

Department of Environmental Science

Syllabus

for course at advanced level

Metabolism and Risk Assessment of Environmental Contaminants Metabolism och riskbedömning av kemikalier i miljön 15.0 Higher Education Credits 15.0 ECTS credits

Course code:	
Valid from:	
Date of approval:	
Department	

KZ7000 Spring 2010 2009-12-21 Department of Environmental Science

Subject

Chemistry

Decision

This course syllabus is established by the Science Faculty Board at Stockholm University 2008-04-07.

Prerequisites and special admittance requirements

Knowledge equivalent to 90 higher education credits in chemistry is required in order to be eligible for admission to the course. The requirement may be met by corresponding knowledge otherwise acquired in Sweden or abroad. Also required is knowledge equivalent to Swedish upper secondary school course English B or equivalent to one of the following tests; Cambridge CPE and CAE: Pass, IELTS: 6.0 (with no part of the test below 5.0), TOEFL (paper based): 550 (with minimum grade 4 on the written test part), TOEFL (computer based): 213, TOEFL (internet based): 79.

Course structure

Examination code	Name	Higher Education Credits
MOM1	Theory	10
MOM2	Laboratory Exercises, Literature Task	5

Course content

The course is intended to provide and understanding of the various steps in risk assessment of environmental contaminants, and knowledge of how a risk assessment is carried out, based on the chemical–physical properties of the environmental contaminants and their ability to be metabolized.

a. The course covers: Uptake, metabolism, distribution and excretion of environmental contaminants; analytical methods for metabolites of environmental contaminants; statistical methods relevant for environmental chemistry, strategies for measuring and modelling of exposure, various procedures for risk assessment based on structure–activity relations; different types of toxic effects of environmental contaminants; risk assessment in the perspective of central authorities.

The course comprises a literature assignment concerning a risk assessment.

The course provides a useful foundation for both postgraduate studies and a professional career.

b. The course includes the following elements:

- 1. Theory 10 higher education credits.
- 2. Laboratory exercises, literature task, 5 higher education credits.

Learning outcomes

The primary aim of the course is to provide ability to suggest and consider in principle various methods of risk assessment for environmental contaminants, based on physical–chemical parameters. This implies the expectation that the student after taking the course will be able to:

• Suggest how different types of chemicals are taken up from the environment, distributed, metabolized and excreted.

• Suggest appropriate methods for analysis of metabolites of different types of organic environmental contaminants.

- Suggest and apply relevant statistical methods to problems in environmental chemistry.
- Give examples of procedures for assessment of exposure.
- Give examples of toxic effects of different types of environmental contaminants.
- Critically examine and present a risk assessment report in terms of a chemical-toxicological perspective.

Education

The education consists of lectures, group education, exercises and laboratory exercises plus a literature task. Participation in laboratory exercises, literature task, group education and concomitant education is compulsory. After consultation with the relevant teacher, an examiner may rule that a student is not obliged to participate in certain compulsory education, if there are special grounds for this.

Forms of examination

a. Measurement of knowledge takes place through:

• Written and/or oral presentation.

b. Grading is carried out according to a 7-point scale related to learning objectives:

- A = Excellent, B = Very Good, C = Good, D = Satisfactory,
- E = Sufficient Fx = Fail F = Fail.
- c. Grading criteria for the course will be distributed at the start of the course.
- d. A minimum grade of E is required to pass the course, together with:
- A Pass grade for element 2.
- Participation in all compulsory education.

e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term "examination" here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

Interim

Students can demand that examination is conducted according to this syllabus after it has seized to be valid, but no more than three times during a two-year period after the syllabus has been discontinued. This should be petitioned to the board of department.

Limitations

The course cannot be included in a degree with the courses Metabolism and risk assessment of environmental contaminants, 10p (KE3440), Metabolism and risk assessment of environmental contaminants 15 hp (KM7001).

Misc

The course will be given in English unless the entire student group are Swedish speaking. The course is given as a mandatory course within the Master's programme in environmental chemistry: "Swedish School of Environmental Chemistry (SSEC) but can also be taken as a single subject course.

Required reading

Course literature is decided upon by the board of the department and is presented as an appendix to the syllabus.