

Laboratory Animal Science for Researchers (MDV6003)

Target group

Ph.D. candidates, researchers and others who are planning to work with research animals.

Course content

The course follows the requirements in the Norwegian regulation on animal experimentation (FOR-2015-06-18-761) §25 and annex E. Additionally, the course aims to follow the Education and Training Framework by the European Commission to fulfil the requirements for functions (a) (persons who carry out procedures on animals) and (b) (persons who design procedures and projects). After completion of this course you will most likely be able to bring your diploma to other European countries and work with research animals. Please note that other countries might ask for additional training and have different national requirements.

The course covers the following topics:

Legislation; ethics and views in society; design and statistics; 3Rs and animal welfare, biology of lab animals; the choice of animal model; genetic and environmental factors influencing animal experiments; health hazards; principles of minimally invasive procedures on animals, anaesthesia, analgesia and humane killing of lab animals; microbiological quality; reporting; severity classification.

The course is divided into two sections; a general section (3 days) and a selectable section (2 days) where the students can choose between traditional laboratory animals or fish/aquatic organisms. The course participants should select their specialization on the basis of the animals they will work with after the course.

Traditional laboratory animals specialization: Biology of laboratory animals, health monitoring, anaesthesia and analgesia, ethology, genetics, transgenic animal models, handling techniques.

Fish and aquatic animals specialization: Legislation concerning fish, experimental conditions, stress, biorythms and acclimatization, pain and suffering, anaesthesia, handling, surgical procedures and euthanasia, aggression and hierarchy formation, health monitoring and microbiological qualities, genetically modified fish.

After the course is completed, the students should be able to transfer their acquired knowledge into practical activities with research animals. Working with research animals must happen under supervision until the candidate can demonstrate the requisite competence.

Learning outcome

After completing the course, the students should be able to:

- Identify and describe the national and European legislation which regulate the scientific use of animals
- Describe the differing views within society concerning the scientific use of animals
- Demonstrate a comprehensive understanding of the principle of the 3Rs, list examples of how the 3Rs can be implemented in research projects and list sources of information related to the 3Rs
- Describe the severity classification system and give examples of each category
- Describe the principle of implementing early humane endpoints and how this implementation can influence animal health and welfare during the course of an experiment
- Describe the basic biology of the relevant animal species, including basic anatomy, physiology, reproduction and behaviour; and recognise the importance of attending to biological and behavioural needs

- Describe the environmental factors of importance for maintaining an appropriate health status for the animals
- List potential human health hazards associated with contact with laboratory animals and describe how these can be prevented
- Describe the principles of humane killing and list the appropriate euthanasia methods for the relevant animal species
- Recognise that the choice of a euthanasia method may influence the scientific outcome
- Describe appropriate methods and principles for handling animals, and describe common techniques / procedures, including administration and sampling techniques
- List the different types of formal experimental designs
- Describe the variables affecting significance, including the meaning of statistical power and the “p-value”
- Describe how to monitor the microbiological health of laboratory animals
- Describe the components of pain physiology and list the types of analgesic drugs that are effective at the different components
- Describe how to do pre-operative, intraoperative and post-operative evaluation of research animals
- Indicate some of the problems associated with pain recognition and pain management in animals

Learning methods and activities

The theoretical teaching will happen intensively during one week. Teaching methods will include lectures, study groups, quiz and individual assignments. Some activities will include e-based learning tools.

A course certificate will be issued when the following has been completed: Attendance at the theoretical lectures, completion of the e-learning modules, passed the home assignment and passed the written exam. This diploma is valid together with a practical training document. You must arrange the practical training yourself. The training must be supervised by a person who has appropriate and up-to-date knowledge and is skilled and competent in the procedures. The practical training must be documented.

Compulsory assignments

- Colloquiums
- Individual assignment
- Lectures

Specific conditions

Exam registration requires that class registration is approved in the same semester, or that compulsory activities are approved in a previous semester.

Recommended previous knowledge

Basic knowledge in anatomy and physiology, competence in statistics, knowledge about literature searches on the internet and in libraries.

Required previous knowledge

A 3-year education on university or college level is a prerequisite in order for the participant to plan and design procedures and projects (Function (b) in the EU Directive 2010/63).

Course materials

The compendium "Laboratory Animal Science" is included in the course fee. In addition, students in the fish specialization will get "Laboratory Animal Science for Fish Researchers". Other course material will be distributed to the students before the course.

Course fee

6000 NOK, incl. compendium

Time and place

Autumn 2017

November 20th to 24th at NTNU, Campus Øya.

The course starts at 9:00 am the first day of the theoretical part of the course. Here, practical information about the course, such as location for the rest of the course activities and deadlines for the different parts of the course, will be given

Application deadline

October 2nd 2017

Lecturer/Course coordinator

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Responsible coordinator for the special section fish/aquatic organisms
Professor Elin Kjørsvik

Contact

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