

# Syllabus

for course at advanced level

**Modelling of Large-Scale Circulation in Atmosphere and Ocean**  
**Modellering av storskalig cirkulation i atmosfär och hav**

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

<b>Course code:</b>	MO8004
<b>Valid from:</b>	Autumn 2016
<b>Date of approval:</b>	2016-10-03
<b>Department</b>	Department of Meteorology
<b>Main field:</b>	Meteorology
<b>Specialisation:</b>	A1F - Second cycle, has second-cycle course/s as entry requirements

## Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University 2016-10-03.

## Prerequisites and special admittance requirements

Knowledge corresponding to Numerical Methods in Atmospheric Sciences and Oceanography, 7.5 HECs, MO8007. Also required is knowledge equivalent to English B.

## Course structure

Examination code	Name	Higher Education Credits
8004	Modelling of large-scale circulation	7.5

## Course content

In this course numerical models are applied to the large-scale circulation in the atmosphere and ocean. A shallow-water model is used to studying e.g.:

- geostrophic adjustment
- Rossby and Kelvin waves
- barotropic instability
- wind-driven ocean circulation

## Learning outcomes

After taking this course the student should be able to:

- use numerical circulation models to simulate flow phenomena in the atmosphere and the ocean
- present model results and relate these to the theory, both orally and in writing

## Education

The teaching consists of lectures and laborations. Participation in laborations and associated tutorials is compulsory. If there are special reasons, the Examiner may, after consulting the course teacher, allow the student to omit certain parts of the compulsory teaching.

## Forms of examination

a. The course is examined as follows: Knowledge assessment takes the form of written and oral presentation of laborations. If the instruction is in English, the examination may also be conducted in English. b. Grades are on a seven-referenced scale: A = Excellent, B = Very good C = Good D = Satisfactory E = Sufficient Fx = Fail, some more work required F = Fail, much more work is required c. The grading criteria are handed out in

the class. d. To pass requires a minimum passing grade on all component parts, as well as participation in compulsory teaching. e. Students who fail an ordinary examination have the right to undergo at least four tests as long as the course is given. Students who have passed an examination may not retake the test for higher grade. A student who has successfully undergone two examinations in a course or part of a class, are entitled to have another examiner appointed, unless there are special reasons to the contrary. Such requests should be made to the Board. The course has at least two examinations for each part per academic year the year of tuition given. Intermediate years are given at least one examination. f. At Fx students can be given the opportunity to complete up to grade E. The examiner decides which supplementary tasks to be performed and which criteria to apply in order to pass on the supplement. The addition should take place before the next examination.

### **Interim**

Students may demand that the examination is performed according to this syllabys even after it has ceased to be valid. However, this may be done at most three times during the two years after the course was last given. The request for this should be directed to the Board of the department.

### **Limitations**

The course may not be included in a degree together with Modelling of large-scale circulation in the atmosphere and ocean (ME4270), Modelling of large-scale circulation (MO7007) or equivalent.

### **Misc**

The course is a part of the Master's programme in Meteorology, Oceanography and Climate, but may also be taken as an individual course.

### **Required reading**

The course literature is decided by the Board of the department, and is published at [www.misu.su.se](http://www.misu.su.se) at least 2 months before the course starts.