Department of Meteorology

Stockholm University

Syllabus

for course at advanced level

Meteorology I
Meteorologi I

15.0 Higher Education Credits
15.0 ECTS credits

Course code:	MO8001
Valid from:	Spring 2013
Date of approval:	2007-11-19
Changed:	2013-05-20
Department	Department of Meteorology
Main field:	Meteorology
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University 2007-11-19.

Prerequisites and special admittance requirements

Bachelor's degree in Physics, Meteorology or Oceanography, or Bachelor of Sciences degree including at least 90 HECs in Physics and Mathematics. Of these 90 HECs at least 30 HECs must be in Mathematics and 30 HECs in Physics. Also required is knowledge equivalent to English B.

Course structure

Examination code	Name	Higher Education Credits
TERM	Atmospheric thermodynamics	5
VAED	Synoptic meteorology	3
STRL	Atmospheric radiation	4
KEMI	Atmospheric chemistry	3

Course content

Starting out from basic physics and chemistry, this course deals with the atmosphere's (and to some extent the ocean's) thermodynamics, composition and radiative balance, as well as basic synoptic-scale meteorology. The course comprises:

• the atmosphere's and ocean's equation of state • the thermodynamics of humid air • vertical distribution of pressure, temperature and density in an atmosphere at rest • condensation and sublimation • distribution, structure, and classification of clouds • generation of air masses • basic elements of quantum mechanics • the structure of atoms and molecules • chemical binding and chemical reactions • the composition of the atmosphere • aerosol particles and clouds • the atmosphere's interaction with radiation • thermal radiation • the greenhouse effect and the Earth's temperature • synoptic-scale weather systems

Learning outcomes

After taking this course the student should to be able to • explain the atmosphere's vertical structure and composition, including the underlying physical and chemical processes • apply physical and chemical principles to problems in atmosphere and ocean • explain weather systems at mid-latitudes

Education

The teaching consists of lectures, exercises, laborations and home projects. Participaton in laborations and

home projects is compulsory. If there are special reasons, the Examinator may, after consulting the course teacher, allow the student to omit certain parts of the compulsory teaching.

Forms of examination

a) Examination is done by a written and/or oral test.

b) Grading is done on a seven-step scale: A=excellent B=Very good C=Good D=Satisfatory E=Sufficient F=Unsatisfactory Fx=Entirely unsatisfactory.

c) The grading criteria are handed out at the beginning of the course.

d) For passing the course, at least grade E is required, as well as passed oral and/or written presentations of laborations and participation in compulsory teaching.

e) Students that do not pass the regular test have a right to attempt at least four further tests as long as the course is given. As "tests" are understood also other compulsory parts of the course. Students that have passed a test are not allowed to attempt another test in order to receive a higher grade. Students that have failed an examination twice have a right to demand that another teacher is appointed to determine the grade. The request for this should be directed to the Board of the department.

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

This course may not be included in a degree together with Meteorology, Basic course, 20p (ME1170), Atmospheric thermodynamics, 6hp (MO3003), or Atmospheric radiation and chemistry, 9hp (MO2004).

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 requires reading is decided by the Board of the department, and is then presented in an attachment to the course syllabus.