

Syllabus

for course at advanced level

Environmental Biogeochemistry
Miljöbiogeokemi

**7.5 Higher Education
Credits**
7.5 ECTS credits

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|--------------------------|---|
| Course code: | MI8017 |
| Valid from: | Spring 2020 |
| Date of approval: | 2018-10-01 |
| Department | Department of Environmental Science |
| Main field: | Environmental Science |
| Specialisation: | A1F - Second cycle, has second-cycle course/s as entry requirements |

Decision

Prerequisites and special admittance requirements

Admission to the course requires knowledge equivalent to Large-Scale Challenges to Climate and Environment, 15 ECTS, (MI7014) and English 6.

Course structure

| Examination code | Name | Higher Education Credits |
|------------------|-------------------------------|--------------------------|
| HELA | Environmental Biogeochemistry | 7.5 |

Course content

a. The course explores interactions between natural systems, biogeochemical cycles and anthropogenic (human-induced) perturbations with focus on the local-regional scale.

The course will provide knowledge about:

- Biogeochemical processes in soil, inland waters, coastal ocean, sediments and lower atmosphere.
- Interactions between biogeochemical cycles of several elements, and their seasonal and regional variations.
- Key anthropogenic perturbations and their interactions with regional biogeochemical cycles.
- Effects of natural processes and perturbations on the fate and bioavailability of contaminants.
- The role of biogeochemistry in environmental management concepts and tools, such as in ecosystem services and the EU Water Framework Directive.

Learning outcomes

Upon completion of the course, students are expected to be able to:

- Describe coupled biogeochemical cycling of carbon, nutrients and other elements in local-regional terrestrial and aquatic systems
- Explain how anthropogenic perturbations, such as eutrophication and acidification, interact with biogeochemical cycles
- Outline environmental cycling of contaminants and their coupling to cycling of other elements and anthropogenic perturbations.
- Discuss consequences of anthropogenic perturbation on biogeochemical cycles for e.g. ecosystem services

Education

Instruction consists of lectures, seminars and study visits. Participation in seminars and study visits and any associated integrated instruction is compulsory. In the event of special circumstances, the examiner may, after consultation with the teacher concerned, grant a student exemption from the obligation to participate in certain compulsory instruction.

Forms of examination

- a. The course is examined as follows: Knowledge assessment takes the form of a written exam.
 - b. Grades will be set according to a seven-point scale related to the learning objectives of the course:
A = Excellent
B = Very good
C = Good
D = Satisfactory
E = Adequate
Fx = Fail, some additional work required
F = Fail, much additional work required
 - c. The grading criteria will be distributed at the beginning of the course.
 - d. In order to pass the course, students must receive a passing grade and participate in all mandatory instruction.
 - 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 two examination opportunities (if necessary: for each course unit) per year when the course is given. At least one examination opportunity will be offered during a year when the course is not given.
- f. Students awarded the grade Fx are given the opportunity to improve their grade to E. The examiner decides the supplementary assignments to be performed and the pass mark criteria. The supplementary assignments will take place before the next examination session.

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 course instruction has ended. Requests must be made to the departmental board. The provision also applies in the case of revisions to the course plan (and the revisions of the course literature).

Misc

The course is part of Master's programme in Environmental Science focussing on Atmosphere, Biogeosphere and Climate but can also be read as a separate course.

Required reading

The course literature is decided by the department board and published on the Department of Environmental Science and Analytical Chemistry's website at least two months before the start of the course.