



**LUND**  
UNIVERSITY

Faculty of Science

## **NGEN19, Physical Geography and Ecosystem Science: Climate Change in the Arctic, 5 credits**

*Naturgeografi och ekosystemvetenskap; Klimatförändringar i Arktis,  
5 högskolepoäng*  
Second Cycle / Avancerad nivå

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### **Details of approval**

The syllabus was approved by Study programmes board, Faculty of Science on 2020-12-08 to be valid from 2020-12-08, autumn semester 2021.

### **General Information**

The course is a compulsory course for second-cycle qualification in the specialisation "Nordic master's programme in environmental changes at higher latitudes" (EnCHiL). The course is given in collaboration with the partner universities that is included in the nordic cooperation. The course is given with teaching both at distance and on campus in Lund. The course is only available for students admitted to the specialisation in "Nordic master's programme in environmental changes at higher latitudes".

*Language of instruction:* English

*Main field of studies*

Physical Geography and Ecosystem  
Science

*Depth of study relative to the degree  
requirements*

A1N, Second cycle, has only first-cycle  
course/s as entry requirements

### **Learning outcomes**

The course intends to that the students should deepen their knowledge about climate changes with an emphasis on ongoing changes in arctic areas.

### **Knowledge and understanding**

On completion of the course, the student shall be able to:

- Give an account of the basis of the processes that run climate changes in Arktis
- Give an account of arctic climate changes during Holocene and onward until today, and possible future changes

- Explain how the climate influences arctic ecosystems and landscape elements
- Give an account of climate research, understand and critically review the research process including its uncertainties

### **Competence and skills**

On completion of the course, the student shall be able to:

- Seek relevant information about the subject area in scientific literature

### **Judgement and approach**

On completion of the course, the student shall be able to:

- Evaluate the importance of natural and of man induced climate change processes and set these in relation to one another
- Argue for the importance of knowledge of the climate system and climate changes both historically and in present times, to manage the arctic environments and to suggest improvement measures and adaptation to future changes

### **Course content**

The course introduces the student to historical, present-day and future climate changes and how these have influenced or will influence different arctic ecosystems and landscape elements. Different examples are presented via relevant scientific literature with a clear component of critical review. The course deals with both terrestrial, aquatic and marine ecosystems.

### **Course design**

The course consists of lectures with connected exercises that mainly are given as distance learning. Furthermore, seminars are included on campus in Lund. The course ends with a more extensive project work. Exercises and project work are carried out individually or in groups. Attendance at all teaching components except the lectures that consist of pre-recorded video is compulsory.

### **Assessment**

Examination takes place in writing in the form of assignment hand ins, project work and orally via seminars that are presented continuously during the course and a written examination at the end of the course. For students who have not passed the regular examination, additional occasion in close connection to this is offered.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

*Subcourses that are part of this course can be found in an appendix at the end of this document.*

## **Grades**

Marking scale: Fail, Pass, Pass with distinction.

To pass the course require approved examination, passed written assignments and passed project report and participation in course's seminars. The final grade is decided through a joint assessment of the results of the written examination, assignment hand ins and the project report in proportion to their extent (see appendix).

## **Entry requirements**

Entry to the course requires 90 credits in science or social sciences studies at university level.

Subcourses in NGEN19, Physical Geography and Ecosystem Science:  
Climate Change in the Arctic

Applies from H21

2101 Climate Change in the Arctic, 5,0 hp  
Grading scale: Fail, Pass, Pass with distinction