



IV2033 Decision and Risk Analysis 7.5 credits

Beslut och riskanalys

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

Establishment

Course syllabus for IV2033 valid from Spring 2009

Grading scale

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

Education cycle

Second cycle

Main field of study

Specific prerequisites

Basic prerequisites at master's level (bachelor's degree).

Language of instruction

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

Intended learning outcomes

The overall aim with the course is to give basic knowledge on applied decision theory and decision analysis, skills to structure and evaluate decision problems, and ability to analyse and judge different solutions.

After course completion, the student should be able to

- describe and handle different risk and decision theoretic concepts and models
- model and evaluate simple decision problems
- handle problems with multiple criteria
- elicit and handle model parameters

at a basic level. Further, the student should fulfil at least two of the above goals at a higher level.

Course contents

The course consists of six parts.

Part 1: Decision trees

Part 2: Influence diagrams

Part 3: Sensitivity analysis

Part 4: Representation of uncertainty

Part 5: Value of information

Part 6: Multi criteria problems

Disposition

Parts 1 and 2 introduce the basic terminology and mechanisms for structured decision analysis, and decision problems are modelled with some traditional models, trees and influence diagrams. Further, the decision situations are evaluated by introducing probabilities, values, and weights. Basic decision rules and sensitivity analyses are discussed in part 3. In parts 4 to 6 the knowledge is expanded with regard to probabilities (part 4), value of information (part 5), and weights (part 6).

Course literature

Preliminary:

Robert T. Clemen: Making Hard Decisions: An Introduction to Decision Analysis (Upplaga: 2nd edition), Duxbury, 1996

Examination

- SEM1 - Seminars, 1.5 credits, grading scale: P, F
- INL1 - Assignment, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 3.0 credits, grading scale: A, B, C, D, E, FX, 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.

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

The course examination consists of three parts: assignments, seminars and written exam

Other requirements for final grade

The student needs to pass all three parts of examination, i.e., assignments, seminars and the written exam.

Final course grade is based on the grade of the written exam.

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.