

# **GENERAL STUDY PLAN FOR RESEARCH EDUCATION (THIRD LEVEL HIGHER EDUCATION) IN TECHNOLOGY at the Faculty of Natural Resources and Agricultural Sciences at SLU**

## **1. Objective and purpose of the programme**

The objective of the programme is to familiarise research students with general scientific tools, as well as the research methods that are typical of Technology. The purpose is to meet the qualifications for research education specified by Chapter 6, Sections 4-5 of the Higher Education Ordinance (HEO).

Students are also to acquire knowledge about, and an attitude to, ethical issues associated with research in the subject. In addition, students are to obtain education in, and experience of, pedagogy and research information.

Research education can lead to both a degree of Licentiate and a degree of Doctor. The degree of Licentiate can be credited toward continuing studies for a degree of Doctor.

## **2. Eligibility**

People are eligible for admission to research education who have taken a second level (Master level) qualification and meet the requirements for basic eligibility (Chapter 7, Section 39 of HEO (2006:1053)), i.e., at least 240 higher education credits, including 60 credits at the second level (Master level) or acquired essentially the same knowledge in some other way, either in Sweden or abroad. The Faculty Board may exempt an individual applicant from the requirement for basic eligibility if special grounds exist. In such cases, SLU demands that the applicant has taken a first level (Bachelor level) qualification and presents a written account of an independent project the scope of which is equivalent to 15 higher education credits and the content of which corresponds to the knowledge and skills required for a degree project toward a degree of Master, or a relevant independent project of similar difficulty and extent. The project should be written in English.

Those who are admitted must also meet the special eligibility requirements adopted for the subject (Chapter 7, Section 40 of HEO (2006:1053)).

Special eligibility in the subject of technology normally requires knowledge equivalent to a degree with a technological specialisation. Special eligibility is otherwise reviewed on an individual basis in view of the research project involved.

## **3. Selection and admission**

Applicants are to be selected on the basis of their ability to benefit from the research education programme (Chapter 7, Section 41 of HEO (2006:1053)). The head of the department to which the applicant wishes to be admitted as a research student proposes admission to the Faculty Board. The board makes admissions decisions.

## **4. Scope, content and organisation**

### ***4.1 Scope***

The programme for a degree of Doctor consists of four years of full-time studies (240 higher education credits). Two years of full-time studies (120 higher education credits) are required for a degree of Licentiate.

### ***4.2 Content***

The programme contains two primary components: a scientific project and course-related studies.

#### *Scientific project*

During the period of education, the research student shall conduct a scientific project, presented in a doctoral thesis that normally represents 150-180 higher education credits. The thesis may be presented as a monograph or – normally – in compilation form. Compilation theses are expected to include 3-5 papers. All papers are to be of sufficient quality as to be publishable, and at least two (one of which with the research student as the primary author) shall normally be accepted or published in well-esteemed journals that use a peer review system. The thesis must be written in English.

A scientific project equivalent to 75-90 higher education credits is required for a degree of Licentiate. A compilation thesis is expected to include at 2-3 papers. The thesis may be presented as a monograph instead. All papers shall be of sufficient quality as to be publishable. The thesis must be written in English.

If the papers of the thesis have multiple authors, the contribution of the research student must be clearly specified in the thesis.

#### *Coursework*

The coursework shall consist of 60 higher education credits for a degree of Doctor and 30 higher education credits for a degree of Licentiate. Coursework shall include suitable basic courses (approximately 1/3 of the course credits), as well as individually selected courses on special subjects (approximately 2/3 of the course credits).

The basic courses should be chosen to supplement the basic education and provide knowledge in the following three blocks:

- Scientific methodology (such as general research methodology, philosophy of science, ethics, information searches and publication)
- Scientific methods (such as mathematics, statistics, modelling, metrology and automatic control engineering)
- Information (such as pedagogy and research information)

Individual courses shall be chosen among basic or applied components of the subject. Individual literature courses are acceptable in this connection.

The student is expected to actively participate in seminars, guest lectures, etc., as well as follow and observe international research relevant to the specialisation.

### **4.3 Organisation**

The individual study plan (Chapter 6, Section 36 of HEO (2006:1053)) for research education is drawn up in consultation between the research student and supervisor/supervisor group during the application process for admission. The faculty's guidelines for research education specify what should appear in the individual study plan. Evaluation and any modifications of the plan are to be on an annual basis. The research student and supervisor shall attest in writing that they have read the plan and any modifications to it. The study plan signed by the research student and supervisor is subsequently ratified in writing by the head of the department.

Evaluations shall be performed when 50% and 75% of the net period of studies has been used.

## **5. Examination**

A doctoral thesis must be defended orally in public and assessed by a grading committee consisting of three or five members appointed by the Faculty Board. A licentiate thesis is to be defended orally at a public seminar and approved by a grading committee appointed by the Faculty Board. The grading committee consists of three members.

The faculty's guidelines for research education specify the provisions that apply to the examination of doctoral theses and licentiate theses at the Faculty of Natural Resources and Agricultural Sciences.

The degrees of Doctor and Licentiate require that the student receives a grade of Pass on examinations and the thesis.

## **6. Supervision**

Anyone admitted as a research student is entitled to supervision throughout the period of study, i.e., full-time studies toward a degree of Doctor for four years. Each student is assigned at least two supervisors, one of whom is the principal supervisor (Chapter 6, Section 31 of HEO (2006:1053)). Without a decision having been made in each individual case, the principal supervisor must have documented qualifications as a docent and hold a position at SLU. At least one of the assistant supervisors must hold a position at SLU.

The supervisor group consists of the principal supervisor and one or more assistant supervisors. The supervisors assist the research student on both practical and theoretical issues, while continually monitoring the progress of studies in cooperation with the student. The supervisors are also to help the student select literature and courses. The student must keep the supervisors up to date about the progress of studies so that corrections can be made when needed.

## **7. Additional information**

Additional information about research education appears in Swedish Code of Statutes 2006:1053, including information about study grants in 1995:938 with amendments 1998:81 (reprint), as well as 1998:161 and 2006:1053. Information about research education at SLU appears in Guidelines for research education (third level programmes) in the Faculty of Natural Resources and Agricultural Sciences (Reg. no. SLU ua 40-1244/08).