Faculty of Science

# MVEC10, Environmental Science: Risk Assessment in Environment and Public Health, 15 credits

*Miljövetenskap: Riskbedömning inom natur, miljö och hälsa, 15 högskolepoäng*

**First Cycle / Grundnivå**

## Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2021-12-12 to be valid from 2021-12-12, autumn semester 2022.

## General Information

The course is an elective first-cycle course for a degree of Bachelor or Master of Science in Environmental Science or Environment Health Science.

*Language of instruction:* Swedish and English
The course is mainly given in Swedish. Certain course literature in English can occur.

| *Main field of studies* | *Depth of study relative to the degree requirements* |
|---|---|
| Environmental Science | G2F, First cycle, has at least 60 credits in first-cycle course/s as entry requirements |
| Environmental Health | G2F, First cycle, has at least 60 credits in first-cycle course/s as entry requirements |

## Learning outcomes

The general aim of the course is that the student, on completion of the course, shall be able to identify and assess risks and vulnerability in e.g. exposure to chemicals, extinction of species, immigration of invasive species, and epidemiology. An important part of the course is to understand how risk is communicated in different contexts and to different authorities in society. On completion of the course, the students shall be able to understand, describe, and work with the most common risk management models applied in environment and public health areas.

### Knowledge and understanding

On completion of the course, the student shall be able to:

- give an account of how assessments of risks and vulnerability are made regarding e.g. exposure to chemicals, extinction of species, invasive species and epidemiology
- describe how risks are identified in different fields and how this is communicated in society and among decision-makers
- identify which risks anthropogenic pollution of soil, air and water have on public health.

### Competence and skills

On completion of the course, the student shall be able to:

- use the most commonly applied risk assessment tools in environment and public health areas
- present and communicate, in writing and orally, risks and risk assessments in different applications.

### Judgement and approach

On completion of the course, the student shall be able to:

- evaluate the environmental risks associated with anthropogenic pollution of soil, air and water
- evaluate risk assessments applied in environment and public health areas
- assess which risks alien species and genetically modified organisms impose on biological systems
- evaluate different types of risk communication in society
- show an understanding of the ethical perspectives relevant for risk assessments in the different parts of the course
- assess how risks with anthropogenic pollution are related to limit values and environmental quality standards.

## Course content

The course covers four topics:

*Risk analysis*

- problem formulation
- hazard identification
- statistical analyses in subareas such as conservation biology, invasive species, extinction effects, dispersal effects of toxic substances in soil, air, and water, exposure and its effects on nature and public health, epidemiology and toxicokinetics.

*Risk assessment*

- assessments of risks in the environment and for public health, including e.g. vulnerability analyses. Risk assessments using case studies as basis.

*Risk evaluation*

- how risks are evaluated in a structured way to retrieve information so that the most appropriate measure alternative is selected.

*Risk management*

- how to prevent risks, suggest limit values, and how society handles risks in different situations.

*Risk communication*

- training in how risks are communicated and handled in risk assessments and risk perception.

## Course design

The teaching consists of lectures, written assignments, exercises and project work. Participation in written assignments, exercises, project work and associated parts are compulsory.

## Assessment

Examination takes place in writing in the form of an examination at the end of the course and through written assignments, exercises and project work during the course.

For students who have not passed the regular examination, an additional examination in close connection to this is offered.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

*Subcourses that are part of this course can be found in an appendix at the end of this document.*

## Grades

Marking scale: Fail, Pass, Pass with distinction.
To pass the entire course, approved examination, approved written assignments and approved project work are required. The final grade is determined by the grade on the written examination.

## Entry requirements

To be admitted to the course, 75 credits in science courses are required.

## Further information

The course may not be included in a degree together with MVEC12 Environmental Science: Risk Analysis in Environment and Public Health 15 credits.

## Subcourses in MVEC10, Environmental Science: Risk Assessment in Environment and Public Health

Applies from H22

2201 Exam, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction
2202 Excersices and assignments, 4,5 hp
Grading scale: Fail, Pass
2203 Project work, 3,0 hp
Grading scale: Fail, Pass