

Syllabus

for course at second level

Statistik och maskininläring

Statistics and Machine Learning

7.5 Higher Education Credits

7.5 ECTS credits

Course code:	LIS040
Valid from:	Autumn 2024
Date of approval:	2023-10-10
Changed:	2023-12-18
Department:	Department of Linguistics
Subject group:	General Linguistics
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements
Main field:	Language Informatics

Decision

Finalized by: Institutionsstyrelsen vid Institutionen för lingvistik, 2023-10-10

Prerequisites and special admittance requirements

A degree of 180 ECTS credits, including a degree project, in linguistics, computational linguistics, language technology, computer science, computer and systems sciences, cognitive science, engineering physics, engineering mathematics, or equivalent. English 6 or equivalent .

Course structure

Examination code	Name	Higher Education Credits
0401	Statistics and Machine Learning	7.5

Course content

This course provides knowledge about basic statistical methods and statistical tools used in the field of language and speech technology. Software implementation of statistical methods is an important part of the course.

The primary focus is on the following areas:

1. Descriptive statistics: measures of location and dispersion
2. Statistical modelling and regression
3. Inferential statistics
4. Basic concepts and classical algorithms in machine learning

Learning outcomes

Having completed the course, students are expected to be able to:

- summarise data using the correct descriptive measures,
- give an account of the general principles for statistical modelling and perform regression analysis,
- give an account of the basics of inference theory and to solve elementary problems,
- give an account of important algorithms for machine learning and apply these on linguistic data.

Education

Instruction is given in the form of lectures and lab sessions.

The language of instruction is English or Swedish as indicated for the particular run of the course.

Classes may be held on campus, or fully or partly online, as indicated for the particular run of the course.

For more details, please refer to the course description. The course description will be made available no later than one month before the start of the course.

Forms of examination

a. Forms of examination

This course is examined on the basis of i) written assignments, ii) a (scheduled) written exam.

The written assignments may be supplemented by oral presentations if needed.

The principles for weighting and combining the examination components are given in the grading criteria.

When the course is given in English, the examination is in English. When the course is in Swedish, the examination is in Swedish.

For more details, please refer to the course description. The course description will be made available no later than one month before the start of the course.

If a student has a certificate recommending special pedagogical support because of a disability, the examiner may adapt or change the form(s) of examination, as long as the learning outcomes are evaluated to the same degree.

b. Grading scale

Grades will be set according to a seven-point scale related to the learning objectives of the course:

A = Excellent

B = Very Good

C = Good

D = Satisfactory

E = Adequate

Fx = Fail, some more work needed

F = Fail, a lot more work needed.

Particular modules within the course may be graded according to a different scale.

c. Grading criteria

Students will be informed of the written, objective-related grading criteria when the course starts. Once distributed, the grading criteria are binding.

d. Final grade

In order to pass the course, students must receive a grade of E or higher (G for modules where the two-point scale is used) on all points of examination.

Under special circumstances, the examiner may, after consulting with the coordinating teacher, grant a student exemption from participation in certain mandatory course elements. The student may be assigned a replacement assignment.

e. Fail

At least three examination opportunities should normally be offered within a one-year period. At least one examination opportunity should be offered during a year when the course is not given.

Students who have received the grade Fx or F (U for modules where the seven-point scale is not used) twice in a row by the same examiner are entitled to have another examiner appointed for the next examination, unless there are specific reasons against it. Such requests are to be made to the Board of the Department.

Students who have received a grade of E or higher (G for modules where the seven-point scale is not used) on may not re-take the exam to obtain a higher grade.

f. Supplementary qualification

The completion of supplementary assignments in order to convert the grade Fx (U for modules where the seven-point scale is not used) into a passing grade for i) written assignments and ii) the written exam may be permitted if the student is close to meeting the criteria for a passing grade. Such an assignment should be submitted within a week of the examiner notifying the student of the need to complete a supplementary assignment.

Adequate corrections of flaws related to understanding – minor misunderstandings, minor inaccuracies or too limited arguments – will be graded using the grades C–E (G for modules where the seven-point scale is not used). Adequate corrections of simple mistakes related to formatting will be graded using the grades A–E (G for modules where the seven-point scale is not used).

Interim

When the syllabus is discontinued or the course contents have been substantially altered, students have the right to be examined according to the present syllabus three times during a transition period of three semesters.

Limitations

This course may not be included in a degree together with a course, taken in Sweden or elsewhere, of fully or partially overlapping content.

Misc

This course is part of HSAIO, Master's programme in AI and Language, 120 credits.

The course may contain elements that involve costs to the students in addition to reading and other teaching materials.