



## DEPARTMENT OF PHILOSOPHY, LINGUISTICS AND THEORY OF SCIENCE

### **LT2123 Basic skills for language technology, 7.5 credits**

Grundläggande färdigheter för språkteknologi, 7,5 högskolepoäng

*Second Cycle*

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#### **Confirmation**

This course syllabus was confirmed by Department of Philosophy, Linguistics and Theory of Science on 2020-11-23 to be valid from 2021-01-18, spring semester of 2021.

*Field of education:* Science 100%

*Department:* Department of Philosophy, Linguistics and Theory of Science

#### **Position in the educational system**

Can be offered as a freestanding course.

The course can be part of the following programme: 1) Master in Language Technology (One year or Two years) (H2MLT)

#### *Main field of studies*

Language Technology

#### *Specialization*

A1N, Second cycle, has only first-cycle course/s as entry requirements

#### **Entry requirements**

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

- language technology, computational linguistics or computer science;
- linguistics (with at least 30 hec, corresponding to half a year full-time study, in formal linguistics);
- adjacent subjects, eg. cognitive science, languages, philosophy or mathematics can also be considered, provided that the student can show a background in either programming or formal linguistics corresponding to 30 hec, half a year full-time study;
- or a certificate from the department that you qualifications are equivalent.

The course language is English. To provide the requirement in English by an internationally recognized test, for example TOEFL, IELTS, the English proficiency

should be equivalent to the level of English 5/English Course A from Swedish Upper Secondary School.

## Learning outcomes

### *Knowledge and understanding*

- account for basic concepts in NLP, automata theory, probability theory, linear algebra, and calculus,
- have knowledge of basic object-oriented programming concepts,
- demonstrate awareness of the relevance of mathematical and programming concepts to NLP applications,
- know what plagiarism implies,
- have knowledge of GU rules about plagiarism,

### *Competence and skills*

- use basic machine learning and NLP programming tools,
- use command-line tools to manage data,
- use statistical evaluation methods,
- identify plagiarism,
- find information about plagiarism and GU rules about plagiarism,

### *Judgement and approach*

- select appropriate tools to handle text data for different applications,
- connect different applications and techniques to relevant mathematical concepts.

## Course content

The course imparts basic skills for developing and applying language technologies.

Students will gain practical experience in programming while solving NLP-related problems. The programming language used in Introduction to programming, LT2001, will also be used in this course together with standard NLP libraries and command-line tools.

The course is divided into two main topics, one covering basic concepts in mathematics and computer science and one covering practical tools necessary to implement NLP applications and computational linguistics research.

### 1. Basic concepts:

- basic automata theory and mathematical linguistics

- basic probability theory
- basic algebra and calculus
- evaluation measurement

## 2. Practical tools:

- basic object-oriented software development techniques
- basic command-line navigation and file manipulation
- basic text processing using command-line tools
- basic I/O and process management
- basic system security
- practices in language data management

### **Form of teaching**

Combination of lecture, demonstration, and laboratory sessions for assistance with assignments.

*Language of instruction:* English

### **Assessment**

The examination consists of a combination of take-home programming exercises and projects, written assignments, written and/or oral tests. Obligatory attendance may be required for some course components.

A student who has failed a test twice has the right to change examiner, unless weighty argument can be adduced. The application shall be sent to the board of the department and has to be in writing. The total number of exam sessions is five, when feasible.

Completion of examined student achievement is allowed.

### **Grades**

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

For the grade Pass is required:

- completed take-home assignments
- passed written/online tests, if any are assigned

To pass with distinction is required:

- exceptional performance on take-home assignments
- passed written/online tests, if any are assigned

**Course evaluation**

Students who are currently taking the course or have completed it will be given the opportunity to express their views and share their experiences in an anonymous course evaluation. A compilation of the course evaluation and the course coordinator's reflections on it will be made available to the students within reasonable time after the end of the course. The next time the course is taught the compilation and any measures based on it will be presented to the students.

**Additional information**

This 7.5 credit course is ideally intended to be taken alongside the 7.5 credit LT2124 in the H2MLT programme and together supplant the 15-credit course LT2003.

The course cannot be used together with LT2003 for a degree in the H2MLT programme.