



Course syllabus

Faculty of Health and Life Sciences

Department of Biology and Environmental Science

4MX005 Miljöriskanalys, 15 högskolepoäng

Environmental Risk Analysis, 15 credits

Main field of study

Environmental Science

Subject Group

Environmental Science

Level of classification

Second Level

Progression

A1N

Date of Ratification

Approved 2009-10-22

Revised 2018-05-03 by Faculty of Health and Life Sciences. Revision of objectives, content, type of instruction, examination, course evaluation and other.

The course syllabus is valid from autumn semester 2018

Prerequisites

Basic eligibility for second level studies as well as special eligibility:

- Bachelor degree in science or engineering or the equivalent
- Swedish B
- English B or the equivalent
- Chemistry 15 hp

Objectives

After completion of the course, the student should be able to:

- search for, and critically evaluate, information about the environmental and health risks of chemical substances.
- independently construct models for calculation of contaminant exposure under different scenarios.
- characterize and critically analyze the importance of uncertainty and variability in environmental and health risk assessments.

Content

- Methods for hazard identification.
- Risk characterization, including basic toxicology, epidemiology and dose-response relationships.
- Exposure assessments and exposure models, exemplified for example with the Swedish EPAs generic risk model for contaminated sites.
- Risk characterization, including probabilistic methods such as Monte Carlo methods.
- Variability and Uncertainty in risk assessment models.
- Sensitivity analysis.
- Statistic parameters used in risk analysis.
- Data treatment and probability distributions.

Type of Instruction

The teaching consists of pre-recorded lectures, reading instructions for course literature, individual assignments, and group discussions. Participation in group discussions is mandatory.

Examination

The course is assessed with the grades Fail (U), Pass (G) or Pass with Distinction (VG).

Examination takes place through active participation in group discussions, web-based tests and assignments. The final grade of the course is a combined assessment of the results of all examining moments. Assessment criteria for a passing grade are stated in the Objectives (see above).

Course Evaluation

During the implementation of the course or in close connection to the course a course evaluation is to be carried out. Result and analysis of the course evaluation is to be presented as feedback both to the students who have completed the course and to the students who are to participate on the course the next time it is offered. The course evaluation is to be carried out anonymously.

Other

The course material is presented on a web study site that the students reach through the Internet. Access to the Internet and computers can be found in the school's computer room and at the university library. For distance studies, a computer with internet connection is required.

Required Reading and Additional Study Material

Obligatory literature

Burgman, M. 2005. *Risks and decisions for conservation and environmental management*. Cambridge University Press. ISBN 0-521-54301-0.

Öberg, T. 2009. *Miljöriskanalys*. Studentlitteratur. ISBN 9-144-05482-3.

Reference literature

Paustenbach, D. J. (red). 2002. *Human and ecological risk assessment. Theory and practice*. Wiley. ISBN 0-471-14747-8.