Decision Theory

Beslutsteori
6 credits

Programme course

732A66

Valid from: 2016 Autumn semester

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<td>2016-09-30</td>
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Course offered for

- Master's Programme in Statistics and Machine Learning

Entry requirements

- Bachelor's degree equivalent to a Swedish Kandidatexamen of 180 ECTS credits in one of the following subjects:
  - statistics
  - mathematics
  - applied mathematics
  - computer science
  - engineering
- Completed courses in
  - calculus
  - linear algebra
  - statistics
  - machine learning
  - programming
- English corresponding to the level of English in Swedish upper secondary education (Engelska 6)
- Exemption from Swedish

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.

Grades

ECTS, EC