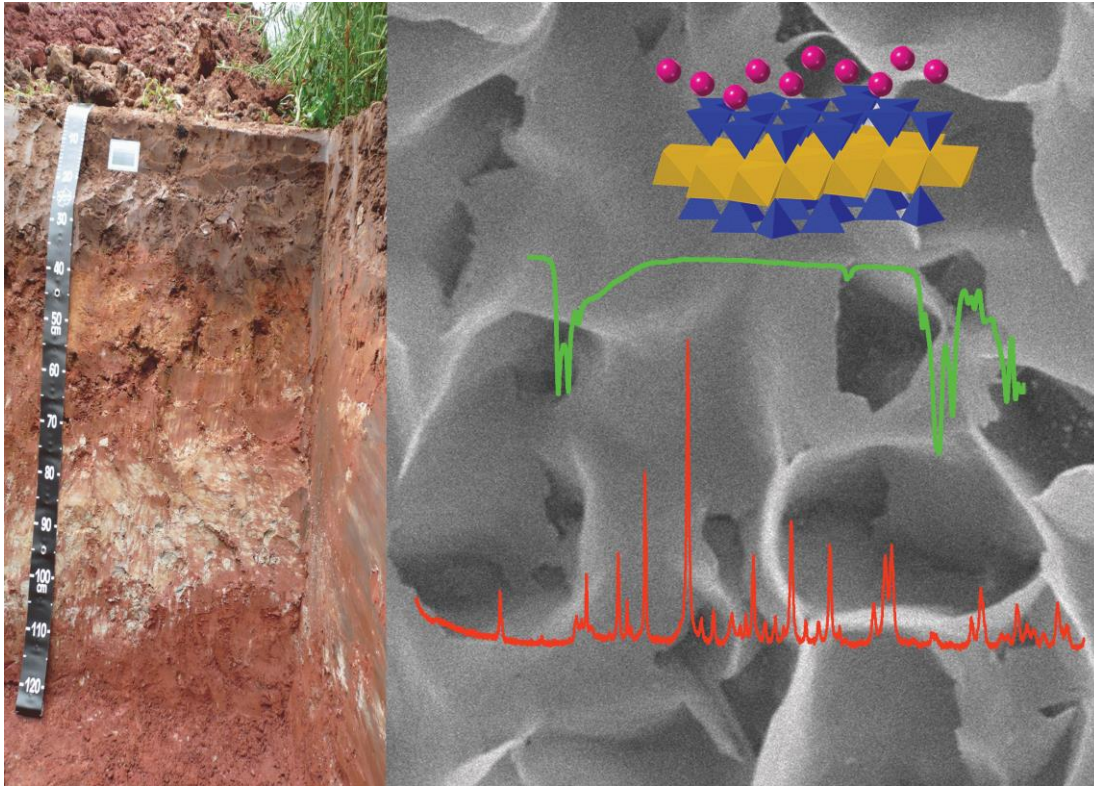


Minerals in soils and sediments and their X-ray identification and quantification, 5.0 credits, PNS0134



In 2024, there will be a new course opportunity of the graduate course "**Minerals in soils and sediments and their X-ray identification and quantification**", 5.0 credits. This is the third time we offer this course, which received very good reviews from previous PhD students! (mean grade 4.7/5 in 2021 for "general impression of the course") The course consists of lectures and exercises led by **Stephen Hillier** from The James Hutton Institute in Aberdeen, Scotland. Steve is a highly qualified scientist in mineralogy in sediments and has held a guest professorship at our department at SLU. With his team at James Hutton he has won first (2008, 2018) and second (2006, 2012, 2014) place in The Reynolds Cup competition in quantitative mineralogy (see <https://www.clays.org/reynolds/>).

Contents

- Introduction to minerals in soils and sediments
- Lectures on mineral groups, clay minerals, mineral characterization techniques etc.
- Hands-on exercises in X-ray diffraction (XRD), scanning electron microscopy (SEM) and Fourier transform infrared spectroscopy (FTIR)
- Applications of mineralogy in soils and sediments
- Literature assignments handed in after the scheduled part of the course

Course set-up

- Lectures during April 2024 (see schedule on the last page of this flyer)
- Practical "hands-on" exercises
- Literature assignments handed in no later than 31 October 2024

Course venue

The course will be held at the SLU campus in Uppsala, Sweden.

Prerequisites and access

The course is open to any interested PhD student with basic knowledge in an earth science or chemistry. The course is given in English. A maximum of 20 participants will be accepted; priority will be given to members of the SLU PhD school "Focus on Soils and Water".

Application

Potential participants should send an e-mail to jon-petter.gustafsson@slu.se no later than 2024-03-01. In the subject line, please give the course code PNS0134, and in the text body, include the following details: your name, affiliation, Swedish personal number (if applicable), and the title of your PhD project!

Webpage

The webpage for this year's course is not yet activated, but you can find the course syllabus here: <https://www.slu.se/en/education/programmes-courses/courses/?sprak=en&anmkod=P0066.1920>. During the course, the Canvas platform will be used for messages, distribution of course literature etc.

Questions

For contact and addition information, contact:

- Jon Petter Gustafsson at the Department of Soil and Environment: jon-petter.gustafsson@slu.se , for practical questions.
- Stephen Hillier at the James Hutton Institute: Stephen.Hillier@hutton.ac.uk for questions on topics, literature etc.

Schedule for course PNS0134, “Minerals in soils and sediments and their X-ray identification and quantification”

Time	Event	Teacher	Venue
<i>Tuesday 9 April</i>			
14.15-15	Introduction	SH, JPG, VK, MS	Zoom
15.15-17	<i>Lecture:</i> Minerals – what are they?	SH	Zoom
<i>Thursday 11 April</i>			
15.15-17	<i>Lecture:</i> Soil and sediment mineralogy	SH	Zoom
<i>Monday 15 April</i>			
9.15-10	<i>Lecture:</i> Minerals groups and occurrences	SH	Biosfären, MVM
10.15-12	<i>Exercise:</i> Mineral examination	SH, MS	JE-lab, MVM
13.15-15	<i>Lecture:</i> Minerals groups and occurrences	SH	Biosfären, MVM
15.15-17	<i>Lecture:</i> Clay Minerals, part I	SH	“
<i>Tuesday 16 April</i>			
9.15-12	<i>Lecture/exercise:</i> X-ray diffraction: theory and PC-based exercise	SH	Biosfären, MVM
13.15-14	<i>Lecture:</i> Clay Minerals, part II	SH	“
14.15-17	<i>Lecture/exercise:</i> X-ray diffraction: theory and PC-based exercise - continued	SH	“
<i>Wednesday 17 April</i>			
9.15-12	<i>Lecture:</i> Other mineral characterization techniques and recap	SH	SLU campus*
13.15-17	<i>Exercise:</i> XRD, SEM, FTIR – hands-on	SH, VK, GS	Biocenter labs
<i>Thursday 18 April</i>			
9.15-12	<i>Lecture/exercise:</i> X-ray diffraction: theory and PC-based exercise - continued	SH	SLU campus*
13.15-16	<i>Lecture/Discussion :</i> Practical applications/assignments	SH, JPG	“

**Details concerning rooms will be available later*

Teachers: SH = Stephen Hillier, MS = Magnus Simonsson, VK = Vadim Kessler, GS = Gulaim Seisenbaeva, JPG = Jon Petter Gustafsson