



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

**INAR Autumn School 2024**

**Hyytiälä forest station, 7–18 October 2024**

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 7–18 October 2024.

The main theme of the course is to analyse how increasing temperature is affecting ecosystem and atmospheric processes in springs compared to autumns in different environments. 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).

During the course students will learn

1. utilizing long-term atmospheric, meteorological and ecophysiological measurement data from field stations;
2. multidisciplinary approach for analyzing research questions;
3. using Matlab/Python/R as analysis tool for complex datasets;
4. collaborative and integrated learning;
5. 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 Doctoral level students (also advanced master’s students can apply for the course) in atmospheric and ecosystem sciences.

Time: 7–18 October 2024 (7th and 18th are travelling days to and from Hyytiälä).

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

<https://elomake.helsinki.fi/lomakkeet/128758/lomakkeet.html>

**by 9th August** in order to apply for the course. We will inform all applicants about the acceptance to the course by 16th August.

We recommend to apply at earliest convenience to improve prospect for nomination.

Teachers: Ilona Ylivinkka, Markku Kulmala, Timo Vesala, Federico Bianchi, and Anna Lintunen 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 common 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 1800 €.** For students of University of Helsinki, this fee is covered by the university. Students from other Finnish and Nordic universities, including Nanjing-Helsinki Institute in Atmospheric and Earth System Sciences will only pay for direct costs, including accommodation and meals during the course, totalling 1000 €.

#### **The course fee covers**

- transportation by bus from Helsinki to Hyytiälä on 7th October (Stops: Helsinki city centre at 16:00 UTC+3h, Kumpula campus ~16:20 and Helsinki-Vantaa airport ~16:50) and back to Helsinki on 18th October being in Helsinki at about 12:30 UTC+3h (same stops in reversed order),
- accommodation in shared rooms,
- all meals (breakfast, lunch, afternoon coffee, dinner, evening snack) during the course,
- course materials,
- all academic and social programme during the course.

**The course fee does not cover** any travel expenses from arriving to Helsinki and the University of Helsinki **does not provide any financial support** for the course fee or travel expenses.

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 Ilona Ylivinkka (ilona.ylivinkka@helsinki.fi). Please note that Ilona has vacation from 24 June to 19th July 2024.