GENERAL STUDY PLAN FOR RESEARCH EDUCATION (THIRD LEVEL HIGHER EDUCATION) IN BIOMETRY 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 biometry. Biometry includes the following specialisations: 1) mathematical statistics/statistics (focus on planning and statistical analysis of experiments and processes); 2) applied mathematics (focus on mathematical and computational issues surrounding experiments and dynamic processes); 3) theoretical biology and biophysics (focus on understanding mechanisms and interactions in biological systems and processes, including the design and analysis of mathematical models and computer simulations); 4) environmetrics and geoinformatics (focus on the link between biotically related systems and characterising abiotic factors, including the study of scaling issues). 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 Biometry normally requires knowledge equivalent to at least 120 higher education credits in theoretical subjects such as statistics, mathematics and physics. The student must have shown the ability to work independently, such as by completing a degree project corresponding to at least 15 higher education credits. An individual assessment is made concerning whether the student is eligible on the basis of another comparable programme.

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 an independent research project, presented in a doctoral thesis that represents at least 120 higher education credits. The recommendation is that the thesis include 3-5 papers. All papers are to be of sufficient quality as to be publishable, possibly after some revision, in international scientific journals that are relevant to the subject and use a peer review system.

If the papers of the thesis have multiple authors, the contribution of the research student must be clearly specified in the thesis or an annex. The thesis may also be presented as a monograph. All theses should be written in English.

A scientific project equivalent to at least 60 higher education credits is required for a degree of Licentiate. One or two papers are expected to be included and shall be of sufficient quality as to be publishable in journals that use a peer review system. The thesis should be written in English.

By means of independent literature studies, the student should attentively follow international research that is relevant to the research project. In addition, the student is expected to actively participate in seminars, conferences, symposia and the like that are related to the scientific project.

Coursework
The coursework shall consist of 90-120 higher education credits for a degree of Doctor and at least 60 higher education credits for a degree of Licentiate. At least 120 credits are required for a degree of Doctor in the specialisations of mathematical statistics/statistics and applied mathematics, while at least 90 credits are required for the other specialisations. 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).

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.

A degree of Doctor requires that the student receive a grade of Pass in courses and the thesis, whereas a degree of Licentiate requires a grade of Pass in courses and the thesis. The grading scale consists of Pass and Fail.

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).