



**Karolinska
Institutet**

Course syllabus for

Laboratory Animal Science in Theory and Practice, 4.5 credits

Teoretisk och praktisk försöksdjursvetenskap, 4.5 hp

This course syllabus is valid from spring 2018.

Please note that the course syllabus is available in the following versions:

Spring2013 , Spring2016 , Spring2018 , Spring2019 , Spring2020 , Spring2021 , Spring2022 , Spring2025

Course code	4TX015
Course name	Laboratory Animal Science in Theory and Practice
Credits	4.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Toxicology
Level	AV - Second cycle
Grading scale	Pass with distinction, Pass, Fail
Department	Comparative Medicine
Decided by	Programnämnd 7
Decision date	2012-11-07
Revised by	Education committee IMM
Last revision	2017-10-16
Course syllabus valid from	Spring 2018

Specific entry requirements

At least the grade Pass for the courses Principles of toxicology and Target organ toxicology - toxicokinetics and toxicodynamics.

Objectives

Upon completion of the course the student should be able to carry out experiments on rats according to the EU Directive (2010/63 EU) implemented in Swedish Legislation (L150).

Regarding knowledge and understanding

- describe the requirements of Swedish legislation concerning scientific use of animals,
- identify ethical issues in human-animal interaction, including replacement, reduction, refinement, and humane endpoints when animals are used for scientific purposes,
- describe species-specific basic biology (anatomy, physiology, nutrition), breeding and genetics

including the basis of genetically modified mice,

- describe normal behavior of rodents and lagomorphs, handling, husbandry needs, and enrichment,
- recognise signs of discomfort, pain, suffering, and distress in rodents and lagomorphs,
- describe methods of anesthesia, analgesia, pain relief, injections, sampling, and euthanasia for rodents and lagomorphs,
- describe the basis of disease control with respect to rodents and lagomorphs and how to implement hygiene in animal housing and experimental work.

Regarding competence and skills

- handle and restrain a rat,
- give injections (s.c and i.p.) and know how to perform gavage administration in the rat,
- collect blood samples in the rat,
- euthanise a rat.

Regarding judgement and approach

- plan an animal experiment according to legislation and ethics.

Content

The content of this course (a compulsory course for those carrying out experiments with rodents and lagomorphs without previous qualification) is composed to enable the participants to follow the Swedish Legislation (EU-Directive 2010/63 EU) regarding the use of animals for scientific purposes. It contains web-based lectures on the requirements of Swedish legislation concerning scientific use of animals, ethical issues, species-specific basic biology, normal behavior of rodents and lagomorphs, handling of animals, husbandry needs, and enrichment, signs of discomfort pain and suffering in rodents and lagomorphs, different methodologies, the basis of disease control and how to implement hygiene in animal housing and experimental work.

The students will accomplish the practical part of the course within an animal laboratory setting where learning activities will take place. The activities include handling, restraining, dosing, blood-sampling and euthanising in the rat.

Additionally, students will design a research protocol (project work) for an animal experiment with the structure of an ethical application, which is presented orally.

The course is divided into three parts:

Laboratory animal science in theory, 1.5 hp A theoretical web-based part. **Laboratory animal science in practice, 1.5 hp** Practical hands-on sessions and demonstrations in rat. **Project work, 1.5 hp** A protocol for an animal research project is prepared in smaller groups and presented orally by the team.

Teaching methods

Lectures, group assignments and laboratory practice.

Examination

Laboratory animal science in theory (1.5 credits). The examination consists of a written examination Graded Fail/Pass/Pass with distinction.

Laboratory animal science in practice (1.5 credits). The examination consists of laboratory sessions. Graded Fail/Pass.

Project work (1.5 credits). The examination consists of oral presentation and discussion/opposition. Graded Fail/Pass

The course grade is based on part Laboratory animal science in theory. To pass the course the grade pass is required on all parts.

Compulsory participation

All practical sessions and taking active part in the project work (with attendance on presentation and opposition) are compulsory. The course director assesses if and, in that case, how absence can be compensated. Before the student has participated in all compulsory parts or compensated absence in accordance with the course director's instructions, the student's results for respective part will not be registered in LADOK. Absence from a compulsory activity may result in that the student cannot compensate the absence until the next time the course is given.

Transitional provisions

After each course occasion there will be at least six occasions for the examination within a 2-year period from the end of the course.

Other directives

The course language is English.

Course evaluation will be carried out in accordance with the guidelines established by the Board of Higher Education.

Oral evaluation in the form of course council meetings will be carried out during the course.

Literature and other teaching aids

Specific material referred to during the course forms the course literature.

Handbook of laboratory animal science. : Essential principles and practices

Hau, Jann; Schapiro, Steven Jay

3. ed. : Boca Raton : CRC Press, cop. 2011 - 723 s.

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