

14/12/2012

General syllabus for the doctoral programme in programme in the subject of clinical science

Approved by the Faculty Board on 14 December 2012

Subject

Clinical science with the following areas of specialisation: anaesthesiology, diagnostics, veterinary nursing, epidemiology, surgery, medicine and reproduction.

Responsible departments: The Department of Clinical Sciences; however, for the specialisation in veterinary nursing, the responsibility is shared with the Department of Animal Environment and Health.

Doctoral studies at the Faculty are comprehensively regulated by the following documents. The numbers are used to indicate references to these documents in the text:

1. The Higher Education Ordinance (SFS 1993:100 et seqq.)
2. Admission regulations for third-cycle (doctoral) education, adopted by the Board on 6 November 2012 (Journal no. SLU ua Fe.2012.4.4-3467)
3. Guidelines for third-cycle (doctoral) education (Journal no. SLU ua Fe.2012.4.4-3218)

1. Purpose and objectives

Study at the doctoral level aims to provide the student with general scientific training, as well as broader and more in-depth knowledge within the various areas of specialisation, and will result in a licentiate or doctoral degree. The licentiate degree can serve as an intermediate degree and may be credited towards a doctoral degree. The content and scope of the programme must be such that, upon completion of the doctoral degree, the student will be able to perform independent research and will have fulfilled the objectives of the degree, as specified in the Higher Education Ordinance (1), Appendix 2.

The research study subject *clinical science* encompasses the following areas of specialisation: anaesthesiology, diagnostics, veterinary nursing, epidemiology, surgery, medicine and reproduction.

The specialisation *anaesthesiology* covers all types of animals and is focused on expanding our knowledge of the impact on an organism of sedation, analgesia, anaesthesia, euthanasia and slaughter, with the primary objective of constantly developing and refining anaesthetic methods.

The specialisation *diagnostics* involves the sciences of diagnostic imaging and clinical chemistry. Diagnostic imaging consists of the optimisation of various techniques, such as x-rays, CAT, scintigraphy, ultrasound and MRI, which are used to visualise both normal anatomical structures in animals, as well as pathological changes and their development. Within clinical chemistry, the various experimental methods (haematology, cytology and biochemistry) used for analysis of biological material from healthy and diseased animals are developed and optimised.

The specialisation *veterinary nursing* comprises disease prevention measures, nursing and health care planning for various disease conditions, and the rehabilitation and aftercare of animals.

The specialisation *epidemiology* is the science of the spread of disease agents, poor/good health and performance in populations, as well as the study of the factors which have an impact on these, which can be of direct use in preventative healthcare measures.

The specialisation *surgery* investigates the physiological and pathophysiological events related not only to the surgical treatment of disease, but also to preventative treatment. This specialisation encompasses all types of animals and all surgical specialties, including neurology, odontology, ophthalmology, oncology and rehabilitation, and its primary focus is on clinical issues. The research aims to create, evaluate and convey knowledge that can prevent, relieve and cure diseases.

The specialisation *medicine* studies the physiological and pathophysiological events related not only to the medical treatment of disease, but also to preventative treatment. This specialisation encompasses all types of animals and all medical specialties, and its primary focus is on clinical issues. The research aims to create, evaluate and convey knowledge that can prevent, relieve and cure diseases.

The specialisation *reproduction* is comprised of the normal function and disruptions of the reproductive system and the mammary glands, primarily in domesticated animals, but also in wild animals, in both the individual animal and the herd/group. Also included in the subject are normal birth and birth complications, as well as biological reproduction techniques.

2. Entry requirements

To be eligible for admission to the doctoral programme, the applicant must fulfil both the general and the specific entry requirements (1). The specific entry requirements include a veterinary or other biomedical or natural sciences degree which is relevant to the subject area. Applicants with a different, comparable educational background may be eligible; this will be decided by the head of department on a case-by-case basis.

The applicant's knowledge of the English language is documented through Eng B in the national upper secondary school programme in English or an approved, comparable language test (TOEFL, IELTS or Cambridge ESOL) in accordance with the requirements set out at: www.universityadmissions.se (2).

3. Selection and admission

The Faculty decides who will be admitted to the doctoral programme, following a recommendation from the department. To apply a specific form must be submitted (3). The head of the department must ensure that the student receives the necessary information about socio-educational relations and support functions.

4. Scope

SLU Faculty of Veterinary Medicine and Animal Science

A programme leading to a doctoral degree corresponds to four years of full-time study (240 higher education credits). For the licentiate degree, the corresponding time of study is two years (120 higher education credits). These years are to be dedicated to the student's own education. Limited departmental duties may be included in this period only if it is deemed important for the student's education. In such cases, the departmental duties are to be defined in the individual study plan.

The programme normally consists of two main elements: research and coursework.

Research

The thesis must be a compilation thesis, written in English.

A licentiate thesis must contain at least one and preferably no more than two composite papers. The composite papers must be of such quality that they are eligible for publication in an international peer-reviewed scientific journal. The student must be the lead author of at least one composite paper.

A doctoral thesis must contain at least three and preferably no more than five composite papers, at least one of which must be accepted by or published in a peer-reviewed international scientific journal. All the composite papers must be of such quality that they are eligible for publication in an international peer-reviewed scientific journal. The doctoral student must be the lead author of at least two of the papers, and should also be the lead author of the paper which has been accepted for publication/published.

The student must acquire the clinical knowledge necessary for performing scientific work. The scope and content is determined by the principal supervisor and will also be indicated in the individual study plan.

The student will be required to follow relevant international research through independent literature study, and participate in seminar series. Over the course of the first year of the programme, the student must write an introductory essay, written in accordance with the SLU guidelines for doctoral education (3). In addition, it is expected that the student attach themselves to the relevant graduate school, as well as being an active participant in seminars and conferences that are connected to their research and education.

Coursework

The student must take doctoral-level courses comprising 30–70 higher education credits. For students obtaining a licentiate degree, half of these credits are required. Doctoral-level courses refers to courses/seminars that are organised, announced and scheduled and specifically aimed at doctoral students.

Course credits are attained through participation in general basic courses and specific subject courses. Examples of general basic courses that should be included in the subject *clinical sciences* are scientific theory, scientific writing/publication, statistics and an introductory course for doctoral students.

5. Supervision

Matters concerning supervision are regulated by the Higher Education Ordinance (1), Chapter 6, and the SLU admission regulations (2) and guidelines (3) for education at doctoral level. The Faculty appoints supervisors for doctoral students following a recommendation from the department. The principal supervisor must have the qualifications required for appointment as a *docent* (equivalent of a reader

or associate professor) and will be either employed by or adjunct at the department into which the student has been accepted. In addition to the principal supervisor, the student will have at least one assistant supervisor. The assistant supervisor must have a doctoral degree. The supervisory group will be so composed as to provide full support to the student in all aspects of his/her studies. The supervisory group must be composed of supervisors who have sufficient skills and knowledge in the subject (and the possible specialisation) to ensure that the programme is of good quality.

In the event that the principal supervisor declines the assignment, or the student desires a change of supervisor, the Faculty will appoint a new main supervisor.

6. Follow-up

The programme must be followed up at least once per year. The yearly follow-up is conducted by the student and his/her supervisors. The follow-up is registered in LADOK, and the individual study plan is entered in the journal and archived by the department.

The introductory essay, written by the student in his/her first year, is approved by the principal supervisor and this is documented in the individual study plan.

In connection with the half-time follow-up, the student must deliver a half-time seminar. The half-time follow-up is documented in a half-time report that is sent to the Faculty, together with the current study plan. In the half-time report, the student and the supervisors summarise and comment on substantial changes that have been made to the original study plan, as well as the commitments and responsibilities of the student and the supervisors. In addition, the department submits an assessment of whether the student has completed 50 per cent of the programme and of whether the conditions will allow the programme to be completed according to the current plan.

7. Theoretical test/Examination

The thesis defence/licentiate seminar are to be planned, announced and performed in accordance with the Higher Education Ordinance (1), Chapter 6, and the SLU guidelines for doctoral education (3).

For the doctoral degree/licentiate degree, the student must have passed the examinations included in the doctoral programme as well as have had his/her thesis approved. A doctoral thesis shall be defended orally at a public defence.

8. Title of qualification

For students with a veterinary degree, the degree title given is Doctor of Philosophy in Veterinary Medicine. Students who have not completed a veterinary degree and who are admitted to a doctoral programme will receive a designation corresponding to the degree they obtained to fulfil the entry requirements, for example Doctor of Philosophy in Agriculture or Doctor of Philosophy in Pharmaceutical Science.