

P000015, Plant growth analysis, nutrient use efficiency and phenotyping, 6.0 Hp

Syllabus

Finalized by: Forskarskola betygsnämnd, 2022-11-15

Valid from: 2022H

Level within study regulation:

Third cycle

Subject:

- Biologi

Grading scale:

Pass / Failed

Course language:

Swedish

Entry requirements:

Accepted as PhD student within plant biology, ecology, agricultural sciences or related subject areas

Objectives:

The aim of the course is to provide an in-depth overview of the basic methods for measuring and assessing growth and physiology of plants, and to give an overview of quantitative

methods for the measurement of structural and functional plant properties (so called phenotyping) in modern phenotyping facilities. A special focus is on the current concepts and methodologies for the assessment of plant nutrient use efficiency in different agricultural and ecological contexts. Upon completion of the course the student should be able to (i) describe the basic methods for measuring and assessing the growth of plants; (ii) evaluate scientific experiments focusing on the growth of plants in relation to the surrounding environment (plant-environment and plant-plant interaction); (iii) independently evaluate and apply current concepts and methodologies for the assessment of plant nutrient use efficiency in different agricultural and ecological contexts; and (iv) evaluate different quantitative methods for measuring structural and functional plant properties in modern phenotyping facilities.

Content:

Topics covered by this course are:

- Growth analysis and functional physiology of agricultural and forest plants
- Plant-environment and plant-plant interaction
- Overview of the most frequently applied approaches and conceptions for evaluating and improving plant nutrient use efficiency across different scales
- Modern phenotyping methods for plants, i.e. technical solutions for rapid and automated quantification of structural and functional plant properties in large quantities of plant individuals.

Modes of assessment:

Apart from active participation in all course parts, each course participant is expected to read, present and critically discuss at least one relevant research paper within the course subject (a list of relevant papers will be distributed prior to the course start). The oral research paper presentation and discussion will be used for the final assessment - If a student has failed an examination, the examiner has the right to issue supplementary assignments. This applies if it is possible and there are grounds to do so.

- The examiner can provide an adapted assessment to students entitled to study support for students with disabilities following a decision by the university. Examiners may

also issue an adapted examination or provide an alternative way for the students to take the exam.

- If this syllabus is withdrawn, SLU may introduce transitional provisions for examining students admitted based on this syllabus and who have not yet passed the course.
- For the assessment of an independent project (degree project), the examiner may also allow a student to add supplemental information after the deadline for submission. Read more in the Education Planning and Administration Handbook.

Organisation:

Department of Energy and Technology

Supplementary information

Other information:

- The right to participate in teaching and/or supervision only applies for the course instance the student was admitted to and registered on.
- If there are special reasons, students are entitled to participate in components with compulsory attendance when the course is given again. Read more in the Education Planning and Administration Handbook.