



# DD2412 Deep Learning, Advanced Course 6.0 credits

Djupinläring, fortsättningskurs

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

## Establishment

Course syllabus for DD2412 valid from Autumn 2019

## Grading scale

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

## Education cycle

Second cycle

## Main field of study

Computer Science and Engineering

## Specific prerequisites

Completed course DD2424 Deep Learning in Data Science or DD2437 Artificial Neural Networks and Deep Architectures or the equivalent courses.

## 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 students should be able to:

- explain and justify the subareas of deep learning,
- account for the theoretical background for advanced deep learning techniques,
- identify the directions in which additional research can be made to develop the field,
- implement methods based on recently published results,
- analyse advanced research in the area and critically evaluate the methods' weaknesses and strengths

in order to

- prepare for degree project/postgraduate studies in deep learning,
- become better trained to meet industry's need of key competence in the area.

## Course contents

- Deep networks.
- Probabilistic deep learning.
- Deep transfer and sharing of knowledge.
- Unsupervised deep representation learning.
- Higher order learning.
- Adversarial learning.

## Course literature

Information about the course literature will be announced in the course memo.

## Examination

- TEN1 - Project, 3.0 credits, grading scale: A, B, C, D, E, FX, F
- LAB1 - Laboratory work, 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.

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

The examiner decides, in consultation with KTH's coordinator for disabilities (Funka), about possible adapted examination for students with documented, permanent disabilities. The examiner may permit other examination format for re-examination of individual students.

## 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.