

# Syllabus

for course at advanced level

**Contaminant Analysis**  
**Analys av föroreningar**

**7.5 Higher Education  
Credits**  
**7.5 ECTS credits**

<b>Course code:</b>	MI7019
<b>Valid from:</b>	Autumn 2023
<b>Date of approval:</b>	2020-01-13
<b>Changed:</b>	2023-04-17
<b>Department</b>	Department of Environmental Science
<b>Main field:</b>	Environmental Chemistry
<b>Specialisation:</b>	A1N - Second cycle, has only first-cycle course/s as entry requirements

## Decision

### Prerequisites and special admittance requirements

The equivalent to at least 120 HEC in the natural sciences including at least 45 HECs in Chemistry or 30 credits in Chemistry and Introduction to Organic Chemistry 7.5 credits (MI4014). A good command of the English language.

### Course structure

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

### Course content

- a. This course addresses theory and laboratory work to analyse environmental contaminants in humans and the environment.
- b. The course consists of the following modules:
  1. Teori (Theory) 3.75 credits. separation techniques for analysis of chemicals in all environmental matrixes, with emphasis on the chemicals' physical-chemical properties and reactivity for phase partitioning, separation and analysis.
  2. Laboration (Laboratory work) 3,75 hp. Analysis techniques for quantitative and qualitative determination of environmental contaminants and transformation products. The course includes methods for data processing and quality control.

### Learning outcomes

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

- Suggest methods and describe how to perform steps to refine sample with regards to matrix. (Module 1 and 2)
- Suggest, discuss and motivate the choice of technique for separation of chemicals within a sample. (Module 1 and 2)
- Suggest, discuss and motivate the choice of method for qualitative and/or quantitative chemical analysis. (Module 1 and 2)

- Suggest techniques for determination of molecular structure and show ability to interpret the resulting data. (Module 1 and 2)
- Evaluate and present quality control data. (Module 2)

### **Education**

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

### **Forms of examination**

a. The course is examined in the following manner:

Assessment of module 1 takes place through oral exam and written reports.

Assessment of module 2 takes place through written lab reports.

Late submission of the individual assignment/take-home examination has consequences for the final grade of the course. These consequences are described in detail in the grading criteria of the course.

The examination will be conducted in English.

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

Grades of module 1 will be set according to a seven-point criterion-referenced scale.

Grades of module 2 will be set according to a seven-point criterion-referenced scale.

A passing final grade requires passing grades on all included parts.

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 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.

### **Limitations**

This course may not be included in a degree together with the courses KZ7008, 15 credits or with equivalent courses.

### **Misc**

This course is part of the Masters programmes 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 on aces' website ([www.aces.su.se](http://www.aces.su.se)) at least 2 months before the start of the course.