UNIVERSITY OF GOTHENBURG

DEPARTMENT OF PHILOSOPHY, LINGUISTICS AND THEORY OF SCIENCE

LT2318 Artificial Intelligence: Cognitive Systems, 7.5 credits

Artificiell intelligens: kognitiva system, 7,5 högskolepoäng

Second Cycle

Confirmation

This course syllabus was confirmed by Department of Philosophy, Linguistics and Theory of Science on 2018-05-29 and was last revised on 2023-05-29 to be valid from 2023-08-28, autumn semester of 2023.

Field of education: Science 100%
Department: Department of Philosophy, Linguistics and Theory of Science

Position in the educational system

The course can be part of the following programmes: 1) Applied Data Science Master's Programme (N2ADS) and 2) Master in Language Technology (One year or Two years) (H2MLT)

Main field of studies	*Specialization*
Language Technology	A1F, Second cycle, has second-cycle course/s as entry requirements

Entry requirements

Admission to the course requires either successful completion of the following courses:

- LT2001 Introduction to programming 7.5 credits
- LT2002 Introduction to formal linguistics 7.5 credits
- LT2003 Natural Language Processing 15 credits (or LT2123 Basic skills for language technology, 7.5 credits together with LT2124 Themes in NLP and language technology, 7.5 credits)
- LT2213 Computational semantics 7.5 credits

or courses giving equivalent skills and knowledge. The course equivalence is evaluated by an area expert in language technology. If necessary, candidates may be required to supply additional information.

English 6 or equivalent is also required.

Learning outcomes

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

Knowledge and understanding

- Define the relation between language, action, and perception in human interaction.
- Describe the existing resources, approaches and applications in the field of computational modelling of language, action, and perception: corpora, experimental methods, and computational implementations.
- Read and describe scientific literature and understand programming code.
- Identify ethical considerations.

Competence and skills

- Explain the existing computational resources, approaches, and applications.
- Discuss scientific literature and write programming code.
- Plan, perform, and present an experiment / programming project.
- Perform work according to a predetermined schedule.

Judgement and approach

- Analyse how language, action, and perception are modelled in computational resources, approaches, and applications.
- Recognise problems and formulate new questions for their computational modelling.
- Make an informed choice of appropriate techniques.
- Critically evaluate different models, including their own.

Course content

The course gives a survey of theory and practical implementations on how to build artificial systems that approximate intelligent human behaviour by connecting natural language with the physical world through action and perception. We will look at topics such as semantic and computational approaches to modelling natural language, action and perception (grounding), situated dialogue systems, integrated robotic systems, generation and interpretation of scene descriptions from images and videos, computational modelling of spatial cognition, and others.

Form of teaching

The course consists of (i) lectures, (ii) seminar discussions, (iii) practical tutorials, and (iv) individual project work and supervision.

Language of instruction: English

Assessment

The course is assessed by participation in seminars and a course project.

Obligatory attendance may be required for some components. Students will be given a chance to compensate the missed sessions with additional tasks and assignments during the course if possible but otherwise they will have to take them the next time the course runs.

A student who has failed an examination twice has the right to change examiners if it is feasible. A written application should be sent to the board of the department. The number of examination opportunities is limited to five. Grading teachers can request completion of examined student work.

If a student has received a recommendation from the University of Gothenburg for special pedagogical support, the examiner may, in case it is compatible with the course objectives and provided that unreasonable resources are not required, decide to give the student an adapted examination or alternative examination form.

Grades

The grading scale comprises: Pass with Distinction (VG), Pass (G) and Fail (U).

Course evaluation

Students participating in, or having completed the course, are given an opportunity to anonymously convey their experiences of and suggestions for the course in a course evaluation. A summary of the course evaluation and reflections of the teacher responsible for the course, is made available to the students within a reasonable time after the course has completed. A summary of the course evaluation and any potential implemented measures are presented the next time the course is given.

Additional information

The course requires access to a computer (or similar) with internet access.

The course may not be included in a degree together with LT2918.