

Syllabus

for course at advanced level

Organic Contaminant Partitioning

Organiska miljöföroreningars fördelning

7.5 Higher Education

Credits

7.5 ECTS credits

Course code:	MI7018
Valid from:	Autumn 2020
Date of approval:	2018-08-20
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 August 20, 2018.

Prerequisites and special admittance requirements

Admission to the course requires knowledge equivalent to at least 120 ECTS in the natural sciences including at least 45 ECTS credits in Chemistry or 30 ECTS credits in Chemistry and Environmental Organic Chemistry and Modeling, 15 ECTS credits (MI7017,) and Swedish upper secondary school course English B/English 6 or equivalent.

Course structure

Examination code	Name	Higher Education Credits
HELA	Partitioning	7.5

Course content

This course addresses how molecular properties of organic environmental pollutants affect their distribution among air, water, soil, sediment, and biota. Fundamental knowledge of where different pollutants are expected to occur in the environment based on their molecular structure is valuable in environmental chemistry research, risk analysis, environmental management by authorities, industrial environmental work, and similar fields.

The course covers topics such as

- vapor pressure – “solubility in air”
- water solubility
- distribution between air and water
- solubility in organic matrices
- octanol-water partition coefficient
- sorption to sediment/soil
- bioavailability and uptake in biota (bioaccumulation and biomagnification)

Learning outcomes

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

- Explain how molecular properties of organic environmental pollutants, as well as the properties of the biogeosphere, affect the distribution of pollutants among air, water, soil, sediment, and biota.
- Critically review and evaluate different datasets on physico-chemical properties of organic environmental pollutants.
- Apply empirical equations to calculate the equilibrium distribution of organic environmental pollutants among different environmental matrices such as air-soil-water-vegetation under varying environmental conditions.

Education

Teaching consists of lectures and exercises.

Participation in exercises is mandatory, and the examiner may, in consultation with the relevant teacher, exempt the student from the obligation to participate in certain mandatory teaching activities for specific reasons.

The course is offered in English.

Forms of examination

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

b. A passing final grade requires participation in 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 two 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.

Limitations

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

Misc

The course is part of the Master's program in Environmental Science with a focus on Environmental Chemistry and Toxicology but can also be taken as an independent course.

Required reading

The course literature is decided by the department board and is published on the Department of

Environmental Science and Analytical Chemistry's website at least 2 months before the start of the course.