



# DD2380 Artificial Intelligence

## 6.0 credits

### Artificiell intelligens

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

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

### Establishment

Course syllabus for DD2380 valid from Autumn 2015

### Grading scale

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

### Education cycle

Second cycle

### Main field of study

Computer Science and Engineering

### Specific prerequisites

Single course students: 90 university credits including 45 university credits in Mathematics and/or Information Technology and the courses SF1604 Linear algebra, SF1625 Calculus in one variable, SF1626 Calculus in several variables, SF1901 Probability theory and statistics, DD1337 Programming and DD1338 Algorithms and Data Structures or equivalent.

# Language of instruction

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

## Intended learning outcomes

After completing this course the student will be able to

- analyse and solve problems involving various forms of search algorithms, including the design of heuristic functions to improve the efficiency of such solutions
- formulate and solve problems with uncertain information using Bayesian approaches
- develop systems that utilize artificial intelligence
- develop, analyse and critically assess different solutions
- solve a complicated task with limited resources in the form of time and computations
- assess the quality of the work of others
- solve problems both individually and in groups
- presenting results both in writing and orally

in order to

- make use of methods from artificial intelligence in the analysis, design and implementation of computer programs in academic as well as industrial applications
- in an appropriate way present results and solutions.

## Course contents

The following areas will be treated in the course: problem solving with search algorithms, heuristics and games, knowledge representation (logic), representing uncertain knowledge and reasoning (Bayesian networks), decision and utility theory. Communication between agents. Models for probabilistic language processing. Examples of using artificial intelligence methods in computer vision, robotics, etc will be given.

## Course literature

Artificial Intelligence: A Modern Approach (3rd Edition) by Stuart J. Russell and Peter Norvig

## Examination

- INL1 - Assignment, 3.0 credits, grading scale: P, F
- PRO1 - Project, 3.0 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.

In this course all the regulations of the code of honor at the School of Computer science and Communication apply, see: [http://www.kth.se/csc/student/heder-skodex/1.17237?l=en\\_UK](http://www.kth.se/csc/student/heder-skodex/1.17237?l=en_UK).

## Other requirements for final grade

Assignments (INL1; 3 university credits) and an examination project (PRO1; 3 university credits).

## 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.