

A year in the Arctic: Investigate climate effects at 68°N

A study option for students attending Umeå University



Abisko Scientific Research Station, Abisko, Sweden

Today the Arctic is on the frontline of many important global issues. Climate change is occurring here faster than the rest of the globe. Through teleconnections between the Arctic climate and the south, changes here have important global implications. Climate and environmental change, contaminants and indigenous peoples are all issues we are passionate about in this rapidly changing Arctic.

The Department of Ecology and Environmental Science, Umeå University, is excited to offer students from across the globe timely and exciting courses for studying Arctic ecosystems over a year. Our Climate Impacts Research Centre is strategically located on the frontline of the Arctic at the Abisko Scientific Research Station (68.35° N, 18.82°E). From here over 40 scientists are studying many facets of aquatic and terrestrial ecosystem science. This science is the basis for three courses that give students the chance to immerse themselves in studying Arctic ecosystems while living at an internationally recognized Arctic research Station.

The 'Year in the Arctic' can start any term. The cornerstone of the Arctic studies are three courses that take place in Abisko over the year. Each course provides students with lectures, field excursions, and project work that includes fieldwork, analytical techniques and writing a scientific report.

Arctic Geoecology (15 credits) takes place in March to May. This course examines global environmental changes and their consequences for biogeochemical processes in arctic ecosystems. Particular focus is given to linkages between terrestrial and aquatic ecosystems, transport of nutrients and greenhouse gases and effects of climate change on biological and geochemical processes.

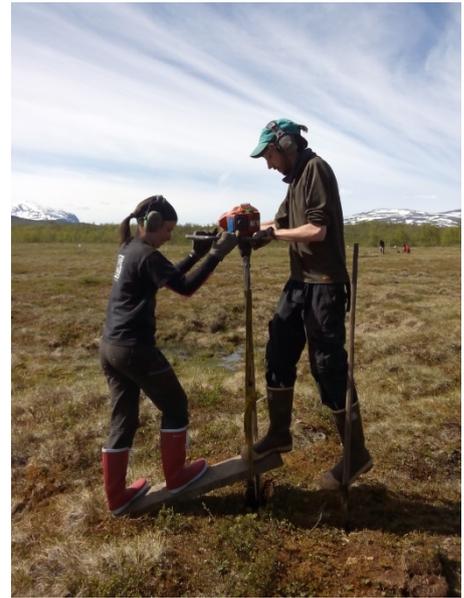
Alpine Ecology (15 credits) takes place in July and August. The course focuses on the ecology of animals and plants in the Swedish mountains and more broadly Scandinavian alpine ecosystems. From a species perspective, we focus on the biotic and abiotic environment that shapes their life

histories and ultimately their fitness. Further, we investigate how interactions between species shape ecosystems and communities.

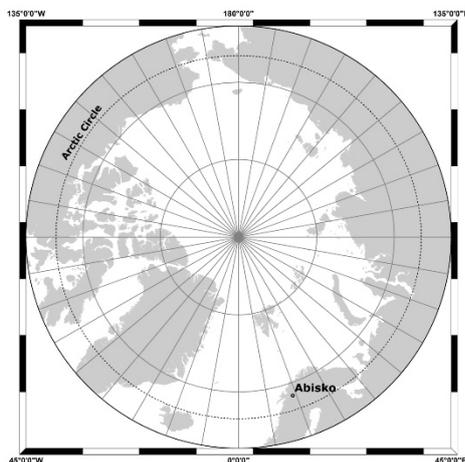
Arctic Ecosystems (15 credits) takes place in late August to October. Here students develop knowledge of Arctic terrestrial ecosystems processes. It provides understanding of how ecosystem processes are regulated by abiotic and biotic factors, such as nutrient availability, the Arctic climate and plant-soil-organism interactions and its relationship to the ecosystem function. Particular focus will be on potential impacts of changes in climate on ecosystem processes and on feedback mechanisms from Arctic ecosystems to the climate system. The course provides an overview of how controls and impacts on ecosystem processes depend on temporal and spatial scales.

Furthermore, there are three options for independent course-work in **theoretical ecology, earth science, and environmental science**. These are 15 credits courses where students conduct a literature review and meta-analysis of the peer-reviewed literature on an “arctic” focused topic. These courses pair students with Arctic scientists from the Climate Impacts Research Centre and Department of Ecology and Environmental Sciences.

Finally, there is an option to do your degree thesis in biology or earth science with a focus on the arctic. This “**Exam Work**” in Arctic ecosystems (30 or 60 credits) requires prerequisite of 60 credits (contact the Study Advisor for details). Students are paired with an Arctic scientist from the department to develop a project in the north of Sweden.



Drilling permafrost in Abisko (Photo by Caroline Olid)



For more information about pre-requisites or opportunities to include different courses in a degree program, contact the Study Advisor at the Department of Ecology and Environmental Sciences: Maria Karlsson, maria.karlsson01@umu.se

For more general information about the Arctic Year, contact the Project Coordinator for the Climate Impacts Research Centre: Keith Larson, keith.larson@umu.se

Find out more at: www.arcticcirc.net/arctic-courses

Umeå University course catalogue: www.umu.se/en/education/