Sveriges lantbruksuniversitet
Swedish University of Agricultural Sciences

SLUkurs

Syllabus

PNS0066 Modelling Soil Organic Matter, 4.5 credits

Syllabus approved

2010-04-21

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

Participants should have advanced knowledge of soil science, systems ecology, soil biology, forest management and crop production. It is an advantage to have completed the FoSW PhD-course 'Constraints in decomposition' and/or FoS PhD-course 'Knowledge gaps in C and N interactions'.

Objective, including learning outcomes

The aims of the PhD-course are that participants
- are introduced to and discuss different conceptual models of soil organic matter dynamics
- gain insight in which kind of model complexity is suitable for a certain research question
- are provided hands-on trainings with the models Q, Yasso07, and CoupModel.

Content

The course provides introductions to the latest approaches in process-oriented modelling of soil organic matter dynamics. The following themes will be covered by oral presentations and/or exercises:
- An overview of models of soil organic matter dynamics, what do they have in common and where do they differ
- Techniques for uncertainty and sensitivity analysis
- Modelling impact of climate (change) on SOM dynamics
- Modelling impact of land use and management on SOM dynamics
- Main concepts of Q, Yasso07 and CoupModel

Requirements for examination

Course weeks: Active participation in at least 90% of the course weeks, presentation of
- her/his own research in the course context
- a review of assigned literature

Individual project: A written report of the individual project should be approved by latest 1 February 2011 to be awarded an additional 4.5 ECTS.

Additional information

The intensive course weeks in Uppsala are 23 August to 3 September. The week 16-20 August is set aside for reading and preparation of presentations at home department, the participant is free to do this part of the course earlier.

Deadline for application: 5 June 2010. You apply for the course by sending an e-mail to Magnus.Svensson@mark.slu.se. Your application should provide information about your affiliation, topic of your PhD-study and whether you belong to FoSW or not. The number of participants is limited to 25 persons per course week.

FoSW PhD-students, who apply before 23 May 2010, are given first priority.

The first week of the course will provide hands-on exercises in Yasso07 and Q and the second week in CoupModel. All models will be applied to the same case studies. Both weeks will start with an introductory (the same) lectures on SOM models and uncertainty analyses. A detailed course schedule will be available later in spring 2010.

PhD-students, who wish to be awarded with university credits (1 week work corresponds to 1.5 ECTS), are requested to both attend scheduled lectures and participate actively in the hands-on exercises. PhD-students may choose to participate in one or both of intensive course weeks (1.5-3 ECTS). Moreover, each PhD-student is requested to present her/his own research in the course context and a literature review. All participants should read the course literature before the intensive course weeks (1 ECTS). In addition, a PhD-student can choose to do an individual modelling project after the intensive course weeks. A written report of the individual project should be approved by latest 1 February 2011 to be awarded an additional 4.5 ECTS.

Course organizers: Annemieke Gärdenäs, Carina Ortiz, Göran Ågren and Magnus Svensson.

Responsible department

Department of Soil and Environment