



# MJ2680 Environmental Systems Analysis 6.0 credits

## Miljösystemanalys

This is a translation of the Swedish, legally binding, course syllabus.

If the course is discontinued, students may request to be examined during the following two academic years

## Establishment

Course syllabus for MJ2680 valid from Autumn 2009

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

Second cycle

## Main field of study

Chemistry and Chemical Engineering

## Specific prerequisites

At least 120 academic credits (ECTS) in a program of engineering, or natural science or course MJ1502 or MJ1500 or MJ2611 or MJ2652 or MJ2651 or corresponding knowledge.

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

After the course, the student should be able to

- Describe how a specific environmental decision situation may be characterized with respect to (a) the decision level on a seven-levelled scale including the global level, the international region level, the national level, the provincial level, the municipal level, the corporate/organizational level and the individual/household level, (b) who is the key decision maker, (c) who are the main stakeholders to be involved in the decision.
- Describe the main characteristics (procedure, type of results, strengths and weaknesses, main applicability) of the most important environmental systems analysis tools, including MFA (Material Flow Analysis), SFA (Substance Flow Analysis), LCA (Life Cycle Assessment), LCC (Life Cycle Costing), EIA (Environmental Impact Assessment), SEA (Strategic Environmental Assessment) and CBA (Cost-Benefit Analysis).
- Describe and explain what types of development trends may be expected in the area of environmental systems analysis.
- Explain and analyze how a specific environmental systems analysis tool or a combined use of two or several tools may contribute to an improved decision-making in a specific decision situation.
- Demonstrate an ability to cooperate in a group task work and together with other students produce a joint report of good quality with respect to formal issues, facts content and analysis.

## Course contents

Decision-making theory and environmental decision-making; Systems theory, systems thinking and systems analysis.

Environmental systems analysis, environmental assessment, evaluation.

Tools for environmental systems analysis strategic environmental assessment (environmental impact assessment, life-cycle assessment, material flow analysis, cost-benefit analysis, technology assessment, integrated assessment, position analysis.

## Course literature

Bibliography will be handed out at the start of the course.

## Examination

- PRO1 - Project, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 3.0 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

## Other requirements for final grade

Active participating during lectures (75%) and written exam (TEN1; 3 cr), Project work, including lab work and seminars (PRO1;3 cr)

## Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.