



Sveriges lantbruksuniversitet  
Swedish University of Agricultural Sciences

# SLUkurs

## Syllabus

**PNSo209 Soil systems, 3.0 credits**

## Syllabus approved

2020-10-12

## Subjects

Soil Science

## Education cycle

Third cycle

## Grading scale

Pass / Failed

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

PhD students accepted for studies in Soil, Water and Environmental Sciences at SLU or elsewhere

## Objective, including learning outcomes

The aim of this course is to

(i) provide an introduction to soil system sciences,

- (ii) give an overview of emerging micro-analytical techniques and their application to environmental samples;
- (iii) present examples of soil system sciences to study ecosystem services and
- (iv) discuss challenges and the future of this research discipline.

## Content

The course consists of two parts:

- 1) Three literature group meetings prior a one-week workshop and one final group meeting after the workshop: 18th and 25th of January, 1st of February and a concluding meeting on the 15th of February. During these meetings, we will review selected research and review papers. Moreover, students will give an oral presentation of their research (~15 minutes).
- 2) A workshop at Ultuna will be held between 8th – 12th of February with participation of international leading scientists in this research area (see below).

Participation in the workshop and group meetings are compulsory! However, there is no need to be present in Uppsala for the group meetings as we can set up a video-link.

Plan for workshop lectures:

Lectures (approximately 9:00 – 12:00 and 13:00 – 16:00), including morning and afternoon tea breaks. The participants are expected to actively participate in the discussions.

Monday, 8th February: Importance of soil systems for ecosystem services

Tuesday, 9th February: Soil interaction in the natural soil habitat – technical advances I

Wednesday, 10th February: Soil interaction in the natural soil habitat – technical advances II

Thursday, 11th February: Importance of soil systems for ecosystem services – various spatial scales

Friday, 12th February: The challenge and future for soil systems sciences (summary)

Preliminarily confirmed lecturers:

- Claire Chenu (AgroParisTech, UMR Ecosys INRA-AgroParisTech, Université Paris-Saclay, France)
- Naoise Nunan (Sorbonne Université, Institute of Ecology and Environmental Sciences, France)

- Iain Young (University of Sydney, School of Life and Environmental Sciences, Australia)
- Markus Kleber (Oregon State University, Department of Crop and Soil Science, United States)
- Nicholas Jarvis (Swedish University of Agricultural Sciences, Department of Soil & Environment, Sweden)
- Anke Herrmann (Swedish University of Agricultural Sciences, Department of Soil & Environment, Sweden)
- Mats Larsbo (Swedish University of Agricultural Sciences, Department of Soil & Environment, Sweden)
- Sara Hallin (Swedish University of Agricultural Sciences, Department of Forest Mycology and Plant Pathology, Sweden)

### **Requirements for examination**

Attendance is required at the literature meetings, where students will present their research in a 15-minute oral presentation, as well as the workshop. During these occasions, students are expected to participate actively in discussions.

### **Additional information**

#### **Responsible department**

Department of Soil and Environment