

Syllabus

for course at advanced level

Atmospheric Chemistry in a Changing World

Atmosfärkemi i en värld i förändring

7.5 Higher Education

Credits

7.5 ECTS credits

Course code:	MO8014
Valid from:	Autumn 2017
Date of approval:	2017-03-13
Department	Department of Meteorology
Main field:	Meteorology
Specialisation:	A1F - Second cycle, has second-cycle course/s as entry requirements

Decision

This syllabus has been approved by the Board of Science at the Faculty of Science, Stockholm University, 2017-03-13.

Prerequisites and special admittance requirements

Knowledge corresponding to Atmospheric Physics and Chemistry, 30 HECs (MO4000), or Meteorology I, 15 HECs (MO8001) and Meteorology II, 7.5 HECs (MO8002). Also required is knowledge equivalent to Swedish upper secondary school course English B/6.

Course structure

Examination code	Name	Higher Education Credits
8014	Atmospheric Chemistry in a Changing World	7.5

Course content

The course deals with

- the chemical composition of the atmosphere
- atmospheric chemical reaction processes in the gas phase, liquid phase and on particle surfaces
- turnover in the atmosphere of the most important gases and particulate matter and pollutants
- impacts of the change of the chemical composition of the atmosphere on climate
- the air quality in Stockholm city a case study
- tools such as impactor technology, analytical methods e.g. ion chromatography

Learning outcomes

After completing the course, the student is expected to be able to:

- account for sources and sinks of gases and particulate matter with importance to the atmosphere, environment and climate
- account for the interaction between atmospheric gases and particulate matter from a chemical perspective
- apply basic chemical and physical laws to transformation of gases and particulate matter and their transport in the atmosphere

Education

The teaching consists of lectures, calculation exercises and laborations. Participation in laborations and the associated group 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) Examination is done by home assignments, written test as well as oral and written presentation of laborative work. b) Grading is done on a seven-step scale: A = Excellent B = Very good C = Good D = Satisfactory E = Sufficient Fx = Failed, some more work is required F = Failed, a lot more work is required. c) The grading criteria are handed out at the beginning of the course. d) For passing the course, at least grade E is required. e) Students that do not pass the regular test have the right to take further tests as long as the course is given. The number of tests is not limited. 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, for a course or part of a course, have the right to request that another Examiner is appointed, unless special reasons speak against this. The request for this should be directed to the Board of the department. The course has at least two examination occasions per academic year the years teaching is given. Intermediate years at least one examination occasion is given. f) A student who receives grade Fx has the opportunity to do additional work in order to reach grade E. The Examiner decides what additional work is required and the criteria to pass. The additional work should be performed prior to the next examination occasion.

Interim

Students may request that the examination is performed according to this syllabus even after it has ceased to be valid. However, this may be done no more than three times during a two-year period 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 Atmospheric chemistry (ME6010), Atmospheric chemistry and physics, Advanced course in meteorology (ME4260), Meteorology, advanced course - chemical meteorology (ME4220), Atmospheric chemistry in a changing world (MO7016), Air chemistry and climate impact (MO7002), Atmospheric chemistry in a changing world (MO7017) 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 published on the Department of Meteorology's website at least two months prior to course start.