Linnæus University

Course syllabus
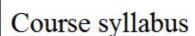
Faculty of Technology
Department of Computer Science and Media Technology

4DV117 Tillämpad Maskininlärning, 3 högskolepoäng
Applied Machine Learning, 3 credits

Main field of study
Computer Science

Subject Group
Informatics/Computer and Systems Sciences

Level of classification
Second Level

Progression
A1N

Date of Ratification
Approved by Faculty of Technology 2018-01-08
The course syllabus is valid from spring semester 2018

Prerequisites
General entry requirements at an advance level. Bachelor degree in Computer Science or equivalent subject. Candidates that do not fulfill these prerequisites can have their relevant working experience validated as a prerequisite knowledge. In principle two years of relevant working experience are considered equivalent to one year of university studies at basic level.

Objectives
Upon completion, the students should be able to:

- explain the fundamentals of data and features,
- explain the fundamentals of learning systems,
- understand and be able to use solutions for common machine learning tasks such as classification and regression using different types of data,
- be able to use common tools and libraries for machine learning tasks.

Content
Machine learning is a subfield in artificial intelligence that involves algorithms and systems that can learn from data without human intervention.
The course comprises:

- different types of data and how data can be pre-processed
- training and evaluation methods for supervised learning tasks
- algorithms for supervised learning tasks such as text classification, numerical regression, numerical classification, decision support and image recognition
- tools and libraries for machine learning tasks

Type of Instruction
The teaching consists of lectures and workshops.

Examination
The course is assessed with the grades Fail (U) or Pass (G).
Assessment in this course will be comprised of project work accompanied with written and oral examination.

Course Evaluation
During the course or in close connection to the course, a course evaluation is to be carried out. The result and analysis of the course evaluation are to be communicated to the students who have taken the course and to the students who are to participate in the course the next time it is offered. The course evaluation is carried out anonymously. The compiled report will be filed at the Faculty.

Required Reading and Additional Study Material
Required reading
Leskovec, Jure & Rajaraman, Anand & Ullman, Jeffrey David (2014). Mining of Massive Datasets. Cambridge University Press. 476 pages. Available for free online at http://mmds.org/#ver21

Goodfellow, Ian & Bengio, Yoshua & Courville, Aaron (2016). Deep Learning. MIT Press. 781 pages. Available for free online at https://www.deeplearningbook.org

Resources available on the Internet as specified on the course webpage.