Swedish University of Agricultural Sciences

Programme syllabus

Forest Ecology and Sustainable Management (MSc)

Skoglig ekologi och hållbar skötsel

120.0 hp

Programme code: SM010

Finalized by: Utbildningsnämndens ordförande, 2023-06-15

Valid from: Autumn semester 2024 (2024-09-02)

Programme board

The programme board for education in forestry

SLU ID

SLU.ua.2023.3.1.1-2273

Entry requirements

To be admitted to the Master's programme Forest Ecology and Sustainable Management, the following criteria must be met:

general entry requirements: first-cycle qualification comprising at least 180 credits or a corresponding qualification from abroad

specific entry requirements: specialisation comprising at least 60 credits in one of the following subjects/disciplinary domains:

- Forestry Science
- Forest Management
- Forest Science
- Biology
- Soil Science
- Environmental Science

- Natural Resource Governance
- Physical Geography

and 15 credits in Ecology.

In addition, knowledge equivalent to the Swedish upper secondary course English 6 is required. This requirement is met by those holding a Degree of Bachelor (180 credits) from a Swedish higher education institution. There are specific rules for applicants from certain English-speaking countries.

The specific entry requirements stated above can also be met by someone who has obtained equivalent knowledge through a corresponding qualification from abroad, or in some other way.

There are specific entry requirements for each course included in the programme. These are described in the relevant course syllabus.

Objectives

General objectives

The general learning outcomes for first- and second-cycle courses and programmes are specified in the Higher Education Act (Chapter 1, Sections 8–9).

Objectives for a Degree of Master (120 credits)

In accordance with the annex to the Ordinance for the Swedish University of Agricultural Sciences, for a Degree of Master (120 credits), the student shall have:

Knowledge and understanding

- demonstrated knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrated specialised methodological knowledge in the main field of study.

Competence and skills

- demonstrated the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- demonstrated the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake specialised tasks

within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work
- demonstrated the ability in speech and writing both nationally and internationally to report clearly and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrated the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

Judgement and approach

- demonstrated the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical considerations and also to demonstrate awareness of ethical aspects of research and development work
- demonstrated insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrated the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

Degree

Degree awarded upon completion of the programme

The Master's (120 credits) programme Forest Ecology and Sustainable Management leads to a Degree of Master of Science with a major in Biology, or, alternatively, the Degree of Master of Science with a major in Forestry Science. A Degree of Master is a general qualification.

Students who fulfil the qualification requirements for a Degree of Master will be issued a degree certificate on request. The degree certificate will specify the qualification as Degree of Master (120 credits) with a major in Biology, or alternatively, Forestry science. (Degree of Master of Science with a major in Biology or, alternatively, Degree of Master of Science with a major in Forestry Science)

Other qualifications may be awarded provided that the requirements for them are fulfilled. See SLU's system of qualifications.

The programme contains courses which, depending on choice of courses and combination with previous studies in forestry at first-cycle level, may enable students to fulfil the requirements for the professional qualification Degree of Master of Science in Forestry, 300 credits. The outcomes for a Degree of Master of Science in Forestry are stipulated in the

Ordinance for the Swedish University of Agricultural Sciences. The requirements for a Degree of Master of Science in Forestry are defined in SLU's system of qualifications.

Degree requirements

The Degree of Master of Science with forestry science as the main field of study will be awarded once 120 credits have been obtained, of which 90 must be from second cycle courses that meet the following requirements:

- a minimum of 30 credits with forestry science as the main field of study (A1N; A1F);
- a minimum of 30 credits from an independent project (degree project) with forestry science as the main field of study (A2E).

The Degree of Master of Science with biology as the main field of study will be awarded once 120 credits have been obtained, of which 90 must be from second cycle courses that meet the following requirements:

- a minimum of 30 credits with biology as the main field of study (A1N; A1F);
- a minimum of 30 credits from an independent project (degree project) with biology as the main field of study (A2E).

Additionally, students must have successfully completed a Degree of Bachelor, a professional qualification comprising a minimum of 180 credits, or have an equivalent qualification from abroad.

The Degree of Master of Science (120 credits) may contain a maximum of 30 credits from first-cycle courses, provided these credits were not included in a Degree of Bachelor or its equivalent. All courses included in a degree must be at university level, have been successfully completed and may not overlap/have similar content.

Content

Programme description

The programme aims to provide students with the knowledge and skills necessary for contributing to the development of forestry that is ecologically, economically and socially sustainable.

Students will achieve a deepened understanding of the properties of the forest ecosystem and the mechanisms governing the interplay between biotic and abiotic processes, including how humans influence the forest's function and forest ecosystem services.

The programme uses a transdisciplinary approach and includes silviculture, vegetation ecology, ecosystem ecology, ecophysiology, soil science and hydrology. The history of vegetation and how forests have been used throughout history are studied to elucidate the events that have led to the current state of our forests. A considerable component of the programme will involve analyses of conventional and future forestry measures and forest management systems and their impact on both forestry production and ecosystem functions. Tasks aimed at producing evidence-based decision making for forest management based on different objectives are a recurrent feature of the programme. These activities deepen students' knowledge and understanding of forestry methods and their consequences beyond those of contemporary methods. Students simultaneously develop their skills for identifying future research needs, developing strategies for uncertain decision-making situations and selecting suitable methods and tools for research and development work.

The core of the programme is built on the courses arranged during the first year that are developed in close collaboration between active researchers at the faculty and students' prospective employers. These profile courses, together with the final synthesis course, involve a clear progression of both subject knowledge and generic skills. The programme focuses on boreal forests, however it includes surveys and comparisons with other terrestrial biomes. Additionally, students are able to take elective courses during years one and two, enabling specialisation in a chosen subject area. The degree project provides students with an additional chance to synthesise and apply the subject knowledge they have attained to case studies and research projects. It is possible to take the elective courses at SLU or at another university either in Sweden or abroad.

Programme teaching involves a student-centred approach, with emphasis on student-activated learning processes. Teaching forms include working with system models and student-led seminars for analysing complex problems. Training in scientific methods through laboratory sessions, field exercises and analysing and discussing scientific articles is also included. Examination is in the form of individual written assignments, practical exercises, presentations and seminars with written and oral presentations.

In accordance with the SLU guidelines for equal opportunities, a well-functioning study environment is characterised by openness, equality and inclusiveness. This promotes a climate that draws upon the diverse backgrounds, lives, and skills of students and staff.

SLU's profile focuses on knowledge of biological natural resources. Societal challenges such as the supply of raw materials, water and energy, and climate change tie in with our areas of responsibility. These challenges, and humankind's use and management of biological natural resources, form some of the UN goals for sustainable development.

The programme is taught in English

Programme courses

Main fields of study: SV = Forestry Science, BI = Biology, MV = Soil Science

Course (main field of study, level)

Year 1

Forest History - Human Utilisation and Vegetation Dynamics, 15 credits (BI/SV, A1N)

Forest Ecosystem Ecology, 15 credits, (BI/MV, A1N)

Silviculture - the Science of Forest Stand Management, 15 credits (SV, A1N)

Sustainable Management of Boreal Rorest, 15 credits, (BI/SV, A1F)

Elective Courses

Year 2

Elective Courses

Master's thesis, 30/60 credits (BI, A2E)

Master's thesis, 30/60 credits (SV, A2E)

The courses offered may change during the programme. This may result in a new version of the programme syllabus containing transitional provisions. Decisions on the courses offered are taken well in advance of the next academic year.

Each course on the programme has its own syllabus that describes the course content and other specifics. Information on when the courses are offered is available on the SLU student web.

During certain study periods (parts of a semester), SLU offers several programme courses from which the student can choose. Students are guaranteed a place on one of these courses, provided they meet the admission requirements and have applied before the deadline.

Additional information about the programme

General regulations for first- and second-cycle courses and programmes

For more information about semester dates, examination, credit transfer and admissions to the latter part of programmes, see the Education Planning and Administration Handbook on the SLU student web.

Possibilities for further study

Students who successfully complete the Master's (120 credits) programme in Forest Ecology and Sustainable Management and are awarded a degree have the opportunity to continue onto third cycle (doctoral) studies.