ID2211 Data Mining, Basic Course 7.5 credits

Datautvinning, grundkurs

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

Establishment

Grading scale

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

Education cycle

Second cycle

Main field of study

Computer Science and Engineering

Specific prerequisites

Knowledge and skills in programming, 6 credits, equivalent to completed course DD1337/DD1310-DD1319/DD1321/DD1331/DD1333/DD100N/ID1018/ID1022.

Knowledge in linear algebra, 7.5 credits, equivalent to completed course SF1624/SF1672/SF1684.

Knowledge in probability theory and statistics, 6 credits, equivalent to completed course SF1910-SF1925/SF1935 or completed exam module TEN1 within SF1910/SF1925/SF1935.

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

• TENA - On-campus Digital Assessment, 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.

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.