Laboratory Animal Sciences

Försöksdjursvetenskap
7.5 credits

Programme course

8MEA05

Valid from: 2022 Spring semester

Determined by	**Main field of study**	
Chairman of The Board for First and Second Cycle Programmes	Medical Biology	
Date determined	**Course level**	**Progressive specialisation**
2012-12-07	Second cycle	A1X
Revised by	**Disciplinary domain**	
	Medicine	
Revision date	**Subject group**	
2014-10-06; 2021-05-03	Medical Biology	
Offered first time	**Offered for the last time**	
Autumn semester 2013	Autumn semester 2022	
Department	**Replaced by**	
Institutionen för biomedicinska och kliniska vetenskaper		

Specific information

The aim of the course is for the student to acquire basic knowledge in laboratory animal science. The course complies with Swedish legal requirements as well as the European Community's recommendations for the education and training of persons carrying out animal experiments. The course also comprises methods and model systems as alternatives to the use of laboratory animals. The course is elective semester one or three in the Master's Programme in Experimental and Medical Biosciences.

Course offered for

- Master's Programme in Experimental and Medical Biosciences

Entry requirements

The special eligibility requirement possession of the Degree of Bachelor of Sciences in a major subject area with relevance for biomedical sciences. This could include previous studies at faculties of medicine, technology/natural sciences, odontology or veterinary medicine. A major part of courses included in the Bachelor degree should be in subjects such as biochemistry, cell biology, molecular biology, genetics, gene technology, microbiology, physiology, immunology, histology, anatomy, and pathology.

Applicants must also have documented skills in English corresponding to the level of English in Swedish upper secondary education (English B). For applicants who have not studied in Swedish upper secondary education, skills in English are normally attested to by means of an international language test.

Intended learning outcomes

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

Knowledge and understanding

- List and describe the responsibilities of authorities and organizations, involved in legislation, issuing permissions and supervision of animal experiments
- Describe general laws and provisions regarding the use of animals in research
- Describe potential health hazards for people working with laboratory animals
- State and reflect on differences in anatomy, biology and breeding of different experimental animals

Competence and skills

- Apply ethical considerations built on the 3Rs (Replacement, Reduction and Refinement) in the care and use of laboratory animals
- Aandle rodents with the animal welfare in focus
- Assess animal welfare, health and diseases in rodents and how to monitor animals during anaesthesia

Judgement and approach

- Critically evaluate ethical applications and in conjunction with this be able to discuss experimental design, alternative methods and 3R-principle
- Discuss ethical and animal and personnel welfare issues, in conjunction with animal experiments

Course content

- Authorities, legislation and animal welfare organizations
- General laws and provisions regarding housing, breeding, and marking of animals for research, as well as record keeping
- Husbandry and environment
- Occupational health and safety
- Comparative anatomy, biology, physiology, breeding and nutrition
- Diseases and health monitoring
- Handling of animals for research and basic experimental techniques
- Analgesia, anesthesia and euthanasia
- Basic principles of surgery
- Alternative methods and the 3R-principle (refinement, replacement and reduction)
- Ethical aspects of animal experiments

Teaching and working methods

General: Linköping University Master's Programme in Experimental and Medical Biosciences applies student-centered learning among which Problem Based Learning (PBL) is one pedagogical philosophy and method. To prepare the students for future employment, practical and experimental work in laboratory settings are important parts of the programme in courses as well as in individual projects.

Specific: In this course lectures, tutorial groups, literature studies, seminars, demonstrations, and practical work related to handling of laboratory animals in different aspects are used.

Examination

Compulsory items
Active participation in the compulsory parts is necessary to pass the course, and assessment of them is carried out continuously. Compulsory parts in this course are: tutorial groups, seminars, and all practical elements (e.g visit to animal facility, handling of laboratory animals).

Examination
Individual written examination.
Written reports in conjunction with seminars (group assignments with individual assessment).

Grades

The grades for the course are either fail (F), pass (G) or pass with distinction (VG). A weighting of the grades on the individual written exam and seminars form the basis for the final grade of the course.

If special circumstances prevail, and if it is possible with consideration of the nature of the compulsory component, the examiner may decide to replace the compulsory component with another equivalent component.

Application for examination

Instructions on how to apply for examinations are given prior to the beginning of each course.

Re-examination

The date for re-examination should normally be announced by the date of the regular examination at latest; in which case the scope must be the same as at the regular examination.

Examination for students with disabilities

If the LiU coordinator for students with disabilities has granted a student the right to an adapted examination for a written examination in an examination hall, the student has the right to it.

If the coordinator has recommended for the student an adapted examination or alternative form of examination, the examiner may grant this if the examiner assesses that it is possible, based on consideration of the course objectives.

An examiner may also decide that an adapted examination or alternative form of examination if the examiner assessed that special circumstances prevail, and the examiner assesses that it is possible while maintaining the objectives of the course.

Nomination of another examiner

A student who has taken two examinations in a course or a part of a course without obtaining a pass grade is entitled to the nomination of another examiner, unless there are special reasons to the contrary.

Grades

Three-grade scale, U, G, VG

Other information

Planning and implementation of the course is to be based on the wordings in the course syllabus. A course evaluation is compulsory for each course and should include how the course is in agreement with the course syllabus. The course coordinator will analyse the course evaluation and propose appropriate development of the course. The analysis and proposal will be returned to the students, the Director of Studies, and as needed to the Education Board, if related to general development and improvement.

The course is carried out in such a way that knowledge of gender, gender identity/expression, ethnicity, religion or other belief system, disability, sexual orientation and age is addressed, highlighted and communicated as part of the programme.

If the course is cancelled or undergoes major changes, examination is normally offered under this course syllabus, at a total of three occasions, within/in connection to the two following semesters, of which one in close proximity to the first examination.