Faculty of Social Sciences

PSYE60, Psychology: Artificial Intelligence and Psychology , 15 credits

Psykologi: Artificiell intelligens och psykologi, 15 högskolepoäng

First Cycle / Grundnivå

Details of approval

The syllabus was approved by the board of the Department of Psychology on 2022-12-06 and was last revised by Academic Director of Studies at Department of Psychology on 2023-02-28. The revised syllabus comes into effect 2023-02-28 and is valid from the autumn semester 2023.

General information

The course is given as a stand-alone course at undergraduate level and can be included in a bachelor's degree with psychology as a major or in a program according to the education plan.

Language of instruction: English

Learning outcomes

After finishing the course, the students should

Knowledge and understanding

• Show basic knowledge of how artificial intelligence (AI) can simulate cognitive phenomena.

• Show basic knowledge of symbolic artificial intelligence and how the behavior created by AI relates to cognitive phenomena.

• Show basic knowledge of on abstract, deep and biological neural networks functions and how their behavior relates to cognitive phenomena and brain functions.

• Show basic knowledge of language models and how they can be connected to phenomena connected to human language.

• Demonstrate basic knowledge of how machine learning can be used to analyze behavioral and brain data.

Competence and skills

- Demonstrate ability to use machine learning to analyze behavior and brain data.
- Demonstrate ability to use language models in psychological experiments.

Judgement and approach

- Show ability to discuss similarities and differences between artificial and natural cognition.
- Show ability to assess limitations and potential in AI methods.
- Show ability to discuss the relationship between artificial and natural cognition.
- Show ability to assess risks, dangers, and ethical problems linked to prevailing and future AI applications in individuals and society.
- Show ability to demonstrate insight into applications of AI in society.

Course content

The course consists of two sub-courses.

Module 1 Artificial and natural cognition (10 ECTS)

a. Theoretical understanding (7 ECTS, A-U)

The module provides basic knowledge in symbolic AI, neural networks, deep neural networks, biological neural networks, language models, transformers, machine learning for brain data.

b. Application (3 higher education credits, G-U)

The module provides basic applications around neural networks and memory, deep learning connected to language and image analyses, how language data can be analyzed quantitatively with language models.

Module 2. Project work (5 higher education credits, G-U)

The sub-course consists of a project work where the students can define a question linked to AI and psychology, carry out an analysis, data collection, or literature review. Project work is reported in writing (5 ECTS) and with an oral presentation (0 ECTS).

Course design

Teaching is given in the form of lectures, group exercises, laboratories/demonstrations, seminars and project work. All teaching elements except the lectures are based on active participation and are compulsory. Compensation for missed mandatory elements is conducted by completion according to instructions from the teacher in charge.

Assessment

Examination takes place in the form of a written examination, written and oral presentations, active attendance at mandatory sections and project report. In connection with the course, three exam opportunities are offered: regular exam, re-examination, and final exam. Within a year after the end of the course, at least two further examinations are offered on the same course content. After that, the student is offered additional test opportunities, but in accordance with the then-current syllabus.

If it is necessary for a student with a permanent disability to be given an equivalent examination option compared to a student without a disability, the examiner can, after consultation with the university's department for pedagogical support, decide on an alternative form of examination for the student concerned.

The examiner, in consultation with Disability Support Services, may deviate from the regular form of examination in order to provide a permanently disabled student with a form of examination equivalent to that of a student without a disability.

Grades

Grading scale includes the grades: Fail, E, D, C, B, A
One of the designations A, B, C, D, E or Fail is used as a grade for the written notes on part 1. The highest grade is denoted by A and the lowest grade for a passed result by E. Grades for unapproved results are denoted by Fail. The student's results are assessed based on the learning objectives of the course. For the grade E, the student must show a sufficient result. For grade D, the student must show a satisfactory result. For grade C, the student must show a good result. For the grade B, the student must show a very good result. For the grade A, the student must show an excellent result. For the grade of Fail, the student has shown an insufficient result.

As a grade for the project work in part 2 and for seminars and labs in part 1, one of the designations Pass or Fail is used. For the grade Pass, the student must show a sufficient result. For the grade of Fail, the student has shown an insufficient result. Course grade for the entire course consists of the grades for part course 1a., where parts 1b and 2 need to be approved for a full grade. At the start of the course, the students are informed about the curriculum's learning objectives and about the grading scale and its application in the course.

Entry requirements

General requirements