Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

SLUkurs

Syllabus

PNG0031 Ecosystem Services in Soil and Water Research, 4.0 credits

Syllabus approved

2011-01-17

Subjects

Environmental Assesment/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

Target group
This course is primarily intended for PhD students in the Focus on Soils & Water graduate school, but is also open to other PhD students working in related fields. Other researchers (non-PhD students) are also very welcome to participate in the seminars and symposium.
Prior knowledge requirements
PhD students should have basic knowledge of soil or aquatic sciences; however PhD

students in ecology, biology, environmental sciences, economy or other applicable area of the natural sciences and an interest in ecosystem services are welcome to apply.

Objective, including learning outcomes

Background
Since the Millennium Ecosystem Assessment (MA; 2005) defined ecosystem services as "the benefits that people obtain from ecosystems", research within this area has mainly focused on the impact of climate change and loss of biodiversity on ecosystem services. The impact of changes in other basic processes in soil and water systems such as nutrient cycling and dispersal, primary production, waste decomposition, the fate of toxins and much more have received less attention in the context of ecosystem services.

Objectives
This PhD course will explore the current state of ecosystem services in soil and water research with the aim of providing PhD students an overview of ecosystem services concepts. The course also aims to promote an ecosystem services perspective on the PhD students own scientific subjects, as well as to provide insight and perspective of the concept across different scientific disciplines. Specific objectives include:
X Provide a general background and overview of the concept of ecosystem services
X Provide training in the identification, quantification and valuation of soil and water processes as ecosystem services.
X Provide a forum for presentations and discussions of state-of-the-art research of ecosystems services in soil and aquatic systems.
X Examine and discuss the vulnerability, threats and options for protection of these services.
X Discuss challenges and the future of research on ecosystem services.

Content

Course content
Course structure
The course consists of two parts:
1. A series of half-day seminars will take place between May 4 and June 15, 2011. Meetings will include an introductory lecture to that day's topic given by an invited expert speaker followed by a discussion of selected research and review papers by the PhD students.
2. The FoSW Symposium on Ecosystem Services in Soil and Water Research which

will be held between June 7-10, 2011, with international leading scientists in the research area.
See http://www-conference.slu.se/fosw2011/ for details.

Main themes to be addressed during weekly seminars/literature studies and a symposium include:
1. Ecosystem services:
o Provisioning services: food, water, energy
o Supporting services: nutrient dispersal and cycling, seed dispersal, primary production, crop pollination..
o Regulating services: climate regulation, waste decomposition, pest and disease control, protection from natural hazards..
o Cultural services: recreation, aesthetic, educational..
2. Biodiversity and ecosystem services: redundancy or functional compensation, portfolio effects; rivet hypothesis
3. The identification, quantification and valuation of soil and water processes as ecosystem services
4. The vulnerability, threats and options for protection of these services.

Requirements for examination

In order to obtain credits for the course participants are required to:
X Read the assigned literature, attend the weekly seminars, and actively participate in the discussions.
X Attend the symposium, present a poster of students research in relevance to the theme of ecosystem services, and actively participate in discussions.
X Write an essay (max 2 A4) presenting own research and assessing if and how a view on ecosystem services affects your scientific work.

Additional information

Time and Place (Preliminarily)
X The seminar series will consist of 5 weekly meetings at the Ultuna campus of SLU prior to the symposium and one meeting following the symposium. Seminars will be held on Wednesday mornings between 9-12 on 04/05, 11/05, 18/05, 25/05, 01/05 and then the final one on 15/06. Depending on demand, video conference technology could be used to link course participants from various SLU campuses.
X The Symposium will be held at the Ultuna campus of SLU during June 7-10.

Responsible department

Department of Aquatic Sciences and Assessment