

## **Autumn School 2019, Hyytiälä forestry field station, 14.–25.10.2019**

### **Analysis of atmosphere-surface interactions and feedbacks (ATM309)**

University of Helsinki, Institute for Atmospheric and Earth System Research (INAR), is proud to announce 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 14th–25th October 2019.

The course is based on intensive work in small groups, with MATLAB being the main tool for statistical data analysis. Students are expected to have at least basic programming skills.

Some of the transferable skills the course strives to improve are

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

The 5 ECTS course consists of lectures and hands-on exercises, with the main emphasis placed on intensive group work and final report written after the course. The course is aimed at Master and PhD students in atmospheric and biospheric sciences. During the course the students will utilize aerosol, air ion, trace gas, meteorological and eco-physiological data measured at the SMEAR II and other field stations in order to learn advanced data treatment and data analysis methods. The main tool used on the course is MATLAB.

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

<https://elomake.helsinki.fi/lomakkeet/99299/lomake.html>

**by 3rd September** in order to apply for the course. We will inform all applicants about the acceptance to the course by 6th September.

Time: 14.–25.10.2019 (14.10. and 25.10. are travelling days to and from Hyytiälä).

Teachers: Professors Timo Vesala, Jaana Bäck and Markku Kulmala, and Assistant professor Tuomo Nieminen 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: Students write a scientific report based on the results from analyses done during the intensive period, and are graded on the scale of 1 (pass) to 5.

The course fee is 1600€. For master and doctoral students of the University of Helsinki, this fee is covered by the ATM-MP. Students of ABS network 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 the course costs.

The course fee covers:

- transportation by bus from Helsinki to Hyytiälä (on 14.10.) and back to Helsinki (on 25.10.);
- all academic and social programme during the course;
- access to the electronically provided course material;
- accommodation in two-person rooms;
- meals during the course.

The course fee does not cover:

- travel expenses from arriving to Finland;
- personal expenses such as drinks, telephone, fax, photocopies, etc. during the course.

Participants are expected to bring their own laptop computer with MATLAB installed on it for the course work. Please let us know if you would need to borrow one during the course.

For any additional information regarding the course, please contact Tuomo Nieminen ([tuomo.nieminen@helsinki.fi](mailto:tuomo.nieminen@helsinki.fi)).

The course will be organized in cooperation with:

- ATM-DP (Doctoral Programme in Atmospheric Sciences)
- ICOS Finland (Integrated Carbon Observation System)
- eLTER (Long-Term Ecosystem Research)
- AnaEE (Analysis and Experimentation on Ecosystems)
- ACTRIS (Aerosols, Clouds, and Trace gases Research InfraStructure Network)
- PEEEX (Pan-Eurasian Experiment)
- eSTICC (Nordic Centre of Excellence)
- INTAROS (Integrated Arctic Observation System)



Institute for Atmospheric and Earth System Research