

INAR Autumn School 2021
Hyytiälä forestry field station, 18.–29.10.2021

Analysis of atmosphere-surface interactions and feedbacks (ATM309)

University of Helsinki, Institute for Atmospheric and Earth System Research (INAR), is organizing the intensive course “Analysis of atmosphere-surface interactions and feedbacks” (University of Helsinki course code ATM309; 5 ECTS credits) to be held in Hyytiälä, Finland, on 18th–29th October 2021.

The main theme of the course is analysis of SMEAR II long-term datasets of atmospheric and ecosystem measurements. The course is based on working with statistical data analysis in small groups. Students are expected to have at least basic programming skills in some programming language suitable for analysis and visualization of data (e.g. Matlab, Python, R).

On the course students will learn

- utilizing long-term atmospheric, meteorological and eco-physiological measurement data from field stations;
- multidisciplinary approach for analyzing research questions;
- using Matlab/Python/R as analysis tool for complex datasets;
- collaborative and integrated learning;
- project management.

The course includes short lectures on relevant topics, with the main emphasis placed on group work during the course and final report written after the course. The course is aimed at Master level students (also doctoral students can apply for the course) in atmospheric and ecosystem sciences.

Please **fill in the online application form** at

<https://elomake.helsinki.fi/lomakkeet/113004/lomake.html>

by 12th September in order to apply for the course. We will inform all applicants about the acceptance to the course by 15th September.

Time: 18.–29.10.2021 (18.10. and 29.10. are travelling days to and from Hyytiälä). We will follow the recommendations given by the local authorities and University of Helsinki on the special arrangements required due to the COVID-19 pandemic. Currently, on-site teaching is possible. We will inform the students as soon as possible, if there are any changes in the course arrangements (e.g. regarding on-site vs. online teaching).

Teachers: Tuomo Nieminen, Markku Kulmala, Jaana Bäck and Timo Vesala are the leading teachers. The course lecturers and assistants are from Faculties of Science, and Agriculture and Forestry of University of Helsinki.

Credits and accrediting body: 5 ECTS, University of Helsinki

Exam: After the course, each group of students writes a scientific report based on the results from analyses done during the course. The reports are graded on the scale of 1 to 5.

The course fee is 1600€. For students of University of Helsinki, this fee is covered by the university. Students from other Finnish and Nordic universities will only pay for accommodation and meals during the course, and they can apply for a scholarship from the ABS network to cover some of these costs.

The course fee covers transportation by bus from Helsinki to Hyttiälä (on 18.10.) and back to Helsinki (on 29.10.), accommodation in two-person rooms, all meals (breakfast, lunch, afternoon coffee, dinner, evening snack) during the course, course material, and all academic and social programme during the course. The course fee does not cover any travel expenses from arriving to Finland from abroad.

Students should bring their own laptop computer with suitable programming language (e.g. Matlab/Python/R) installed on it for the course work.

For any questions regarding the course, please contact Tuomo Nieminen (tuomo.nieminen@helsinki.fi).

The course is organized in cooperation with:

ACTRIS (Aerosols, Clouds, and Trace gases Research InfraStructure Network)
ICOS Finland (Integrated Carbon Observation System)
eLTER (Long-Term Ecosystem Research)
AnaEE (Analysis and Experimentation on Ecosystems)
PEEX (Pan-Eurasian Experiment)
eSTICC (NordForsk Nordic Centre of Excellence)
INTAROS (Integrated Arctic Observation System)



Institute for Atmospheric and Earth System Research