



# DD1418 Language Engineering with Introduction to Machine Learning 6.0 credits

Språkteknologi med introduktion till maskininlärning

This is a translation of the Swedish, legally binding, course syllabus.

## Establishment

The official course syllabus is valid from the autumn semester 2021 in accordance with head of school decision: J-2021-0595. Decision date: 15/04/2021

## Grading scale

A, B, C, D, E, FX, F

## Education cycle

First cycle

## Main field of study

Technology

## Specific prerequisites

- Knowledge and skills in programming, 6 higher education credits, equivalent to completed course DD1310/DD1311/DD1312/DD1314/DD1315/DD1316/DD1318/DD1331/DD1337/DD100N/ID1018.
- Knowledge in basic computer science, 6 higher education credits, equivalent to completed course DD1320/DD1321/DD1325/DD1327/DD1338/ID1020/ID1021.

- Knowledge in probability theory, 6 higher education credits, equivalent to completed course SF1912/SF1914-SF1924.

Active participation in a course offering where the final examination is not yet reported in LADOK is considered equivalent to completion of the course. Registering for a course is counted as active participation. The term 'final examination' encompasses both the regular examination and the first re-examination.

## Language of instruction

The language of instruction is specified in the course offering information in the course catalogue.

## Intended learning outcomes

After passing the course, the student shall be able to

1. explain and use basic concepts in linguistics, language engineering and machine learning
  2. apply language engineering concepts, methods and tools to build language engineering systems as well as be able to explain the structure of such systems
  3. implement standard methods in language engineering
  4. design and carry out simple evaluations of a language engineering system as well as interpret the results,
  5. independently be able to solve a well delimited practical language engineering problem
- in order to be able to
- work with a bachelor's degree project with a focus on language engineering or machine learning,
  - be an important link between systems designers, programmers, and interaction designers in industry as well as in research projects.

## Course contents

Theory:

The historical development and bases of language engineering, morphology, syntax, semantics, vector space models, evaluation methods, machine learning, information theory and Markov models.

Methods::

Morphological analysis, generation and language statistics and corpus processing, parsing, generation, part-of-speech tagging, named entity recognition, probabilistic parsing and statistical lexical semantics.

Application areas:

Spelling and grammar checking, information retrieval, word prediction for smart text entry, text clustering and text categorization, computer-aided language learning, dialogue systems, speech technology and machine translation.

## Examination

- PRO1 - Project, 1.5 credits, grading scale: A, B, C, D, E, FX, F
- TEN1 - Exam, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory Assignments, 1.5 credits, grading scale: P, F

Based on recommendation from KTH's coordinator for disabilities, the examiner will decide how to adapt an examination for students with documented disability.

The examiner may apply another examination format when re-examining individual students.

If the course is discontinued, students may request to be examined during the following two academic years.

## Ethical approach

- All members of a group are responsible for the group's work.
- In any assessment, every student shall honestly disclose any help received and sources used.
- In an oral assessment, every student shall be able to present and answer questions about the entire assignment and solution.