



**LUND**  
UNIVERSITY

Faculty of Science

## **NGEA21, Physical Geography: the Climate System, 15 credits** *Naturgeografi: Klimatsystemet, 15 högskolepoäng* First Cycle / Grundnivå

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### **Details of approval**

The syllabus was approved by Study programmes board, Faculty of Science on 2014-03-25 to be valid from 2014-03-25, autumn semester 2014.

### **General Information**

The course is a compulsory course for first-cycle studies for a Bachelor of Science in physical geography and ecosystem analysis and Bachelor of Science in meteorology and biogeophysics. The course is also given as a freestanding course.

*Language of instruction:* English

The course is given in English, as it is included in English-speaking program.

*Main field of studies*

Physical Geography and Ecosystem  
Analysis

*Depth of study relative to the degree  
requirements*

G1F, First cycle, has less than 60 credits in  
first-cycle course/s as entry requirements

### **Learning outcomes**

The aim of the course is to convey basic knowledge about the global climate system, climatological processes and their effects on the global and local climate. It also deals with the importance of climate in environmental and community planning. Understanding of the structure of weather systems, their regional and global variation and how this is influenced by different natural and anthropogenic processes are important goals in the course.

### **Knowledge and understanding**

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

- account for the different main components of the energy balance and their importance in different space and time scales.
- account for different components of the climate system and explain how different processes link these.

- explain the relationships between the structure of the weather systems and the large-scale atmospheric circulation.
- account for changes and variations in the climate and explain natural and anthropogenic reasons for these.
- summarise how the climate in different scale influence different activities in society.

### **Competence and skills**

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

- structure, compile and evaluate climatic information, literature and data.
- carry out basic climatological analyses.
- adapt and evaluate climatological analyses to different environmental and societal applications.
- independent and in groups be able to present analyses and conclusions in oral and written form for specialists and laymen
- be able to distinguish between various types of databases and master climate literature searches, make an assessment of the information and identify various types of publications and have advanced knowledge of different formats for managing references.

### **Judgement and approach**

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

- have a scientific approach to climate information and climate data analysis.
- have understanding of the importance of the climate as natural resource and limiting factor in environment and community planning.

### **Course content**

The course contains both theory and practice to highlight global and regional climatology. e.g. what causes large-scale differences in energy budget and which components that build up and influence the global climate system. Importance of the atmosphere physical properties for global and regional energy flow and how these in turn influence the general circulation of the atmosphere is also important parts in the contents. Extra tropical and tropical weather systems are also treated. The general circulation of the oceans and the connection atmosphere- oceans and its importance for global renewal of energy are other important parts. Urgent contemporary subjects such as climate variation and climate change in a regional scale are also covered. Finally, climatological methods, data sources and analysis are treated in a number of practical course components.

### **Course design**

The teaching consists of lectures, laboratory sessions, field exercises, seminars, group work and project work. Participation in laboratory sessions, field exercises, seminars, group work and project work and thereby integrated other teaching is compulsory.

### **Assessment**

Examination takes place via written assignments and project presentations during the course and written exam. For students who have not passed the regular examination,

additional examination in close connection to this is offered.

*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 entire course, approved written exam, passed results of written assignments and presentations are required as well as participation in all compulsory parts.

## **Entry requirements**

General entry requirements and NGEA01 (Physical geography- An introduction to the global environment) and NGEA07 (Physical geography- Theory and methodology) or the equivalent, or 30 credits within the BSc programs for Meteorology and Biogeophysics.

## **Further information**

The course may not be included in a higher education qualification together with NGE604 The Climate system, 10p or NGEA06 The Climate system, 15 credits.

## Subcourses in NGEA21, Physical Geography: the Climate System

Applies from V24

- 2401 Written exam, 7,5 hp  
Grading scale: Fail, Pass, Pass with distinction
- 2402 Project, 3,0 hp  
Grading scale: Fail, Pass, Pass with distinction
- 2403 Hand-in, 1,5 hp  
Grading scale: Fail, Pass, Pass with distinction
- 2404 Exercises, 3,0 hp  
Grading scale: Fail, Pass

Applies from V15

- 1401 The Climate System, 15,0 hp  
Grading scale: Fail, Pass, Pass with distinction