Faculty of Science

MVEN10, Environmental Science: Risk Assessment in Environment and Public Health, 15 credits

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

Second Cycle / Avancerad nivå

Details of approval

The syllabus is an old version, approved by Study programmes board, Faculty of Science on 2022-12-14 and was valid from 2022-12-14 , autumn semester 2023.

General Information

The course is an elective second-cycle course for a degree of Bachelor, Master (60 credits) or Master (120 credits) of Science in Environmental Science or Environmental Health Science. The course is a compulsory second-cycle course for a degree of Master of Science (120 credits) in Applied Computational Science with a specialisation in Environmental Science.

Main field of studies	*Depth of study relative to the degree requirements*
Environmental Health	A1N, Second cycle, has only first-cycle course/s as entry requirements
Applied Computational Science	A1N, Second cycle, has only first-cycle course/s as entry requirements
Environmental Science	A1N, Second cycle, has only 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, introduction of invasive species and epidemiology.

The student shall also be able to understand, describe, and work with the most common risk management models applied in environment and public health areas, and be able to understand how risk is communicated in different contexts and instances in society.

Knowledge and understanding
On completion of the course, the students shall be able to:

- give an account of risks and vulnerability in e.g. exposure to chemicals, extinction of species, invasive species and epidemiology
- identify risks in different fields and how this is communicated in society and as decision-makers.

Competence and skills
On completion of the course, the students shall be able to:

- independent and within given time frames use risk assessment tools in environment and public health areas
- present and communicate, in writing and orally, risks and risk assessments in different fields in both national and international contexts
- critically and systematically identify which risks anthropogenic pollution of soil, air and water can have on public health.

Judgement and approach
On completion of the course, the students shall be able to:

- independently evaluate the environmental risks associated with anthropogenic pollution of soil, air and water
- independently assess which risks alien species and genetically modified organisms can impose on biological systems
- evaluate different types of risk communication in society
- critically discuss scientific, societal and ethical perspectives of relevance for risk assessments in the different parts of the course
- reflect on the ethical aspects of research and development in the main field of study
- identify her/his need of further knowledge and take responsibility for her/his knowledge development.

Course content

The course includes the following topics:

Risk analysis

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

Risk assessment

- assessments of risks for the environment and public health based on case studies.

Risk evaluation

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

Risk management

- how to prevent risks and set limit values, and how society is managing risks in different situations.

Risk communication

- training in how risks are communicated and treated 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 is compulsory.

Assessment

Examination takes place in the form of a written examination at the end of the course, and through written assignments, written and oral presentations of 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, approved excercises and approved project work are required.

The grading scale for written assignments, exercises and project work is failed, passed, while the grading scale for the written examination is failed, passed, passed with distinction. The final grade is determined by the grade on the written examination.

Entry requirements

To be admitted to the course, 90 credits in science courses are required. English 6/English B.

Further information

The course may not be included in a degree together with MVEC10 Environmental Science: Risk Assessment in Environment and Public Health 15 credits.

The course is given at the Centre for Environment and Climate Science, Lund University.