

Syllabus

for course at advanced level

Data Analysis and Model Evaluation Tools in Environmental and Climate Science **7.5 Higher Education Credits**
Verktyg för data-analys och evaluering av modeller inom miljö- och klimatvetenskap **7.5 ECTS credits**

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|--------------------------|---|
| Course code: | MI7025 |
| Valid from: | Autumn 2022 |
| Date of approval: | 2022-06-01 |
| Department | Department of Environmental Science |
| Main field: | Environmental Science |
| Specialisation: | A1N - Second cycle, has only first-cycle course/s as entry requirements |

Decision

This syllabus has been approved by the Area Board of Natural Sciences at Stockholm University on June 1, 2022.

Prerequisites and special admittance requirements

For admission to the course, knowledge is required equivalent to a bachelor's degree in a scientific discipline or engineering, along with 15 credits in mathematics and English 6.

Course structure

| Examination code | Name | Higher Education Credits |
|------------------|-------|--------------------------|
| HELA | escoe | 7.5 |

Course content

The course addresses how to achieve better interpretations of the climate system and its components by using open data sources and models. The course has a different theme each time it is offered. Examples of themes could be aerosols, climate, or cryosphere-climate interactions. The theme of the course is presented at the beginning of each session.

Learning outcomes

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

- Utilize databases for climate and environmental data.
- Analyze a scientific problem within the climate and environmental domain using Python models.
- Visualize model data.
- Evaluate model data.
- Analyze a current issue in climate research using data from models and observations.

Education

The teaching consists of lectures, exercises, group work, and an excursion.
 The course is offered in English.

Forms of examination

a. The course is examined as follows: Assessment takes place through oral presentations and a written report. The examiner can decide on adapted or alternative examination formats for students with disabilities. Late

submission of the written report will affect the final grade of the course, as described in the course grading criteria. Assessment is conducted in English.

b. A passing final grade requires participation in the excursion and exercises. If special reasons exist, following consultation with the teacher involved, the examiner may grant the student exemption from the obligation to participate in certain compulsory instruction.

c. Grading: The course's final grade is set according to a seven-point criterion-referenced scale:

A = Excellent

B = Very good

C = Good

D = Satisfactory

E = Adequate

Fx = Failed, some additional work is required

F = Failed, much additional work is required

d. The course's grading criteria are handed out at the start of the course.

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 three examination opportunities (if necessary: for each course module) per academic year the course is offered. For the academic years that the course is not offered, at least one examination opportunity is offered.

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

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 the course was discontinued. Requests must be made to the departmental board. The provision also applies in the case of revisions of the course syllabus and revisions of the required reading.

Misc

The course includes fieldwork that incurs costs for the students. Additionally, the course requires access to a laptop computer.

Required reading

The course literature is decided by the board of the institution and is published on the course page in the digital educational catalog no later than 2 months before the start of the course.