



# DD2412 Deep Learning, Advanced Course 6.0 credits

**Djupinlärning, fortsättningskurs**

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-2021-0878. Decision date: 15/04/2021

## **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.

## 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.

## 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.