
General syllabus for the doctoral programme in the subject of:

BIOMETRICS

Valid from 1 July 2016

Department to which the study plan applies
ENERGY AND TECHNOLOGY

Subject code:
NJBOM00

The subject of biometrics (“biometri”) includes the following: statistics/mathematical statistics with a focus on planning, modelling and validation of trials and processes; bio-mathematical modelling focusing on understanding mechanisms and interactions in biological systems, processes and their surroundings; environ-metrics and geo-informatics with a focus on landscape systems and processes.

Regulations for third-cycle (doctoral) education at SLU

Third-cycle (doctoral) education is regulated by the Higher Education Ordinance (SFS 1993:100) and the Ordinance for the Swedish University of Agricultural Sciences (SFS 1993:221).

In addition, SLU has regulations for the following:

- recruitment and admission, in Admission regulations for third-cycle (doctoral) education (SLUID: SLU.ua.2018.1.1.1-930)
- joint programmes leading to a double or joint degree
- supervision
- scope and content of programmes
- planning and follow-up of programmes
- procedure when a course or programme is unsatisfactory
- examination
- degrees.

These are described in Guidelines for doctoral education (SLUID: SLU.ua.2018.1.1.1-4677).

A general syllabus must indicate the following: the main content of the programme, specific entry requirements and any other regulations required. All general syllabuses must be approved by the faculty board.

The programme is organised in a way that allows doctoral students to meet the qualitative targets for third-cycle courses and programmes specified in the *Higher Education Ordinance’s Annex 2 – Qualifications Ordinance*:

Qualitative targets according to the Qualifications Ordinance: Degree of Doctor

Outcomes

For the Degree of Doctor the third-cycle student shall

Knowledge and understanding

- *demonstrate broad knowledge and systematic understanding of the research field as well as advanced and up-to-date specialised knowledge in a limited area of this field, and*
- *demonstrate familiarity with research methodology in general and the methods of the specific field of research in particular.*

Competence and skills

- *demonstrate the capacity for scholarly analysis and synthesis as well to review and assess new and complex phenomena, issues and situations autonomously and critically;*
- *demonstrate the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake research and other qualified tasks within predetermined time frames and to review and evaluate such work;*
- *demonstrate through a dissertation the ability to make a significant contribution to the formation of knowledge through his or her own research;*
- *demonstrate the ability in both national and international contexts to present and discuss research and research findings authoritatively in speech and writing and in dialogue with the academic community and society in general;*
- *demonstrate the ability to identify the need for further knowledge and*
- *demonstrate the capacity to contribute to social development and support the learning of others both through research and education and in some other qualified professional capacity.*

Judgement and approach

- *demonstrate intellectual autonomy and disciplinary rectitude as well as the ability to make assessments of research ethics, and*
- *demonstrate specialised insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used.*

Outcomes***For a Degree of Licentiate the third-cycle student shall****Knowledge and understanding*

- *demonstrate knowledge and understanding in the field of research including current specialist knowledge in a limited area of this field as well as specialised knowledge of research methodology in general and the methods of the specific field of research in particular.*

Competence and skills

- *demonstrate the ability to identify and formulate issues with scholarly precision critically, autonomously and creatively, and to plan and use appropriate methods to undertake a limited piece of research and other qualified tasks within predetermined time frames in order to contribute to the formation of knowledge as well as to evaluate this work;*
- *demonstrate the ability in both national and international contexts to present and discuss research and research findings in speech and writing and in dialogue with the academic community and society in general, and*
- *demonstrate the proficiency required to participate autonomously in research and development work and to work autonomously in some other qualified capacity.*

Judgement and approach

- *demonstrate the ability to make assessments of ethical aspects of his or her own research;*
- *demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and*
- *demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.*

1. Programme content and scope

The programme contains two main elements: research and coursework.

Research

The student should conduct independent research work to be presented in a compilation thesis or a monograph written in English.

Courses

The student is required to undertake coursework which corresponds to 60–120 higher education credits (HEC) for a Degree of Doctor, or 30–60 HEC for a Degree of Licentiate. The number of credits will be determined when the student's individual study plan is approved. This must include suitable general courses as

well as elective subject courses. Among the general courses, an introduction to philosophy of science is of particular importance.

According to the current guidelines for doctoral education (SLU ua 2018.1.1.1-4677), all doctoral and licentiate degrees at SLU must include credit awarding courses of philosophy of science and research ethics at PhD-level. These courses should also cover rules on cheating and plagiarism.

Introductory paper

Each new doctoral student must write a short introductory essay, in English, during the first 9 months of their doctoral studies. 4–5 pages should concern the subject area of their studies, and approximately 1 page should be devoted to a discussion on scientific conduct in general terms.

3. Specific entry requirements

Those admitted must meet the following specific entry requirements.

The specific entry requirement for doctoral studies in biometrics is knowledge corresponding to at least 60 HEC at second-cycle level in a subject relevant to the project. These 60 HEC should include a degree project corresponding to at least 30 HEC. A good knowledge of English is required as the literature on this programme is in English, and the thesis is to be written in English.

4. Miscellaneous

When drafting the individual study plan, the doctoral student, together with the supervisor, should take into consideration the procedure for doctoral studies at the MVM (doc. no SLU-278) in order to strengthen the environmental aspect of doctoral studies at the Department of Energy and Technology.