

Syllabus

for course at advanced level

Land-Water Risk Assessment and Management Methods

15.0 Higher Education

Riskbedömnings- och förvaltningsmetoder för mark- och vattenresurser

Credits

15.0 ECTS credits

Course code:	GE8009
Valid from:	Autumn 2007
Date of approval:	2008-04-22
Department	Department of Physical Geography
Subject	Earth Science and Physical Geography
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements

Decision

This syllabus has been approved by the Board of the Faculty of Science at Stockholm University 2006-09-27 and has been revised 08-04-22.

Prerequisites and special admittance requirements

Competence equivalent to at least 90 ECTS credits in Earth sciences, biology-earth sciences, geography, environmental sciences or equivalent science or civil engineering competence is required. In addition competence equivalent to one of the courses Hydrology and hydrogeology, 15 ECTS credits (GE5004/GE5022), Local to Global Water Vulnerability and Resilience, 15 ECTS credits (GE7025) or Information and Modeling Systems for Land and Water Resources 15, ECTS credits (GE7006) is required. Also required is knowledge equivalent to Swedish upper secondary school course English B/English 6.

Course structure

Examination code	Name	Higher Education Credits
MOM1	Pollutant Spreading and Environmental Management	4.5
MOM2	Exercise 1	3
MOM3	Economics, Uncertainty and Risk	4.5
MOM4	Exercise 2	3

Course content

a. The course includes

- * needs and methods for integrated, sustainable and efficient resource and environmental management of water and pollutant mass flows between natural land-water systems and human technological and socio-economic systems
- * national and international environmental regulation for land and water resource management
- * environmental and ecological economics and its application to land and water resource management
- * needs and methods for quantification and handling of uncertainty, probability and risk in sustainable and efficient resource and environmental management of land-water systems

b. The course consists of the following elements:

1. Pollutant Spreading and Environmental Management, 4.5 Higher Education Credits
2. Exercise 1, 3 Higher Education Credits

Computation exercise based on recent research articles on modelling of pollutant transport and mass balance

in catchments

3. Economics, Uncertainty and Risk, 4.5 Higher Education Credits

4. Exercise 2, 3 Higher Education Credits

Computation exercise based on recent research articles on modelling of efficient mitigation-abatement of water pollution in catchments

Learning outcomes

It is expected that the student after taking the course will be able to:

- * identify and compile in relevant models the water, solute and pollutant flows that link natural land-water and human technological and socio-economic systems, and explain and classify main methods and constraints for the quantification and control of these flows
- * identify and explain main natural and engineering science constraints for environmental policy and management of land-water resource systems
- * explain the needs for and distinguish and compare different methods for quantifying and handling uncertainty, randomness and risk in environmental policy, regulation and management of land-water resource systems

Education

The education consists of lectures, seminars, exercises, project work and presentations.

Participation in seminars, project work and exercises, and in all education associated with these is compulsory. An examiner may rule that a student is not obliged to participate in certain compulsory education if there are special grounds for this after consultation with the relevant teacher.

Forms of examination

a. Examination for the course is in the following manner:

Measurement of knowledge for elements 1 and 3 takes place through written and/or oral examination and presentations of project work.

b. Grading is carried out according to a 7-point scale related to learning objectives:

A = Excellent

B = Very Good

C = Good

D = Satisfactory

E = Sufficient

Fx = Fail

F = Fail

c. Grading criteria for the course will be distributed at the start of the course.

d. A minimum grade of E is required to pass the course, together with:

- pass of elements 2 and 4
- participation in all compulsory education.

e. Students who fail to achieve a pass grade in an ordinary examination have the right to take at least further four examinations, as long as the course is given. The term “examination” here is used to denote also other compulsory elements of the course. Students who have achieved a pass grade on an examination may not retake this examination in order to attempt to achieve a higher grade. Students who have failed to reach a pass grade on two occasions have the right to request that a different teacher be appointed to set the grade of the course. A request for such appointment must be sent to the departmental board.

Interim

Students may request that the examination is carried out in accordance with this syllabus even after it has ceased to apply. This right is limited, however, to a maximum of three occasions during a two-year-period after the end of giving the course. A request for such examination must be sent to the departmental board.

Limitations

The course may not be included in a degree together with the course Integrated Land-Water Systems (NK3280)

Misc

The course is part of the master's programme in hydrology, hydrogeology and water resources, and it can also be taken as an individual course.

Required reading

Course literature is decided by the department board and is described in an appendix to the syllabus.