Provide sufficient background knowledge for group work, allowing for more focused and productive discussions.
- Provide a starting point for interactive discussion.

Consolidate Learning and Prepare for Exams

The courses are designed to align with the learning outcomes of traditional laboratory animal science courses. Learners can use each module to study and prepare for the final exam. Additionally, the built-in quizzes allow learners to test their knowledge and track their progress.

Address Expertise Gaps in Your Facility

Gathering expertise across all subjects covered in the EU-functions modules can be challenging, especially in smaller establishments. This may hinder the ability to deliver training that meets all outcomes of the Education and Training framework to a high standard. Using these modules as a basis, tutors and learners can access quality reference material that could mitigate such gaps and ensure education and training are up to standard.

Use Modules as Teaching Resources

Tutors can integrate various components—such as text, videos, images, interactive exercises, and quizzes—into their teaching activities. This not only boosts engagement but also caters to different learning styles. For each module, we provide suggestions for topics that can be incorporated into interactive discussion sessions.

6. 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. They are ideal for learners who wish to expand their knowledge or gain a more comprehensive understanding of the issues.