



LUND
UNIVERSITY

Faculty of Science

MVEN13, Environmental Science: Analysis and Methodology, 15 credits

Miljövetenskap: Analys och metodik, 15 högskolepoäng
Second Cycle / Avancerad nivå

Details of approval

The syllabus is an old version, approved by Study programmes board, Faculty of Science on 2021-02-03 and was valid from 2021-02-03 , autumn semester 2021.

General Information

The course is a compulsory second-cycle course for a degree of Bachelor of Science or Master of Science in Environmental Science or Environment Health Science.

<i>Main field of studies</i>	<i>Depth of study relative to the degree requirements</i>
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 aim of the course is that the student should master the basics in chemical analysis, plant bioaccumulation, and statistical methods required to independently plan and carry out an environmental impact assessment (EIA) in a professional way.

Knowledge and understanding

On completion of the course the students shall be able to:

- give an account of a selection of scientific methods and applied working methodology in environmental work
- independently describe theoretical models for environmental impact assessments
- in detail reproduce an environmental impact assessment, including mapping of environmentally damaging activities, fields and contaminants.

Competence and skills

This is a translation of the course
syllabus approved in Swedish

On completion of the course the students shall be able to:

- carry out statistical analyses of data and understand how different statistical models describe reality
- report, communicate, present and discuss descriptions and analyses of environmental problems in dialogue with different target groups, both orally and in writing
- demonstrate proficiency required to participate in research and developmental work, or to work independently in other qualified profession.

Judgement and approach

On completion of the course the students shall be able to:

- with professional skill evaluate and suggest basic methods for collection and quality assurance of environmental measurement data
- independently perform assessments of environmentally damaging activities, fields and contaminants, with respect to relevant scientific, societal and ethical aspects
- critically identify her/his need of additional knowledge and take responsibility for her/his knowledge development.

Course content

Throughout the course, students work in groups on a project to produce a comprehensive environmental impact assessment (EIA). Specialisation occurs in two fields; chemical analysis and plant bioaccumulation. These two fields contain a theoretical part, including basic concepts and theories, and a practical part. Within each field, relevant statistical methods are presented and applied. The course includes:

- basic statistics and quality assurance of measurement data
- collection and processing of samples, and experimental design
- standard methods and accreditation
- cleaning of environmental residues
- below-ground transport of environmentally hazardous substances and plant bioaccumulation
- analysis of organic contaminants and metals in samples

Course design

The teaching consists of lectures, group assignments, exercises, laboratory sessions and a project work. Participation in group assignments, exercises, laboratory sessions, the project work and associated elements is compulsory.

Assessment

The examination consists of a written examination at the end of the course as well as the following compulsory components: a literature study, a project work, statistics exercises, written assignments in chemical analysis, and a laboratory session in plant bioaccumulation.

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 written examination and approved compulsory activities are required.

Grades awarded on the written examination are Failed, Passed, Passed with distinction, and grades awarded on the practical activities are Failed and Passed. The final grade is determined by the combined assessment of the results on the written examination and other compulsory activities.

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

Entry requirements

To be admitted to the course, 90 credits of scientific studies are required, including knowledge equivalent to MVEA01/MVEA10 Environmental Science: Basic Course 15 credits, and MVEC11/C18 Law in Environmental Studies 15 credits, or MVEC17 Law in Environmental and Health Studies 15 credits.

Further information

The course may not be included in a degree together with MVEN03 Environmental Science: Methodology in Environmental Science 15 credits.

Subcourses in MVEN13, Environmental Science: Analysis and Methodology

Applies from H21

- 2101 Written exam, 7,5 hp
Grading scale: Fail, Pass, Pass with distinction
- 2102 Practical work, 7,5 hp
Grading scale: Fail, Pass
The activities consist of a literature study, a project work, statistics exercises, written assignments in chemical analysis and a laboratory session in plant bioaccumulation