

# Arctic Science Study Programme

Spring semester – Climate and Society

Five courses focusing on Arctic Climate and Society are offered in Nuuk, Greenland during the spring semester.

The five courses will give **YOU** a unique educational experience with connection to climate research and society in Greenland. **YOU** will be living in Nuuk during the courses in the centre of a multi-disciplinary research environment and a thriving Arctic society. **YOU** get first-hand access to master project opportunities in Arctic topics and a possibility to explore exceptional career opportunities in Greenland.

So give **YOUR** education an Arctic angle and come join us in “Colourful Nuuk” ([colourfulnuuk.com](http://colourfulnuuk.com)).



### Introductory safety course:

The course will give **you** knowledge about the risks when working in Greenland. During the course, **you** will get hands-on practice and theoretical introduction to safety and behavior working on sea ice, e.g. use of rifles, flares etc. to scare away polar bears and muskoxen, first aid with focus on prevention and treatments of frost injuries, emergency equipment including navigation in Greenland and use of communications systems (including VHF radio, satellite phone ect.), setting up emergency camps (including snow pits), rescue techniques on sea ice, safety on snowmobile and avalanche scenarios and rescue techniques. This course will not grant ECTS, but it is mandatory for **you** when working on sea ice. The course takes place in Nuuk and it involves fieldwork in the Nuuk area.

### Sea ice Ecology (5 ECTS):

The course will give **you** insight into and understanding of the most important physical and chemical parameters e.g. light availability, nutrients, salinity, inorganic and organic carbon dynamics and temperature fluctuations relevant for the structure and function of Arctic sea ice ecosystem. **You** will obtain skills to discuss how future changes in those parameters will influence sea ice ecosystems. During the course **you** will get an understanding of sea ice as an ecosystem with its own unique characteristics and energy transport pathways. Finally, **you** will get an understanding of sea ice as an extreme ecosystem, focusing especially on sea ice algae and bacteria. The course takes place in Nuuk and it involves fieldwork in the Nuuk area.

### Introduction to Arctic population dynamics and applied stock assessment (5 ECTS):

The course will provide **you** with the basic knowledge to successfully continue working with population dynamics and stock assessment of exploited stocks. During the course, **you** will be introduced to basic principles of population dynamics in higher trophic levels in low-arctic marine and terrestrial ecosystems, and understand the overall structure of the ecosystem. Based on these principles **you** will learn how to do basic stock assessments using different techniques such as age-based, length-based and production models. This will enable **you** to interpret scientific advice from international organizations and will give **you** a solid foundation for further studies in stock assessment and employment in this industry. Finally, **you** will be introduced to the advisory processes to give an insight into the further life of the assessment results. The course takes place in Nuuk and it involves fieldwork in the Nuuk area.

### Climate forcing, effects and adaptation in the Arctic (10 ECTS):

The course will give **you** the knowledge and understanding of the climate forcing and effects in the Arctic. **You** will obtain understanding of the sensitivity of the cryosphere (snow, ice and permafrost) to climate change their effects on living conditions in the Arctic. **You** will gain perception of the most important effects on ecosystems and climate activated feedback processes and an understanding of how the natural environment changes and how this affect the society. Finally, **you** will obtain knowledge of different adaptation strategies. The course takes place in Nuuk and it involves fieldwork in the Nuuk area.

### Arctic aquatic ecosystems in a changing climate (10 ECTS):

The course will give **you** knowledge about the processes, structures and biological communities in different Arctic aquatic environments and how they are affected by snow and glacial melt, e.g. ocean, fjords, streams and lakes. During the course, **you** will also learn about how the biological structure and function of Arctic aquatic ecosystems are influenced by physical and chemical parameters e.g. temperatures, freshwater input (salinity), nutrients levels, light conditions and ice cover. The extreme environment of the Arctic makes it particularly vulnerable to climate change and so the course focusses on Arctic aquatic ecosystem within the context of a changing climate. Furthermore, the course will provide **you** the background knowledge to discuss how future climatic changes may alter different Arctic aquatic ecosystems. Finally, **you** will get an introduction to management of living marine resources as well as environmental monitoring and environmental impact assessments in Greenland. The course takes place in Nuuk and it involves fieldwork in the Nuuk area.

In order to attend the spring semester **you** should send a short (1/2 page) letter of motivation to the coordination team: [assp@natur.gl](mailto:assp@natur.gl).

If **you** have any questions about the course or programme please send it to [assp@natur.gl](mailto:assp@natur.gl).

We can also help finding accommodation in Nuuk and help applying for funding to cover accommodation and travel cost. Find more information about ASSP on [www.gcrc.gl/education](http://www.gcrc.gl/education) in order to attend the spring semester.

Photos by:  
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