FACULTY BOARD OF HUMANITIES

Master in Language Technology, 120 credits

Språkteknologi, masterprogram, 120 högskolepoäng

Programme code: H2LTG

Second cycle / Avancerad nivå

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1. Confirmation

This programme syllabus was confirmed by the Faculty Board of Humanities on 05-05-2022 (GU 2022-603) and was last revised on 07-12-2023 (GU 2023/3048) by the Dean of the Faculty to be valid from 01-02-2024, Autumn semester 2024.

Responsible Department/equivalent: Department of Philosophy, Linguistics and Theory of Science

2. Purpose

The aim is to provide students with an appropriate background with advanced knowledge in natural language technology enabling them to pursue a specialist career in industry or academic research.

3. Entry requirements

Students with an undergraduate degree (at least three years full-time study) in

- language technology,
- computational linguistics,
- computer science, or
- linguistics (with a background in formal linguistics, programming, or mathematics, inclusively, corresponding to 30 hecr, half a year full-time study)

are eligible to apply for this programme.

Students with an undergraduate degree in cognitive science, languages, philosophy, engineering, information technology, mathematics, or other relevant fields can also be considered, provided they can show a background in formal linguistics, programming, computer science, or mathematics, inclusively, corresponding to 30 hecr, half a year full-time study.

English 6 or equivalent is also required.

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4. Higher education qualification and main field of study

This programme leads to a Degree of Master of Arts (120 credits) with a major in Language Technology (Filosofie masterexamen med huvudområdet Språkteknologi).

5. Outcomes

General outcomes for Degree of Master (120 credits)

Knowledge and understanding

For a Degree of Master (120 credits) the student shall

- demonstrate knowledge and understanding in the main field of study, including both broad knowledge of the field and a considerable degree of specialised knowledge in certain areas of the field as well as insight into current research and development work, and
- demonstrate specialised methodological knowledge in the main field of study.

Competence and skills

For a Degree of Master (120 credits) the student shall

- demonstrate the ability to critically and systematically integrate knowledge and analyse, assess and deal with complex phenomena, issues and situations even with limited information
- demonstrate the ability to identify and formulate issues critically, autonomously and creatively as well as to plan and, using appropriate methods, undertake advanced tasks within predetermined time frames and so contribute to the formation of knowledge as well as the ability to evaluate this work
- demonstrate the ability in speech and writing both nationally and internationally to clearly report and discuss his or her conclusions and the knowledge and arguments on which they are based in dialogue with different audiences, and
- demonstrate the skills required for participation in research and development work or autonomous employment in some other qualified capacity.

Judgement and approach

For a Degree of Master (120 credits) the student shall

- demonstrate the ability to make assessments in the main field of study informed by relevant disciplinary, social and ethical issues and also to demonstrate awareness of ethical aspects of research and development work
- demonstrate insight into the possibilities and limitations of research, its role in society and the responsibility of the individual for how it is used, and
- demonstrate the ability to identify the personal need for further knowledge and take responsibility for his or her ongoing learning.

Local outcomes

After completing the programme students will:

Knowledge and understanding

- have advanced knowledge of current technologies used in natural language processing and speech technology,
- have advanced knowledge of theories and methods which are applied in current natural language technologies,

Competence and skills

- have sufficient programming skills in order to develop language technology system components,
- have experience of project work as part of a research and/or development team either through an industrial placement or through placement in one of the laboratories conducting language technology research at the University of Gothenburg,

Judgement and approach

- have an appreciation of the human factors, social, and ethical issues relating to the development and deployment of language technology,
- have an appreciation of the relationship between language technology and other key technologies such as world wide web and mobile systems technologies.

6. Content and structure

Overview

Semester 1

These courses are compulsory for graduation:

- LT2001 Introduction to programming, 7.5hec
- LT2002 Introduction to formal linguistics, 7.5hec
- LT2123 Basic skills for language technology, 7.5hec
- LT2124 Themes in NLP and language technology, 7.5hec

The goal of the first semester is to impart to the students the basic programming, mathematical, and formal linguistic knowledge required for advanced engagement with language technology, while giving students an introductory overview of the field of study.

Semester 2

These courses are compulsory for graduation:

- LT2222 Machine learning for statistical NLP: introduction, 7.5hec
- LT2216 Dialogue systems, 7.5hec
- LT2213 Computational semantics, 7.5hec
- LT2214 Computational syntax, 7.5hec

The goal of the second semester is for students to acquire direct hands-on skills with contemporary areas of theory and practice in language technology. The program teaches machine learning and statistical approaches to allow students to engage with contemporary NLP research and development. They also gain exposure to industrially-applied dialogue

systems and conversational AI. It imparts knowledge of present-day computational approaches in traditional linguistic areas such as syntax and semantics.

Semester 3

In the third semester, students shall take elective courses representing 30hec from contributing departments (the Department of Philosophy, Linguistics, and Theory of Science; the Department of Swedish, Multilingualism, and Language Technology; and the Department of Computer Science and Engineering), to be discussed with the programme coordinator. These courses can including the following, subject to availability:

- LT2326 Machine learning for statistical NLP: advanced, 7.5hec
- LT2319 Dialogue systems 2, 7.5hec
- LT2314 Language technology resources, 7.5hec
- LT2318 Artificial intelligence: cognitive systems, 7.5hec
- LT2311 Language technology project course, 7.5 hec

Courses from other departments and universities can also be used towards some of the 30hec upon discussion and authorization of the programme coordinator.

Semester 4

The masters project course is compulsory for graduation:

- LT2402 Masters project (two years), 30 hec

Students are to develop, write, and defend an independent thesis project under the supervision of qualified teaching staff.

7. Transitional regulations

This programme syllabus replaces the program syllabus for Master in Language Technology (One year or Two years), 60 - 120 credits (H2MLT). The syllabus abolishes the one-year (60 hec) variant of the programme. Students who have been accepted under the programme syllabus for H2MLT and have chosen the one-year variant retain the possibility of completing it. Students who have chosen the two-year (120 hec) variant can continue their studies under this syllabus without any change in their programme's content or structure.

8. Other information

The study programme will be followed up and evaluated in accordance with the applicable *Policy för kvalitetssäkring och kvalitetsutveckling av utbildning vid Göteborgs universitet* (Policy for the Quality assurance and Quality Development of Education at the University of Gothenburg).