

Atmospheric and Biogeochemistry Studies (ABS)

What is ABS?

ABS is one of the 5 master programs offered by the Department of Physical Geography and Ecosystem Science. A part of this master program, a number of courses, can be taken at other Universities as the program is a cooperation of 14 institutes at the Nordic Universities spread over 7 countries. The cooperation and exchange is funded by the higher education program of the Nordic Council of Ministers, NordPlus (www.norden.org; www.nordplusonline.org). At two of the other 13 universities you can read a similar master program that is part of this ABS cooperation: the University of Helsinki and the University of Eastern Finland. More about the partners within the program is given below. You can read courses at all partner universities.

Topic keywords: atmospheric physics, aerosols, biogeochemistry, arctic, ice- snow-atmosphere interaction, Nordic ecosystems, atmospheric chemistry

Although the exchange is in the first place for ABS master students, also other students in the fields of Physical Geography and Ecosystem Analysis, Physics, Meteorology and Biogeophysics are welcome to make use of the exchange program as long as the courses are part of their study program (are accepted as such). This cooperation offers besides the master program, also courses for PhD students. Those courses are also open for master students.

Specification of the master program

The master program and the cooperation with the other institutes is very much research oriented. When you start your master program in Lund you can read the courses NGEN04, NGEN03, NGEN10 and NGEN02 presenting the ecosystem processes underlying climate change, greenhouse gas exchange, hydrology, biogeography and the simulation of those processes. In cooperation with the Department of Physics at LU you can also focus your master program on aerosols research. When you include an exchange period at one of the partner institutes, the master program is presenting a wide range of topics in the land surface- ecosystem – atmosphere interaction: currently 25 departments in 14 universities in 7 Nordic and Baltic countries and four lines of study in

- Aerosol science
- Biogeochemical cycles and ecosystem science
- Atmospheric remote sensing
- Dynamic meteorology

In 2015 the cooperation was extended with new partners in Iceland and Greenland, which gave also much more focus on the Arctic regions. In 2016 University of Oslo joint the cooperation.

What are the possibilities?

As student on the ABS program you have tremendous possibilities to explore the course offerings at all partner universities. Within the partnership we also have scholarships to distribute to students that do exchange studies in other Nordic countries. Since timing of courses vary very much between partners universities it is recommended to spend at least one semester on an exchange.

Today (February 2016) the contact institutes are on the following 13 universities besides Lund:

University of Helsinki, Department of Physics, Finland

University of Eastern Finland, Department of Applied Physics, Finland

Stockholm University, Department of Applied Environmental Science, Sweden

University of Gothenburg, Department of Chemistry and Molecular Biology, Sweden

Aarhus University, Department of Environmental Science, Denmark

University of Copenhagen, Department of Chemistry, Denmark

Technical University of Denmark, Department of Wind Energy, Denmark

Estonian University of Life Sciences, Geomatics Department, Estonia
University of Tartu, Institute of Physics, Estonia
University of Iceland, Institute of Earth Sciences
Agricultural University of Iceland, Faculty of Environmental Sciences
University of Greenland, Institute of Society, Economics and Journalism
University of Oslo, Department of Geosciences, Norway

Through the University of Greenland and Aarhus University the Greenland Institute of Natural Resources is also a partner in the ABS program.

There is a wide range of courses at the partner universities. Many are regular courses given each year, some courses are given maybe every second year and some courses are summer courses. The courses are on campus or having a field work period or are both campus and e-learning based. During summer so called intensive courses are organized and as mentioned above the courses are given for both master and PhD students.

Funding support for your ABS exchange

For BSc/MSc students the scholarship is 330 EUR for travels and 200 EUR per month for living costs. Exception: for students to/from Iceland and Greenland the travel allocation is higher, 660 and 1300 EUR respectively.

In order to get the scholarship, you should first make sure with your home institution that all the studies abroad are accepted as a part for the degree at your home institution. The home institution (sending the student) should nominate the student according to the protocol required by the host institution (receiving the student on exchange). After these steps, the student can apply for the grant by filling in the grant form. The form should be sent to the home university ABS contact person.

The grant will be paid earliest in the end of the month preceding the beginning of the exchange (e.g. if the student starts the exchange on January 15, the grant can be paid on December 31).

In the end of the exchange period, the student should get an official transcript of the completed studies from the host university. This transcript should be used to register the studies at the home university. Furthermore, an electronic copy of the transcript should be sent to the home university contact person by email.

Some examples of interesting courses given by partner universities:

- 'Arctic Management' a series of different courses given in Nuuk on Greenland by Aarhus University, Department of Environmental Science, Denmark. Totally 30 credits.
- Atmospheric physics Finland; Summer School on Atmospheric Aerosol Physics, Measurement, and Sampling
- Summer schools on radar measurements (June 2016), Arctic summer school (July 2016)
- University of Helsinki, together with various collaborators, a two-week field course, "Physics, Chemistry and Biology of Air Pollution and their Effects". The course is held at Hyytiälä Forestry Field Station, Southern Finland, 5-16 October 2015. The 5-ECTS course is based on intensive group works.

History of the ABS program

The origin of this master program is in the cooperation of two of the first Nordic Centers of Excellence namely the Nordic Centre of Excellence to study Ecosystem Carbon Exchange and its Interactions with the Climate System (NECC) and Nordic Centre of Excellence to study Biosphere - Aerosol - Cloud - Climate Interactions (BACCI). These two international research centers were led by Prof Dr Anders Lindroth (INES) and Prof Dr Markku Kumula from the University of Helsinki respectively. In a cooperation they setup the research school CBAGGI, bringing together high level scientists in the described fields. One of the aims of the research school was offering a so called horizontal learning platform where master students, PhD students, Post-Docs, teachers, researchers and research leaders are working together, organize courses and participate in courses for all. For master students this means that besides the standard master courses the master thesis project can be within actual (large international) research projects. The centres of excellence were funded by the research program of the Nordic Council of Ministers, NordForsk. The two Centers of Excellence were active during the period 2003 to 2010, but the ABS cooperation continued, funded by NordPlus.

Initially the two lines of study in the master program were Biogeochemical cycles and Atmospheric physics (including aerosols), but after a change of study programs at the Department of Physics at the University of Helsinki, the range of topics widened with remote sensing and dynamic meteorology.