Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

Syllabus

BI1225.1 Soil Biology, 5.0 credits

Markbiologi

The course is given EnvEuro - European Master in Environmental Science, Soil and Water Management - Master´s Programme and Agriculture Programme - Soil/Plant (270hec)

Version 1 in Slukurs. Corresponds to version 1, 2, 3 and 4 in Ladok

Syllabus approved

27 November 2013

The version applies to students admitted from spring 2014

The version is not a module version

Subjects

Biology/Soil science

Education cycle

Second cycle

Modules

Title	Code	Credits
Single module	0101	5.0

Advanced study in the main field

Second cycle, has only first-cycle course/s 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

Equivalent to 150 credits including 60 credits in one of the subjects Biology, Chemistry, Agricultural Science, Soil Science, Geoscience, Environmental Science, Technology. At least 20 credits in Biology and at least 20 credits in Chemistry must be included alternatively at least 15 ECTS in Biology and at least 15 credits in Chemistry and at least 15 credits in Soil Science or Geoscience. English skills equivalent to English B from upper secondary school.

As an alternative to the above: Equivalent to 120 credits including at least 20 credits in Biology and at least 20 credits in Chemistry and at least 20 credits in Soil Science. English skills equivalent to English B from upper secondary school.

Objectives

The course aims at conveying a deeper understanding of soil organisms and their interactions with the abiotic and biotic environment of the soil in agricultural and forest ecosystems.
At the end of the course, the student should be able to analyse the role of soil organisms in decomposition processes, plant nutrition, nutrient leaching and biogeochemical fluxes, as well as the effects of environmental changes on the biological systems of the soil.

This implies that the student should be able to:
- describe basic biology and trophic strategies of fungi, bacteria and soil animals
- describe carbon and nitrogen cycling in the plant/soil system
- describe biological differences between soils in different ecosystems
- analyse the effects of environmental changes on soil organisms and the consequences for carbon and nutrient cycling.

Content

The course encompasses soil bacteria, fungi, protozoa and animals, their acquisition of carbon, energy and nutrients as well as their interactions with each other, living plants, plant litter and minerals. Carbon and nitrogen cycling in the soil, as well as inputs and losses of carbon and nutrients, is discussed from the viewpoint of the organisms. Subjects that are covered are: nitrogen fixation, biological weathering,

decomposition, humus formation, nitrogen mineralisation, nitrification, denitrification, rhizodeposition, mycorrhizal symbiosis, food-webs and transport of carbon and nitrogen in fungal mycelia. The course contains lectures, seminars, an excursion and literature studies in groups with follow-up oral presentations and discussions.

Implementation

Scheduled activities

Lectures

approx. 35 Hours

Seminars

approx. 10 Hours

Examination and evaluation

approx. 5 Hours

Exkursion

approx. 5 Hours

Compulsory

Group exercises

approx. 10 Hours

Compulsory

Individual studies, not scheduled

Literature studies

approx. 70 Hours

Total

approx. 135 Hours

Formats and requirements for examination

Exam and oral presentation of group exercises. Approved written exam, approved group exercises and partcipation in compulsary items.

- 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.

Additional information

- 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 Soil and Environment

Supplementary Information

Finalized by: Utbildningsutskottet för ekologi, mark och miljö
Biology Area: Ecology
Course overlap: MV0120, BI0708
Replacement course: BI0883