

# Syllabus

for course at advanced level

**Climate Model Simulations**  
**Klimatmodellsimuleringar**

**7.5 Higher Education**  
**Credits**  
**7.5 ECTS credits**

<b>Course code:</b>	GE7077
<b>Valid from:</b>	Autumn 2017
<b>Date of approval:</b>	2017-05-15
<b>Department</b>	Department of Physical Geography
<b>Main field:</b>	Physical Geography and Quaternary Geology
<b>Specialisation:</b>	A1N - Second cycle, has only first-cycle course/s as entry requirements

## Decision

This syllabus has been approved by the Board of Science at Stockholm University 2017-05-15.

## Prerequisites and special admittance requirements

Admission to the course requires knowledge equivalent to a Bachelor's degree in biology-earth sciences, geography, Earth sciences. Also required is knowledge equivalent to Swedish upper secondary school courses Mathematics D/Mathematics 4 or at least 7.5 credits Mathematics. Also required is knowledge equivalent to Swedish upper secondary school course English B/English 6.

## Course structure

Examination code	Name	Higher Education Credits
DEL1	Climate Models, Experiment Design and Data Analysis	3
DEL2	Project	4.5

## Course content

a. The course introduces knowledge about climate models and how are they used to understand the climate change due to human activity and natural variation. The students will learn the climate forcings under different climatic conditions, from past, present and future, as well as climate response to these forcings. The course includes practical exercise on spatial and temporal analysis of output from climate model simulations.

b. The course consists of the following course units:

1. Climate Models, Experiment Design and Data Analysis 3 credits
2. Project 4.5 credits

## Learning outcomes

Upon completion of the course, students are expected to be able to:

- understand how do climate models work and how to design experiment with climate models (Course units 1, 2)
- analyze climate model simulations, be able to answer scientific questions on climate change with help of experiment design and model data analysis (Course unit 2)

## Education

Instruction consists of lectures, seminars, exercises and project work.

Participation in seminars, exercises and project work and any associated integrated instruction is compulsory. In the event of special circumstances, the examiner may, after consultation with the teacher concerned, grant a student exemption from the obligation to participate in certain compulsory instruction.

Instructions are in English.

### **Forms of examination**

- a. The course is examined as follows: Knowledge assessment takes the form of
- Written examinations (Course unit 1)
  - Written and oral presentations of project work (Course unit 2)

Examination is in English.

- b. Grades will be set according to a seven-point scale related to the learning objectives of the course:

A = Excellent

B = Very good

C = Good

D = Satisfactory

E = Adequate

Fx = Fail, some additional work required

F = Fail, much additional work required

The course unit 1 will be graded according to a two-point scale: Pass (G) or Fail (U).

- c. The grading criteria will be distributed at the beginning of the course.

d. In order to pass the course, students must receive a passing grade on all course units and participate in all mandatory instruction.

e. Students who receive a failing grade on a regular examination are allowed to retake the examination as long as the course is still provided. The number of examination opportunities is not limited. Other mandatory course elements are equated with examinations. A student who has received a passing grade on an examination may not retake the examination to attain a higher grade. A student who has failed the same examination twice is entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the department board.

The course includes at least two examination opportunities per year when the course is given. At least one examination opportunity will be offered during a year when the course is not given.

f. Students awarded the grade Fx are given the opportunity to improve their grade to E. The examiner decides the supplementary assignments to be performed and the pass mark criteria. The supplementary assignments will take place before the next examination session.

### **Interim**

Students may request that the examination be conducted in accordance with this course plan even after it has ceased to be valid. However, this may not take place more than three times over a two year period after course instruction has ended. Requests must be made to the departmental board. The provision also applies in the case of revisions to the course plan and the revisions of the course literature.

### **Misc**

The course is offered as a separate course.

### **Required reading**

The course literature is decided by the department board and published on the Department of Physical Geography's website at least two months before the start of the course.