Master of Laboratory Animal Science

Curriculum 2012-2013

The programme is organised in accordance with Danish Ministerial Order No. 682 of 16 August 2002 on Certain Master’s Programmes at Universities (Bekendtgørelse om visse masteruddannelser ved universiteterne) for students enrolled before 1 September 2010.

The programme is organised in accordance with Danish Ministerial Order No. 1187 of 7 December 2009 on Master’s Programmes at Universities (Bekendtgørelse om masteruddannelser ved universiteterne) for students enrolled on 1 September 2009 and onwards. The programme is offered under the Veterinary Study Board.

Graduates are awarded the English title ‘Master of Laboratory Animal Science’ and the Danish title ‘Master i forsøgsdyrsvidenskab’.

Chapter 1 Programme’s objective and competence profile

1.1 Programme objective

The objective of the programme is to offer Master’s students with practical work experience a research-based higher education programme within laboratory animal science as well as to educate specialists with category D competence in laboratory animal science, cf. “Guidelines for education of specialists in laboratory animal science” provided by the Federation of European Laboratory Animal Science Associations (FELASA), which implement Article 20 of the European Council’s ETS 123 Convention, 1986, on the Protection of Vertebrate Animals used for Experimental and Other Scientific Purposes.

The programme is to give students an opportunity to reach an academic level which makes it possible to register for the ECLAM exam (European College of Laboratory Animal Medicine), provided that the student has an MSc degree in veterinary medicine.

1.2 Programme general profile

The topics of the programme are advanced techniques on laboratory animals, genetics, breeding, biology and welfare of laboratory animals, legal and ethical aspects, experimental design, management and development of a laboratory animal facility – and, in addition, dialogue with the surrounding society. It is a part-time programme with modules and courses of two to five days’ duration taking place at the university. Each course will be offered at least every third year – and can be attended as a single course. The language of instruction is English. The students on each course spend a number of intensive days at the faculty after having followed internet-based e-lectures and self-study according to a suggested reading list. After the teaching days, the
students do internet-based exercises and own reading according to suggestions. Each course is followed up by an examination, which can be online or over a video-link. For some courses, the evaluation is based on report writing. The thesis must be defended at the faculty.

1.3 Programme competence profile

On completion of the programme, the graduate is required, at a minimum, to demonstrate knowledge, skills and competences within the programme’s compulsory subjects and subject areas, as listed below. Additional qualifications may be acquired through participation in elective courses.

1.3.1 Knowledge

The Master must understand

- The biological basis for laboratory animal breeding and husbandry and for conducting laboratory animals tests, incl.
  - laboratory animal nutrition and physiology
  - genetics and reproduction
  - health as well as health control and protection
  - ethology and animal welfare
- The ethical and legal basis for animal testing
- The scientific methodologies used to conduct animal testing

1.4.2 Skills

The Master is able to

- Apply relevant scientific principles to supervise, plan and conduct animal testing as well as laboratory animal breeding and husbandry, including aspects such as finances, facility setup, animal welfare, quality, health and environmental conditions.
- Critically assess relevant specialist literature
- Participate in the development and implementation of new methodologies in laboratory animal facilities.

1.4.3 Competences

The Master is able to
Carry out experiments and obtain an independent permit to conduct animal testing in the EU

Be an animal welfare officer in accordance with the ‘Guidelines for category D education’ prepared by the Federation of European Laboratory Animal Science Associations, i.e.

Manage all animal, human and physical resources in a laboratory animal facility

Make provisions for the health and welfare of laboratory animals

Provide advice, instruction and assistance to researchers on laboratory animal-related matters

Provide practical support of research programmes using laboratory animals

Ensure compliance with all legislation relevant to conducting animal testing and other laboratory animal husbandry and breeding

Be responsible for the internal and external education programmes of a laboratory animal facility with a view to complying with the principles of the Three Rs.

Contribute to the in-depth development of innovative concepts in the humane care and use of laboratory animals, including carrying out research in laboratory animal science and welfare.

1.4 Programme employment prospects

The programme must, on a scientific basis, provide the Master’s student with the competences to take on the management and advisory responsibility in laboratory animal facilities defined by the European Council, including

- Manage a laboratory animal facility at a high scientific and organisational level
- Advise laboratory animal testing staff in a manner which ensures that animal testing is conducted at the highest ethical and scientific level
- Ensure that work is carried out in accordance with the legislation, rules and guidelines applicable in the area
- Teach within all aspects of laboratory animal science

Chapter 2 Programme structure and content
2.1 Content

The programme is set at 60 credits. The following courses are compulsory:

- SFKM10173/150125 Laboratory Animal Maintenance, Breeding and Biology - 6 credits
- SFKM10179/150136 Laboratory Animal Pathology and Health - 6 credits
- SFKM10354/150117 Ethics and Legislation in Relation to Laboratory Animals - 6 credits
- SFKM10177/150134 Laboratory Animal Anaesthesia and Experimental Surgery - 4 credits
- SFKM10168/150118 Design and Evaluation of Animal Experiments - 4 credits
- SFKM10185/150146 Animal Models in Research - 6 credits

In addition, a number of elective activities covering 8 credits (module 4) must be completed, which must be approved by the Veterinary Study Board in advance.

Pre-approved elective courses:

- SFKM10356 In vivo Pharmacology - 6 credits
- SFKM10355 Microsurgery - 1 credits
- SFKM10186 Applied Toxicology - 6 credits

The programme is concluded with a Master’s project:

SFKA10187 Master’s project – 20 credits

The compulsory courses (32 credits) as well as the Master’s project (20 credits) constitute the academic topics of the programme, totalling 52 credits. There are 8 credits available for elective courses. Elective courses must be pre-approved by the Veterinary Study Board.

2.2 Structure of the programme

The programme is organised such that it can be completed within three years. There are no requirements for doing the modules in any specific order.
The programme is completed with a Master’s project of 20 credits. Modules 1-4 must have been passed before the Master’s project can be completed. The Master’s project is written in accordance with the rules set out in the common part of the curricula for the veterinary Master’s programmes.

2.3 Interim arrangement

Students enrolled on the programme before 1 January 2010 who have not passed all compulsory courses must take the remaining courses with the new credit sizes. The number of elective credits will therefore vary for these students depending on which courses are being replaced by new courses with a changed credit size. The Microsurgery course, which was previously compulsory, will become an elective course.

Chapter 3 Admission and enrolment

3.1 Admission to the programme

A completed relevant medium-long or long further education within the veterinary, health or natural sciences area.

A minimum of two years of relevant full-time work experience from a laboratory animal facility or other work with laboratory animals after having completed the qualifying course of study.

The Faculty of Health and Medical Sciences may admit applicants who do not fulfil the admission requirements but who, on the basis of a specific assessment, have the educational prerequisites to complete the programme. The requirement for a minimum of two years of work experience cannot be derogated from.

English-language skills corresponding to B level must have been passed before commencing studies, cf. the common part of the curricula for the Master’s programmes, chapter 9.4.

3.2 Admission to single courses and modules

The admission requirements for the programme also apply to the courses unless otherwise indicate din the course descriptions.

3.3 Enrolment on the programme

Admission to the Master’s programmes takes place on an ongoing basis in line with the deadlines for registration for modules and courses indicated at www.mlas.ku.dk
The enrolment is final once The Faculty of Health and Medical Sciences has registered the payment of the tuition fee from the Master's student/individual course participant.

The curriculum continues in the Curriculum for the Veterinary Master’s Programmes - Common Component.

Amendments: Course codes, faculty name and link to university homepages were updated 10 January 2013 in accordance with the faculty fusion of 2012.