LINKÖPINGS UNIVERSITET

Decision Theory

Single subject and programme course

6 credits

Beslutsteori

732A66

Valid from: 2016 Autumn semester

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

Date determined
2016-09-30

Main field of study

Statistics

Course level

Second cycle

Advancement level

A1X

Course offered for

- Masters Programme in Statistics and Machine Learning

Entry requirements

A bachelor's degree in one of the following subjects: statistics, mathematics, applied mathematics, computer science, engineering, or equivalent. Completed courses in calculus, linear algebra, statistics and programming are required. Documented knowledge of English equivalent to Engelska B/Engelska 6.

Intended learning outcomes

After completion the course, the student should on an advanced level be able to:
- use statistical methods for decision making,
- apply the principles for subjective probability interpretation, Bayesian inference, utility theory and sequential analysis in order to make a decision,
- critical assess the presumptions for each step in a decision making process

Course content

The course content comprises:
- The subjective interpretation of probabilities
- Probabilistic reasoning and likelihood theory,
- Bayesian hypothesis evaluation,
- Decision theoretic elements
- Utility and loss functions
- Graphical modelling as a tool for decision making
- Sequential analysis

Teaching and working methods

Assignments encompassing both theoretical and computer-based exercises. One final oral examination.
Detailed information about the examination can be found in the course's study guide.

Examination

Assignments encompassing both theoretical and computer-based exercises. One final oral examination.
Detailed information about the examination can be found in the course's 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

ECTS, EC

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