LAS-Learning

Trainees Instructions

EU Module 5 - Recognition of pain, suffering and distress - Species-specific: Mouse

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

1.1 Overview

This module is designed to guide trainees through a comprehensive course that covers:

- **Identification**: Recognising behavioural and physiological signs of pain, suffering, and distress in mice.
- **Intervention**: Exploring methods to alleviate pain and reduce distress.
- **Optimisation**: Enhancing handling procedures and environmental conditions to minimise distress and anguish.

This module will cover 2 topics: Species common lessons - EU Module 5 - Recognition of pain, suffering and distress: General aspects, Species Specific Mouse.

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 the trainee training. Each module carefully aligns with the learning outcomes specified by the EU Education & Training framework for laboratory animal science. The module was developed by Dolores Bonaparte and Dorte Bratbo Sørensen, who are recognised for their expertise in laboratory animal welfare and pain management, drawing on extensive experience in research, publishing, and training. 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

- Species common lessons - EU Module 5 - Recognition of pain, suffering and distress: General aspects
- Species Specific Mouse

1.3 Learning Objectives

- Develop the ability to identify signs of pain, suffering, and distress across various species, understand their causes, and apply appropriate measures to alleviate them, ensuring ethical standards in animal research.
- Understand the unique biological and behavioral characteristics of the house mouse (*Mus musculus*), including its anatomy, reproductive patterns, social structures, and sensory capabilities, to inform research practices and ensure appropriate care in laboratory settings.

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 Topics Covered

- 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 four chapters, with lessons and learning objectives as follows:

Chapter	Lesson	Learning objectives
Introduction	1	Get to know the learning objectives

Species common lessons - EU module 5 - Recognition of pain, suffering and distress: general aspects	2-3	· Principles of clinical evaluation · Humane Endpoints · Principles of Pain Management in Rats and Mice
Species-specific mouse	4-5	· Recognition of pain, suffering, and distress in mice
Summary and knowledge check	6-8	· Module summary · List of references and further reading · Assess your knowledge

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		Short introduction
2	A1 - Principles of clinical evaluation	5.3	Image and a short introduction Animals as patients with 1 image Causes of illness in research animals with 3 tabs How to detect and alleviate the impact of disease with 5-step cards with images Potential signs of discomfort, stress, and pain with 3 images Clinical Assessment and Scoring with 3 tabs with images and table, 2 images, 1 list Frequent assessment of discomfort, pain, and distress with 1 image

			Involvement of all members of the study team and awareness of their roles and responsibilities with 1 list Image with short summary
3	A2 - Humane Endpoints	5.4	Image and a short introduction 3 quotes by Russell & Burch Endpoints in Biomedical Research with tabs with images, 1 interactive image, and 2 flip-cards Deciding on the humane endpoints for a procedure Defining the actions to be taken with 4 images How to refine the Humane Endpoints with 1 image Conclusions
4	A2 - Humane Endpoints	5.6	Image and a short introduction List of session topics Pain - Definition, Modulation and Consequences The importance of pain assessment Quiz: Test yourself: Pain and nociception - the difference Treatment of pain - which drug should we choose? with 1 table, 1 image Analgesia - Pre-emptive and multimodal analgesic regimes tabs Non-pharmacological management of pain with 1 interactive image Summary of key points
5	B1- Recognition of pain, suffering, and distress in mice	5.1 5.2 5.3	Image and a short introduction Potential clinical signs and know how to identify them with 1 image Examples of common clinical signs in mice with 4 flip-cards Clinical Evaluation and Scoring with 1 interactive image Body Weight vs Body Condition tabs with images Classification and Scoring of Clinical Signs with 4 images Short summary
6	Summary		Module summary
7	References and Further Reading		References for additional materials

8	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