Name of course: SOM and organically bound nutrients - turnover and stabilization

ECTS credits: 4 ECTS.

Course parameters:
Language: English
Level of course: PhD course
Time of year: September to November 2019
No. of contact hours/hours in total: 100 hours in total whereof 40 are contact hours.
Capacity limits: 12 students

Objectives of the course:
The objectives of the course are to:
(i) present the latest understanding of what soil organic matter (SOM) is and how it cycles,
(ii) present new concepts of what controls the cycling of organically bound nutrients in soil,
(iii) assist students to identify key mechanisms in relation the SOM and N cycles of their own projects, and
(iv) train students writing skills.

Learning outcomes and competences:
At the end of the course, the student **should be able to**:
- explain the present knowledge and ideas in relation to what SOM is and how it cycles,
- explain emerging ideas of controlling factors for organic N, P and S cycling, and
- relate new knowledge of SOM and nutrient cycling to the students own project.

Compulsory program:
The students must deliver:
- active participation in discussions, and
- a course assignment.

Course contents:
The traditional humus concept is under question – if not rejected, and is being replaced by an understanding of the complexity of what SOM is and how it is retained in soil. Alongside the focus of the N cycling in soil is moving towards improving the understanding of soil organic N (SON) and organically bound P and S cycling to predict e.g. soil fertility. The course provides a knowledge platform for understanding how the turnover of organic matter in soil plays a key role in ecosystem functioning and links to soil fertility, land use and management.

The students will in this course be introduced to novel concepts of SOM and cycling of organically bound nutrients, and relate this knowledge to own PhD-work. Furthermore the students will exercise their writing skills. The course consists two sections: first a section focusing on new knowledge on SOM and nutrient cycling and second a section focusing on the students own work in the SOM/nutrient context; both sections involves preparation of written material.

New knowledge of SOM cycling: (September - October 2019)
The students will participate in three full day meetings where key papers regarding SOM will be discussed. The students shall write a 1-2 page assignment focused on SOM cycling and the students own project work. The assignment shall contain 1-2 overview figures presenting the SOM and/or N cycling on which their study focuses. The work will be facilitated by Jim Rasmussen and the written work will through individual feed-back sessions lead to selection of 2-3 papers as basis for the second section of the course.

Students own work: (October - November 2019).
The two full day meetings will in this section focus on discussing the students own assignments and the literature selected by the students. This will be done through two full day meetings, and individual feed-back and peer feed-back in smaller groups. Finally, the students shall revise their first assignment and write a short essay with a section describing new knowledge they obtained at the course, and a section with reflections of own learning during the course. The final assignment will be assessed by the course lecturers and feed-back will be given on an individual basis.

Prerequisites:
The students should have a background in soil science, agricultural science, environmental science or related fields.

Name of lecturers:
Jim Rasmussen, Dept. Agroecology.

Type of course / teaching methods:
Discussion sessions, individual reading and writing, peer and teacher feed-back sessions.

Literature:
The literature will be selected both by the course lecturers and students. Additionally each student shall read and give feed-back to two-three of their peers assignments.

Course homepage: None

Course assessment: The assessment will be based on the post-course assignment.

Provider: Department of Agroecology

Special comments on this course: None

Time: September to November 2019.

Place: Research Centre Foulum, Aarhus University, Denmark and via video-link.

Registration:
Deadline for registration is April 1st 2019. Information regarding admission will be given before April 30th 2019, and following the final meeting plan will be decided among the participants before summer 2019.

For registration, use the web-shop link: http://events.au.dk/SOM2019

If you have any questions, please contact Jim Rasmussen, e-mail: jim.rasmussen@agro.au.dk