UNIVERSITY OF GOTHENBURG

DEPARTMENT OF APPLIED INFORMATION TECHNOLOGY

TIG330 Design and AI, 15 credits

Design och AI, 15 högskolepoäng

First Cycle

Confirmation

This course syllabus was confirmed by Department of Applied Information Technology on 2021-02-08 and was last revised on 2024-02-06 to be valid from 2024-02-06, spring semester of 2024.

Field of education: Science 100%
Department: Department of Applied Information Technology

Position in the educational system

The course is an optional course within the programmes specified below. The course can also be taken as a free standing course.

The course can be part of the following programmes: 1) Bachelor in Cognitive Science (N1KOG) and 2) Information Systems: The Digitalisation of Society, Bachelor's Programme (N1SVP)

Main field of studies	*Specialization*
Informatics	G1F, First cycle, has less than 60 credits in first-cycle course/s as entry requirements

Entry requirements

English 6 / English B, or equivalent and 7.5 credits in programming in a general programming language, or equivalent.

Learning outcomes

On successful completion of the course the student will be able to:

Knowledge and understanding

- describe basic types of machine learning and AI;
- account for differences between different types of machine learning;
- describe how data is used to train models;
- describe everyday applications of machine learning;

Competence and skills

- use machine learning in the design of user-friendly services in a user-centered way;
- set requirements for and collect data adapted to even specific design problems in the design of digital services;
- use existing machine learning tools for new applications;

Judgement and approach

- reflect on how data affects what a machine learns;
- reflect on how ML affects modern system design;
- reflect on ethical issues surrounding machine learning and its application;
- critically review applications of AI.

Course content

The progress of recent years in AI and machine learning has resulted in that we, today, live with a large number of applications in our everyday lives. What does that mean for the services we use? And how can we design new such applications? Just as one needs to have a basic understanding of the strength of different materials to design buildings, we need an understanding of the material properties of the algorithms behind these applications.

The course is about learning about AI and machine learning as a design material, to be able to use these in design for new digital services. To do this, you will learn basic concepts and techniques in machine learning to be able to understand its material properties, and how they can be used in design. You will also learn various existing tools and how they can be used to apply machine learning in new services. After this, it is discussed how these material properties can be used in the development of new services, and various applications are critically examined. In the course, we discuss existing and new applications of machine learning, as well as ethical issues regarding the use of these techniques.

Form of teaching

The teaching consists of lectures, seminars, and exercises.

Language of instruction: English

Assessment
The examination consists of two assignments of 7.5 credits each.

A student who has taken two exams in a course or part of a course without obtaining a pass grade is entitled to the nomination of another examiner. The student needs to contact the department for a new examiner, preferably in writing, and this should be approved by the department unless there are special reasons to the contrary (Chapter 6 Section 22 of the Higher Education Ordinance).

If a student has received a recommendation from the University of Gothenburg for special educational support, where it is compatible with the learning outcomes of the course and provided that no unreasonable resources are required, the examiner may decide to allow the student to sit an adjusted exam or alternative form of assessment.

In the event that a course has ceased or undergone major changes, students are to be guaranteed at least three examination sessions (including the ordinary examination session) over a period of at least one year, but no more than two years, after the course has ceased/been changed. The same applies to placements and professional placements (VFU), although this is restricted to just one additional examination session.

Grades
The grading scale comprises: Pass (G) and Fail (U).
To obtain the grade Pass on the entire course, the grade Pass is required for all parts.

Course evaluation
After completing the course, a course evaluation is carried out. The participating students are given the opportunity to participate anonymously. The results are compiled and made available to the students. Any measures due to the price valuation results are reported. The compilation of the course evaluation is also made available to new students at the start of the next course opportunity.