UNIVERSITY OF GOTHENBURG

DEPARTMENT OF PHILOSOPHY, LINGUISTICS AND THEORY OF SCIENCE

LT2316 Machine Learning, 7.5 credits

Maskininlärning, 7,5 högskolepoäng

Second Cycle

Confirmation

This course syllabus was confirmed by Department of Philosophy, Linguistics and Theory of Science on 2018-05-29 and was last revised on 2018-05-29 to be valid from 2018-06-10, autumn semester of 2018.

Field of education: Science 100%
Department: Department of Philosophy, Linguistics and Theory of Science

Position in the educational system

The course is part of the Master's programme in Language Technology, H2MLT. It can also be given as a freestanding course.

The course can be part of the following programme: 1) Master in Language Technology (One year or Two years) (H2MLT)

Main field of studies	*Specialization*
Language Technology	A1F, Second cycle, has second-cycle course/s as entry requirements

Entry requirements

For admission to the course a passed result in each of the four following courses:

- LT2001 Introduction to programming 7.5 credits
- LT2002 Introduction to formal linguistics 7.5 credits
- LT2003 Natural Language processing 15 credits
- LT2212 Statistical methods 7.5 credits

or the equivalent is required.

Learning outcomes

On successful completion of the course the student will be able to:

Knowledge and understanding

- account for basic notions of machine learning theory and implementation,
- give examples of how machine learning methods can be applied in language technology systems

Skills and abilities

- apply machine learning techniques to the development of language technology systems
- implement simple machine learning algorithms for classification tasks

Judgement and approach

- choose the appropriate machine learning method for a specific task
- evaluate the significance of statistical results

Course content

The purpose of the course is to give a broad introduction to machine learning topics, with special focus on their application in natural language processing. The topics include:

- supervised learning, such as perceptrons, support vector machines, logistic regression
- automatic rule induction, such as transformation-based learning, inductive logic programming, decision trees
- lightly supervised approaches such as EM, k-means, domain adaptation
- learning theory such as PAC and VC frameworks
- learning with structure such as conditional random fields, structured perceptron, tree kernels
- design distinctive features for language technology applications

Form of teaching

Language of instruction: English

Assessment

The course is assessed by laboratory assignments and a project assignment. Compulsory attendance may apply for some parts.

A student has the right to request a change of examiner if failed twice on the same exam, if this is practically possible. The application shall be sent to the board of the department and has to be in writing. Completion of examined student achievement is admitted.

Grades

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

Course evaluation

Students participating in, or having completed the course, are given the chance to anonymously submit their opinions of and suggestions for the course in a course evaluation. A short version of the course evaluation, together with the reflections of the course coordinator, is published and made available to the students within a reasonable time after the course has finished. The next time the course will be given, a short version of the course evaluation will be presented together with any measures implemented.