



Department of Earth and Environmental Sciences

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 was approved by Study programmes board, Faculty of Science on 2022-12-14 and was last revised on 2023-06-01. The revised syllabus comes into effect 2023-06-01 and is valid from the spring semester 2024.

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.

Language of instruction: English

<i>Main field of study</i>	<i>Specialisation</i>
Applied Computational Science	A1N, Second cycle, has only first-cycle course/s as entry requirements
Environmental Health	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, should have advanced principles and methods to identify and assess risks in the fields of environment, nature and health. The course includes risks for humans and other organisms connected to exposure to chemicals and causes and risks connected to the extinction of species. Insights into and understanding of need of scientifically based risk communication to different target groups and the importance of knowledge about risk perception to create relevant risk assessments and communication of risks in society are included as important components. The student should be able to

understand on completion of the course describe and work with common risk models or tools that are used in the areas of nature, environment and health and have an understanding of how they are used to inform decision-making.

Knowledge and understanding

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

- give an account of and independently apply principles and methods for risk analysis and common risk assessment models in environment, nature and health
- give an account of needs and examples of scientifically based risk communication in society and its relation to risk perception
- give an account of research and development for risk assessment in nature, environment and health

Competence and skills

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

- use common methods for risk assessment in the fields of nature, environment and health to within given time frames, and in collaboration with experts, identify and analyse risks
- present result of risk assessments in different applications
- discuss different forms of communication of risks and uncertainty in society

Judgement and approach

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

- critically reflect on the possibilities and limitations of risk assessments and its role in risk management in society
- discuss ethical aspects at assessment, management and communication of risks
- suggest needs of additional knowledge to carry out risk assessments in environment, nature and health and take responsibility for their development of knowledge

Course content

The course deals with:

- identification, assessment, evaluation and management of risks connected to human and other organisms' exposure to chemicals and risks connected to extinction of species
- methods in risk analysis such as problem formulation, hazard assessment, statistical modelling, exposure modelling, dose-response modelling, modelling of dispersion of diseases (epidemiology), modelling of uptake, renewal, distributions and secretion of poisons in living organisms (toxicokinetics) and expert assessment and principles and methods for uncertainty analysis
- risk evaluation, which includes how to in a structured way can evaluate and make tradeoffs to support decision-making

- risk management, which includes how different societal actors prevent risks, sets regulatory thresholds and communicate risks. In addition the importance to connect risk perception in risk management and communication of risks is included.

Course design

The teaching consists of lectures, laboratory sessions, project work, exercises and written assignments. 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.

Grades

Grading scale includes the grades: Fail, Pass, Pass with distinction

To pass the entire course, approved examination, approved written assignments, approved exercises 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.