Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Syllabus

BI1333.1 Forest Ecosystem Ecology, 15.0 credits

Forest Ecosystem Ecology

The course is given Forest Science - Master´s Programme and Forest Ecology and Sustainable Management - mastersprogramme and as course independent of study programme

Syllabus discontinued 23 May 2022

Version 1 in Slukurs. Corresponds to version 1 in Ladok

Syllabus approved

26 September 2018

The version applies to students admitted from autumn 2019

The version is not a module version

Subjects

Biology/Forest science

Education cycle

Second cycle

Modules

Title	Code	Credits
Single module	0101	15.0

Advanced study in the main field

Second cycle, only first-cycle courses as entry requirements (A1N)

Grading scale

5:Pass with Distinction, 4:Pass with Credit, 3:Pass, U:Fail
The requirements for attaining different grades are described in the course assessment criteria which are contained in a supplement to the course syllabus. Current information on assessment criteria shall be made available at the start of the course.

Language

English

Prior knowledge

The equivalent of 120 credits at basic level including
- 60 credits in Forest science or
- 60 credits in Forest management or
- 60 credits in Biology or
- 60 credits in Soil science or
- 60 credits in Environmental sciences or
- 60 credits in Natural resource management or
- 60 credits in Natural geography

and,

English 6.

Objectives

The overall aim of this course is to provide understanding of fundamental biotic and abiotic properties and processes in forest ecosystems. Building on ecological theory, students will receive in-depth knowledge of factors that control the structure, functioning and dynamics of forests across spatial and temporal scales. Both terrestrial and aquatic environments and linkages and feedbacks between the two sub-systems will be covered. The course will further provide an overview of analytical approaches commonly used to address patterns and processes in forest ecosystems, including analyses of ecological data and experimental designs. This course will also provide useful skills on critical reading and scientific writing.

After completion of the course, the students will be able to:
• Synthetize how climatic and other abiotic drivers (e.g., hydrology, topography, soil properties, natural disturbances) affect forest ecosystem dynamics including

soil and freshwater processes, vegetation communities, and forest growth.
• Explain the effects of trophic interactions, competition, and other biotic drivers on forest vegetation and associated ecosystem processes.
• Clarify and synthetize the drivers of species diversity and composition in forested landscapes and clarify the role of biodiversity for ecosystem functioning, with focus on boreal forests and waters.
• Justify and discuss how freshwater systems are linked to forested parts of the landscape and describe feedbacks between terrestrial and aquatic environments.
• Explain and discuss how multiple global change factors are affecting forested ecosystems and the services they provide.
• Design experiments and sampling strategies to test ecological questions; understand and apply the most commonly used statistical approaches to analyze ecological data
• Critically evaluate and synthesize scientific literature and apply a scientific approach for problem solving by formulating and testing hypotheses.

Content

This course broadly addresses the functioning of forest ecosystems and primarily focuses on the boreal region. We will also cover fundamental principles that are relevant to all forested ecosystems and discuss examples from temperate and tropical regions. The course will cover and draw examples from natural as well as managed forests.

The first part of the course examines the drivers of forest ecosystem dynamics and species diversity and composition. We will focus on both abiotic and biotic drivers of forest ecosystem processes and ecological communities. We will address terrestrial as well as aquatic environments and how the linkages between these sub-systems affect forest ecosystem processes. We will also discuss the importance of natural disturbances for forest ecosystem dynamics. Here, we will explicitly consider the role of spatial and temporal scale. The second part of the course addresses the effects of global changes such as climate and land-use change, nitrogen deposition, and invasive species on forested ecosystems and the services they provide. The first two parts of the course are conducted in the form of lectures, readings, and individual and group assignments with emphasis on current ecological issues. The third part covers methods and approaches to study and analyze forest ecosystems and ecological data. This part involves group projects, using greenhouse and laboratory experiments and statistical analysis of data. Hands-on training in scientific writing, literature discussion and oral presentation is also an important part of the course.

Formats and requirements for examination

Approved participation in compulsory seminars and exercises, and approved completion of oral and written assignments .

- If the student fails a test, the examiner may give the student a supplementary assignment, provided this is possible and there is reason to do so.
- If the student has been granted special educational support because of a disability, the examiner has the right to offer the student an adapted test, or provide an alternative assessment.
- If changes are made to this course syllabus, or if the course is closed, SLU shall decide on transitional rules for examination of students admitted under this syllabus but who have not yet passed the course.
- For the examination of a degree project (independent project), the examiner may also allow the student to add supplemental information after the deadline. For more information on this, please refer to the regulations for education at Bachelor's and Master's level.

Transitional regulations

The course was discontinued on May 23, 2022 (SLU.sfak.2022.3.1.1-82). Registered students that have not yet passed the course have the opportunity to do so within two years of the decision to discontinue the course. The department responsible for the course will during the two year phase-out period offer at least three retake sessions (renewed exams) and at least one opportunity to take part in compulsory elements.

Students that wish to take an exam and/or take part in compulsory elements are asked to contact deputy head of department responsible for undergraduate education (or equivalent) at the responsible department to report that they wish to take an exam and/or take part in compulsory elements and to obtain information on when and where.

Additional information

This course is given within the Masters Program in Forest Ecology and Sustainable Management.

SLU is environmentally certified according to ISO 14001. A large part of our courses cover knowledge and skills that contribute positively to the environment. To further strengthen this, we have specific environmental goals for the education. Students

are
welcome to suggest actions regarding the course's content and implementation that lead
to improvements for the environment. For more information, see webpage www.slu.se.

- The right to take part in teaching and/or supervision only applies to the course date to which the student has been admitted and registered on.
- If there are special reasons, the student may take part in course components that require compulsory attendance at a later date. For more information on this, please refer to the regulations for education at Bachelor's and Master's level.

Responsible department

Department of Forest Ecology and Management

Supplementary Information

Finalized by: Programnämnden för utbildning inom skog (PN - S)
Biology Area: Ecology
Replacement course: SG0180.1 , SG0174.2