AK2014 Decision Theory 7.5 credits

Beslutsteori

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

Establishment

Course syllabus for AK2014 valid from Spring 2016

Grading scale

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

Education cycle

Second cycle

Main field of study

The Built Environment

Specific prerequisites

Higher education studies comprising 120 ECTS credits. Language proficiency corresponding to English B/English 6 in Swedish **gymnasium**.

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 history of decision theory,
- formalization of decision problems.

The course will enable the student to approach decisions in academic and professional context in a systematic fashion, with the help of powerful tools. Applications of the theories to various contexts are discussed and trained. However, the course does not aim to train decision making for specific domains, but rather offers a general perspective.

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.

Disposition

Lectures, seminars, exercises.

Course literature

- Peterson, M. ”An Introduction to Decision Theory”, Cambridge University Press.
- Other course literature will be provided online no later than four weeks before the start of the course.

Examination

- EXCA - Take-home Exercises, 4.5 credits, grading scale: P, F
- DELA - Seminar Participation and Home Assignments, 3.0 credits, grading scale: P, F
- TENA - Optional Exam, 0.0 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.

Students who choose not to take TEN1 but who passed both DEL1 and EXC1 receive an overall grade E.

Students who pass TEN1 and who passed both DEL1 and EXC1 receive the grade on TEN1 as their overall grade.

Other requirements for final grade

- Seminar participation and home assignments (DEL1; 3.0 cr), P/F
- Home exercises (EXC1; 4.5 cr), P/F
- Optional exam (TEN1; 0.0 cr), A-F

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.