Decision Theory

Single subject and programme course

6 credits

Beslutsteori

729A82

Valid from:

Determined by
The Quality Board at the Faculty of Arts and Sciences

Date determined
2010-09-24

Main field of study
Cognitive Science

Course level
Second cycle

Advancement level
A1X

Course offered for
- Master Programme in Cognitive Science

Entry requirements
For admission to the course, admission to the Master's Programme in Cognitive Science, or the equivalent, is required.

Intended learning outcomes
On completion of the course, the student should be able to:
- apply the most important concepts and perspectives that are used in decision theory as it is carried out within different disciplines, for example psychology, economics, political science or philosophy
- account for the consequences that arise when viewing questions regarding decisions from a normative or a descriptive perspective.
- be familiar with central research results in decision theory.
- explain how these results and the questions that are discussed in decision theory are linked to basic conceptions of the human cognition
- demonstrate how different ways of understanding central terms, for example probability and risk, are treated from a decision theory perspective
- account for how decision theory questions may have relevance for other disciplines in the cognitive science field, such as psychology, applied mathematics, human-computer interaction, simulation theory, neuroscience or philosophy.

Course content

Decision theory is the study of how decisions are made. It is, however, not only the psychological empirical study of how people actually make decisions, but at least as much a study of how decisions should be made, which types of factors that should be taken into account at decision making and how these factors should be combined. A classical approach is that decisions should be a question of maximising expected value, where the expected value is a product of the probability of an outcome and its value. This has been the prevailing theory for a long time, but in recent decades alternative views have been developed.

The course will begin with a general overview of classical decision theory, and then move on to more specific questions and different developments of or alternatives to this classical theory. Subjects and problems that are brought up in the course are:

- theories of expected value (expected utility theory)
- decisions under risk and decisions under uncertainty
- Bayesian analysis
- behavioural decision theory, including theories of heuristics and biases - prospect theory
- computational models of decision making
- alternatives to classical decision theory.

Teaching and working methods

The teaching takes the form of lectures and compulsory seminars. In addition to this, the student should apply self-study. Part of the teaching may take place as distance education.

Examination

The course is examined through oral assignments that are presented in seminars, written assignments and a written examination. The seminars are compulsory and constitute part of the examination. Active participation in the seminars is required. Detailed information can be found in the study guide.

Students failing an exam covering either the entire course or part of the course twice are entitled to have a new examiner appointed for the reexamination.

Students who have passed an examination may not retake it in order to improve their grades.

Grades

Three-grade scale, U, G, VG

Other information

Planning and implementation of a course must take its starting point in the wording of the syllabus. The course evaluation included in each course must therefore take up the question how well the course agrees with the syllabus.

The course is carried out in such a way that both men´s and women´s experience and knowledge is made visible and developed.

Department

Institutionen för datavetenskap