

Syllabus

for course at advanced level

Laboratory Methods in Environmental Science
Laborativa metoder inom miljövetenskap

**7.5 Higher Education
Credits**
7.5 ECTS credits

Course code:	MI7023
Valid from:	Spring 2022
Date of approval:	2021-06-17
Department	Department of Environmental Science
Main field:	Environmental Science
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements

Decision

Prerequisites and special admittance requirements

For admission to the course, knowledge is required equivalent to a Bachelor's degree in Natural Science or engineering and English 6.

Course structure

Examination code	Name	Higher Education Credits
HELA	Laboratory methods	7.5

Course content

This course provides an introduction into quantitative laboratory methods in Environmental Science that are key to both research progress in the field and monitoring of vulnerable systems.

The topics covered in this course include:

- Safe laboratory practice
- Hands-on introduction to fundamental laboratory techniques
- Designing, planning and executing a laboratory experiment
- Examples of state-of-the-art measurement techniques
- Application of quantitative measurement methods
- Basic statistical methods for data processing

Learning outcomes

- Perform a laboratory experiment with guidance,
- give examples of state-of-the-art measurement techniques in environmental science and describe the basic principles behind the techniques,
- apply quantitative measurement methods, including determination of background values and uncertainties, calculating limits of detection etc,
- analyze, describe, interpret and present experimental data
- reflect over advantages and disadvantages of different experimental approaches.

Education

Teaching consists of lectures, workshops, and laboratory sessions. The course is offered in English.

Forms of examination

a. The course is examined as follows: Assessment takes place through written reports, oral presentations and active participation in seminars and practical laboratory work. The examiner can decide on adapted or alternative examination formats for students with disabilities. The examination will be conducted in English. Late submission of the individual assignments has consequences for the final grade of the course. These consequences are described in detail in the grading criteria of the course.

b. A passing final grade requires participation in seminars and laboratory sessions. 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 = Fail, some additional work required

F = Fail, much additional work 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 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 is part of the Master's programme in Environmental Science, but may also be taken as a separate course.

Required reading

The required reading is decided by the department board and published in the course catalogue at least 2 months before the start of the course.