

Syllabus

for course at advanced level

Environmental Degradation of Contaminants

Nedbrytning av miljöföroreningar

7.5 Higher Education

Credits

7.5 ECTS credits

Course code:	MI7020
Valid from:	Autumn 2020
Date of approval:	2018-11-19
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 November 18, 2019.

Prerequisites and special admittance requirements

For admission to the course, knowledge is required equivalent to at least 45 credits in chemistry, or 30 credits in chemistry and the course Organic Environmental Chemistry and Modeling, 15 credits (MI7017), as well as English 6.

Course structure

Examination code	Name	Higher Education Credits
HELA	Degradation	7.5

Course content

This course addresses reactions of organic environmental pollutants (OEPs) in the environment and how these reactions affect the fate of OEPs. The course includes:

- Fundamental knowledge about the reactions of organic environmental pollutants in the environment
- Hydrolysis
- Redox reactions
- Direct photolysis in aquatic systems
- Indirect photolysis in the atmosphere and in aquatic systems
- Biodegradation
- Chemical persistence

Learning outcomes

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

- Explain how molecular properties of organic environmental pollutants (OEPs) as well as properties of the biogeosphere affect the degradation of OEPs in air, water, soil, and sediment.
- Critically review and evaluate various datasets on the degradation of OEPs and analyze their relevance for degradation in the environment under different conditions.
- Apply empirical equations to calculate the degradation of OEPs in the environment under different environmental conditions.

Education

Teaching consists of lectures and exercises.

Participation in exercises is mandatory. If there are special reasons, the examiner may, after consulting with the relevant teacher, grant the student exemption from the obligation to participate in certain mandatory exercises.

Forms of examination

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

b. A passing final grade requires a minimum grade of E, along with approved assignments and participation in all mandatory teaching.

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 cannot be included in the degree together with the course Organic Environmental Chemistry - Distribution and Bioaccumulation, 15 credits (MI8003).

The course is part of the Master's Program in Environmental Science with a specialization in Environmental Chemistry and Environmental Toxicology but can also be taken as a separate course.

Required reading

Course literature is decided by the Department board and is published on the Department of Environmental Science website, www.aces.su.se, no later than 2 months before the start of the course.