Analysis of atmosphere-surface interactions and feedbacks (ATM309)

Autumn School 2025
Hyytiälä forest station, 6.–17.10.2025

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 6th–17th October 2025. The course is aimed for master's students (also doctoral students can apply for the course) in atmospheric, biospheric and Earth system sciences.

The aim of the course is to study ecosystem-atmosphere interactions in relation to different environments (i.a. forest, peatland, and agricultural land) and their management, such as thinning.

During the two-week period students work in small groups utilizing real long-term multidisciplinary datasets to answer the research question with the help of teachers and assistants. Students are expected to have at least basic data analysis and programming skills in some programming language suitable for analysis and visualization of data (e.g. Matlab, Python, R). After the two-week period, students write a report on their findings in a form of a scientific article. The course includes short lectures on relevant topics, with the main emphasis on group work during the course and final report written after the course. The working days in Hyytiälä are about 8 h long, excluding breaks, which totals about 80 h of work during the two-week period, leaving 45 h for the report and 10 h for pre-course assignments and reading, since 5 credits equals to 135 h of work.

During the course students will learn

1. how to set research questions and how to use multidisciplinary atmospheric and ecophysiology field data to answer them
2. how to draw and evaluate scientific conclusions based on the data analysis
3. transferrable skills on
    a. working in a multidisciplinary group as well as making and giving academic presentations
    b. principles of scientific writing
    c. project and time management skills.

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

https://elomake.helsinki.fi/lomakkeet/135510/lomakkeet.html

by **18th August** in order to apply for the course. We will inform the applicants about the acceptance to the course by 22nd August.

Time: 6.–17.10.2025 (6.10. and 17.10. are travelling days to and from Hyytiälä).

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Teachers: Ilona Ylivinkka, Markku Kulmala, Federico Bianchi, Timo Vesala, 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 Hyytiälä visit, 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.

Course fee: 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, totalling about 1046 €. Students from other universities will additionally pay a course fee (900 €, VAT 0%), **all costs totalling about 2100 €.** The course fee should preferably be paid using a credit card (Visa, MasterCard), mobile payments (MobilePay, Siirto), or through an online bank transfer (Finnish banks) before the course starts.

The course fee covers

- transportation by bus from Helsinki to Hyytiälä on 6.10. (Stops: Helsinki city centre at 16:00 UTC+3h, Kumpula campus ~16:20 and Helsinki-Vantaa airport ~16:50) and back to Helsinki on 17.10. 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). On vacation 29.5.-29.6.2025.