



# ID2211 Data Mining, Basic Course 7.5 credits

Datautvinning, grundkurs

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

The official course syllabus is valid from the spring semester 2023 in accordance with the decision by the head of the school: J-2022-2100. Date of decision: 25/09/2022

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Computer Science and Engineering

## Specific prerequisites

## 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

- explain different fundamental concepts and algorithms in data mining and basic technologies for analysis and extraction in information networks (for example the fundamental concepts in graph theory, network models, algorithms left graph clustering, identification of "communities", "Label Propagation", link prediction, etc)
- analyse, choose, use, and evaluate technologies for data mining that is based on the above concepts and explore and implement the existing data mining algorithms independently
- communicate findings, results and ideas with clear and formal language.

## Course contents

- Basic definitions in graph theory, strong and weak bands, grade distribution and clustering measurements.
- Erdos-Renyi, Wats-Strogatz, ccnfiguration models, the effect of a "small world".
- Random walks in graphs, Page Rank.
- Graph clustering, identification of "communities".
- The algorithm "Label Propagation", link prediction.
- Basics of machine learning of graph representations.

## Examination

- PRO1 - Project, 3.0 credits, grading scale: P, F
- TEN1 - Examination, 4.5 credits, grading scale: A, B, C, D, E, FX, 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.

The exam is written.

## 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.