



# FAK3140 Decision Theory 7.5 credits

## Beslutsteori

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 FAK3140 valid from Autumn 2019

## Grading scale

P, F

## Education cycle

Third cycle

## Specific prerequisites

Entry requirements for PhD studies

## Language of instruction

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

## Intended learning outcomes

After completed course, the student should be able to outline and analyse arguments and basic issues in

- decision under risk and ignorance,
- collective decision theory,
- the conceptual basis of decision theory,
- formalization of decision problems.

## Course contents

In many situations we are forced to make decisions without having complete knowledge of the outcomes of our choices. The aim of this course is to provide a foundation for reflection on how rational choices can be made in such situations. We will discuss concepts such as rationality, preferences, goals, uncertainty, and utility. What does it mean to say that a preference, a goal, or a choice is rational? How should decisions be made under uncertainty and risk? What importance does the expected utility of different options have in a decision situation? This course will also serve as an introduction to game theory and social decision theory.

## Course literature

- Peterson, M. "An Introduction to Decision Theory", Cambridge University Press.
- Other literature posted on the course website at the latest four weeks before the course starts

## Examination

- TEN1 - Exam, 4.5 credits, grading scale: P, F
- UPP1 - Essay, 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

- DEL1 Seminar participation and home exercises 3.0 credits
- EXC1 Home assignments 4.5 credits

## 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.