

**Laboratory Animal Science, 5.0 credits**

Försöksdjurskunskap, 5.0 hp

Third-cycle education course

8FO0141

Department of Biomedical and Clinical Sciences

Valid from: First half-year 2024

**Approved by**  
The Research and PhD studies  
Committee

**Approved**  
2023-02-27

**Registration number**  
LIU-2023-00969

## Entry requirements

Entry requirement for studies on third-cycle education courses

- second-cycle degree,
- 240 credits in required courses, including at least 60 second-cycle credits,  
or
- acquisition of equivalent knowledge in some other manner

## Learning outcomes

By the end of the course the students will be able to:

### *Knowledge and understanding*

- Describe national legislation regarding the acquisition of experimental animals, animal housing, care, and the use of experimental animals
- Describe basic and appropriate species-specific biology concerning anatomy, physiological characteristics, breeding, genetics, and genetic alterations
- Describe animal behavior, animal husbandry, and enrichment
- Explain methods for the 3R principle (Replacement, Reduction, and Refinement)
- Account for preventive measures for infectious disease control, animal health knowledge, and hygiene
- Account for methods for anesthesia and pain relief
- Explain humane methods for euthanasia
- Describe how to recognize species-specific anxiety, pain, and suffering
- Explain experimental and humane endpoints

### *Competence and skills*

- Apply species-specific animal experimental methodology in terms of handling experimental animals and conducting animal experiments
- Apply humane methods for euthanasia of animals

### *Judgement and approach*

- Apply ethical principles regarding the relationship between humans and animals and the inherent value of life
- Argue for and against the use of animals for scientific purposes
- Evaluate animal welfare and apply it in accordance with the 3R principle
- Evaluate and apply how animal experiments should be designed

## Contents

The course is divided into basic modules and function-specific modules. Educational contents are species-specific and include practical components. The basic modules provide the fundamental theoretical education for individuals in Sweden who intend to:

1. perform experiments on animals
2. design experiments and projects involving animals
3. care for animals and/or
4. euthanize animals

The basic modules include:

- National legislation
- Ethics
- Animal welfare and the 3R principle (part 1)
- Basic and appropriate biology (species-specific)
- Animal care, animal health, and management (species-specific)
- Identification of pain, suffering, and distress (species-specific)
- Humane methods for euthanasia

The function-specific modules for functions A-D include:

- Basic and appropriate biology (species-specific/practical)
- Minimal invasive procedures without anesthesia (species-specific/theory and skill)
- Ethics, animal welfare, and the 3R principle (part 2)
- Design of experiments and projects
- Humane methods for euthanasia (skill)

## Educational methods

The pedagogical approach applied at the Faculty of Medical and Health Sciences is student centered, problem based learning (PBL). The student takes responsibility for his/her own learning, and seeks and evaluates information and knowledge based on own queries and formulated problems. The role of the teacher is to guide and support the students.

Educational methods applied in this course are web-based self-studies, lectures, seminars, demonstrations, practical training, project work.

## **Examination**

The course is examined with oral, written and practical tests as well as written assignments that are assessed individually. Web-based self-studies and quizzes, seminars, demonstrations, practical training and project work are mandatory elements required for an approved course. If a student does not attend a mandatory part, the student is offered to participate the next time the mandatory part is given.

Students who fail are offered one re-examination occasion in close connection to the course. After that participation in a coming course examination is offered. The re-examination should be equally comprehensive as the ordinary examination.

### **Change of examiner**

Students who have failed the course or part of the course twice are entitled to request another examiner for the following examination occasion.

## **Grading**

Two-grade scale

## **Course literature**

A list of recommended literature will be provided by the course coordinator before the start of the course.

## **General information**

The course is planned and carried out according to what is stated in this syllabus. Course evaluation, analysis and suggestions for improvement should be fed back to the Research and PhD studies Committee (FUN) by the course coordinator.

If the course is withdrawn or is subject to major changes, examination according to this syllabus is normally offered at three occasions within/in close connection to the two following semesters.

The course is provided in collaboration with the Nordic Consortium for Laboratory Animal Science Education and Training (NCLASET).