Department of Environmental Science

Syllabus

for course at second level

Analys av föroreningar **7.5 Higher Education Credits**

Contaminant Analysis **7.5 ECTS credits**

Course code:	MI7019
Valid from:	Autumn 2024
Date of approval:	2024-03-22
Changed:	2024-03-22
Department:	Department of Environmental Science
Subject group:	Chemistry
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements
Main field:	Environmental Chemistry

Decision

Finalized by: Områdesnämnden för naturvetenskap, 2024-03-22

Prerequisites and special admittance requirements

For admission to the course, knowledge is required equivalent to 45 credits in chemistry, or 30 credits in chemistry and Introduction to Organic Environmental Chemistry 7.5 credits (MI4014), and Swedish upper secondary school course English 6 or equivalent.

Course structure

Examination code	Name	Higher Education Credits
TEO1	Theory	3.8
LABB	laboratoty work	3.7

Course content

a. This course addresses theory and laboratory exercises for the analysis of environmental pollutants in humans and the environment.

b. The course consists of the following modules:

1. Teori (Theory) 3,75 credits:

This part covers separation techniques for analyzing chemicals in environmental matrices, focusing on the physicochemical properties and reactivity of chemicals for phase distribution, separation, and analysis.

2. Laboration (Laboratory work), 3.75 credits:

This part covers analytical techniques for quantitative and qualitative determination of environmental pollutants and transformation products in humans and the environment. The course includes methods for data processing and quality control.

Learning outcomes

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

- Propose methods and describe how to perform steps to purify the sample with respect to the matrix (parts 1 and 2).
- Propose, discuss, and justify the choice of technique for the separation of chemical compounds in a sample (parts 1 and 2).
- Propose, discuss, and justify the choice of method for qualitative and/or quantitative chemical analysis (parts 1 and 2).
- Propose techniques for determining molecular structure and demonstrate the ability to interpret the resulting data (parts 1 and 2).
- Evaluate and present quality-controlled data (parts 1 and 2).

Education

Teaching consists of lectures, exercises, and laboratory sessions.

The course is offered in English.

Forms of examination

a. The course is examined as follows:

Assessment for part 1 takes place through written exams and written assignments.

Assessment for part 2 takes place through written laboratory reports.

The examiner can decide on adapted or alternative examination formats for students with disabilities.

Late submission of assignments and laboratory reports will have consequences for the final grade of the course, as described in the course grading criteria.

Examinations are conducted in English.

b. A passing final grade requires participation in laboratory sessions and excursions. 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

Grading of part 1 and part 2 is done according to a seven-point criterion-referenced scale.
For a passing final grade, a passing grade is required for all components. The final grade of the course is determined by a combination of the grades on its parts, where the grades of the different parts are weighted in relation to their extent.

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

The course requires access to a computer.

Required reading

Course literature is decided by the department board and is published on the course page in the digital educational catalogue no later than 2 months before the start of the course.