Faculty of Science

MVEN03, Methodology in Environmental Science, 15 credits

Miljövetenskap: Analys och metodik, 15 högskolepoäng

Second Cycle / Avancerad nivå

Details of approval

The syllabus was approved by Study programmes board, Faculty of Science on 2008-06-11 to be valid from 2008-06-11, autumn semester 2008.

General Information

The course is a compulsory second cycle component of a degree of Master of Science (120 credits) in environmental science or environmental and health protection.

Language of instruction: Swedish

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
Environmental Science	A1N, Second cycle, has only first-cycle course/s as entry requirements

Learning outcomes

The aim of the course is that students, on its completion, shall have attained the following knowledge and skills:

- Knowledge of diverse research methods and practical approaches in environmental work
- Ability to apply theoretical models for environmental impact assessments and execute an environmental impact assessment in practice, including mapping of environmentally disturbing activities, fields and pollutants
- Ability to use dynamic models in environmental work, to apply them with knowledge of their general structure and limitations, and to analyse environmental issues from a process-oriented perspective using systems analysis
- Ability to evaluate and propose basic methods of collecting and quality assuring measurement data, to perform static analyses of data and to determine how

different statistical models describe reality
- Ability to report, communicate and present descriptions and analyses of environmental problems to different target groups

Course content

The course deals with a specific environmental/sustainability issue from several perspectives, presenting relevant methods for environmental work. Throughout the course, students work in groups on a project to produce a comprehensive environmental impact assessment (EIA). The EIA is presented and discussed in the final stage of the course. Detailed study is conducted in four fields: chemical analysis, purification technology, ecosystem effects and systems analysis. Each field consists of a theoretical part addressing basic concepts and theories, and a practical part in which students plan and implement a laboratory session. The students produce a laboratory report on which the EIA project is to be based. Relevant statistical methods are presented and used in the respective fields. The course includes the following components:

- Basic statistics and quality assurance of measurement data
- Experimental design and sampling
- Standard methods and accreditation
- The flows of nutrients in society
- Purifying of residues from society
- Transport of ecologically harmful substances in earth and uptake of plants
- Analysis of samples with regard to organic pollutants and heavy metals
- Dynamic computer models

Course design

The course design is based on collaborative learning, in which the students actively seek knowledge and understanding in the areas covered by the course. The teaching consists of lectures, group exercises, laboratory sessions and independent projects. Participation in all components except lectures is compulsory.

Assessment

The assessment is based on one or more written exams.

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.
The final grade on the course is determined by the results of the exams together with the student's performance in the other components of the course. Students who have not passed the regular exam will be offered a re-sit opportunity shortly thereafter.

Entry requirements

To be admitted to the course, students must have 90 credits from science courses including:
- MVEA01 Environmental Science: Basic Course, 15 credits, and
- Environmental Law, 15 credits, (MVEC11 or MVEC17).

Further information

The course may not be included in degree together with MVE002, Environmental Science II, 15 credits, or MVE102 Environmental Science Methods, 15 credits

Subcourses in MVEN03, Methodology in Environmental Science

Applies from H07

0801 Methodology in Environmental Science, 15,0 hp
Grading scale: Fail, Pass, Pass with distinction