



## SWEDISH UNIVERSITY OF AGRICULTURAL SCIENCES

Department of Southern Swedish Forest Research Centre

### Syllabus

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#### **Forest Modelling**

##### ***Skoglig modellering***

7.5 Credits

Code: SV0058

Finalized by: Ordföranden för programnämnden för utbildning inom skog (PN-S), 2023-12-22

Valid from: Autumn semester 2025 (2025-09-01)

Level within study regulation: Second cycle

Grading scale: TH Four-grade scale, digits

Main field of study with advanced study: SBV Forestry Science - A1N Second cycle, has only first-cycle course/s as entry requirements

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#### **Programme board**

PN-S The programme board for education in forestry

#### **Language**

ENG English

#### **Forestry science sub-area**

Natural processes 7,5 credits

#### **Entry requirements**

The equivalent of

120 credits

60 credits within one of the following subjects/main fields of study

- forestry science

- forest science
- forest management
- biology
- environmental sciences
- natural resource management

English 6.

## Objectives

The overall goal of the course is to give students an in-depth understanding of forest models with a focus on sustainable forestry.

Upon successful completion of the course, students will be able to

- describe the experimental design and develop forest field trials, as well as analyze and evaluate forest field trials
- discuss and critically examine the characteristics and limitations of different forest production models
- describe and analyse empirical and mechanistic models
- use models to analyse and present interactions between forest growth, stock dynamics and climate effects through the use of survey material and experimental data.

## Content

The course gives students the ability to perform analyses of forest development with the help of forest production models and insight into what data and information are needed to develop and apply these models. Students also learn the difference between empirical and mechanistic models, their areas of use, and the limitations of the different model types.

The course covers forest models and concepts needed for an in-depth understanding of forest production and for climate-adapted sustainable forest management. Study topics include experimental design of field trials and how to analyse important variables such as basal area, volume, biomass, and carbon. In addition, important processes with regard to forest modelling are studied, such as regeneration and growth, stand structure and competition, and various site variables including climate data.

To further student learning and promote discussion, a variety of methods are used: Lectures, literature studies, seminars, individual assignments, group work, exercises, and field excursions.

Exercises, group work and individual assignments consist of literature studies and of analysis of theoretical and practical questions with the help of statistical data processing and simulation tools.

The course focuses on the following generic competencies: Information competence, critical thinking and reflection, problem solving, scientific methods, digital competence, use of technology, oral and written communication, teamwork.

**The following course components are compulsory:** Individual and group assignments, seminars and field excursions.

## Examination formats

Approved written exercises.

Completed compulsory components.