



COMPARATIVE MEDICINE

CKF5515 Refinement of Minor Procedures on Mice (skills), 0.5 credits (hec)

Refinement av mindre procedurer på mus (färdighet), 0,5 högskolepoäng

Third-cycle level / Forskarnivå

Approval

This syllabus is approved by the The Committee for Doctoral Education on 2023-12-08, and is valid from Spring semester 2024.

Responsible department

Comparative Medicine, Faculty of Medicine

Prerequisite courses, or equivalent

Applicants must hold a Function A qualification (or equivalent experience) in rodents as a prerequisite to participate in this course.

Purpose & Intended learning outcomes

Purpose

Refinement of experimental techniques on laboratory animals is essential to preserve animal welfare and to generate sound scientific data. The main aim of this course is to update or upgrade specific practical skills needed to carry out minor procedures on laboratory mice according to legal requirements and good scientific practice in animal research.

This practical course is aimed at persons holding a Function A qualification, or at those who have completed the theoretical contents of the Function A course in rodents, who:

- Have had some previous training in carrying out minor procedures on mice, but need an update or an upgrade in their skills (refinement) or in specific techniques; or
- Will be resuming practical work on laboratory mice after a prolonged break; or
- Are seeking added training in selected minor techniques such as e.g. intravenous injections or oral gavage.

Intended learning outcomes

This course is designed to meet the learning outcomes specified for Function A-specific modules 3.2, 6.2 and 8 in the EU Education and Training Framework to fulfil the legal demands as set out by the Directive 2010/63/EU and the Swedish legislation L150 (SJVFS 2019:9).

After completion of this course, participants should be able to:

1. Approach, handle, and restrain a mouse according to good practice.
2. Perform a variety of injections and/or practice oral gavage in simulators and in mice.
3. Collect blood samples from mice using different methods.
4. Apply humane killing of mice and confirm their death.

Course content

Handling, immobilization, administration of substances, and blood sampling are examples of minor procedures routinely carried out on laboratory mice.

This course will cover practical elements aimed at refreshing and refining skills to carry out such minor procedures on mice. Participants will follow a demo, and subsequently practice selected minor procedures on simulators and on mice such as handling and immobilization using non-aversive techniques; dosing of substances using intraperitoneal, subcutaneous and intravenous or oral gavage routes; collection of blood samples from tail and/or saphenous veins, and application of humane killing techniques, including valid means for death confirmation.

Forms of teaching and learning

This course is fully practical and aims at enabling the trainee to attain a level of proficiency that would eventually allow the student to work under hands-off supervision or independently for such procedures. Hands-on training sessions include demonstrations by a qualified instructor followed by trainee's practice of selected basic procedures on simulators and live animals. Correct volumes of administration and total and partial blood volumes required for blood sampling will be shown.

Language of instruction

The course is given in English.

Grading scale

Pass (G) /Fail (U)

Compulsory components & forms of assessment

Compulsory components

A strict professional behavior and caring attitude towards the animals that will be used during the laboratory sessions is required.

Forms of assessment

Practical skills will be assessed by direct observation of practical skills and graded using a formative approach during the laboratory session.

Course literature

Legislation and guidelines on the use of animals for scientific purposes that should be read and video material that should be viewed before attending the hands-on sessions:

1. <https://www.nc3rs.org.uk/3rs-resources/blood-sampling/blood-sampling-mouse>
2. <https://norecopa.no/education-training/films-and-slide-shows: Mouse>
3. <https://researchanimaltraining.com/article-categories/procedures-with-care/>
4. Hurst JL, West RS (2010). Taming anxiety in laboratory mice. *Nature Methods* 7: 825–826.
5. Gouveia K, Hurst JL (2013). Reducing mouse anxiety during handling. *PLOS ONE* 8(6): e66401.
6. Diehl KH et al. (2001). A good practice guide to the administration of substances and removal of blood, including routes and volumes.
7. Morton DB et al. (2001). Refining procedures for the administration of substances.
8. Turner PV et al. (2011). Administration of substances to laboratory animals routes of administration and factors to consider.
9. EU legislation on the Protection of Animals Used in Science (2010). Directive 2010/63/EU.
10. Swedish legislation on the Protection of Animals Used in Science (2018). L150, SJVFS 2019:9.
11. European Commission (2014). National competent authorities for the implementation of Directive 2010/63/EU on the protection of animals used for scientific purposes. A working document on the development of a common education and training framework to fulfil the requirements under the Directive. Brussels, 19-20 February 2014.