

Syllabus

for course at advanced level

Analysis and processing of speech and voice
Analys och behandling av tal och röst

**7.5 Higher Education
Credits**
7.5 ECTS credits

Course code:	LIDF02
Valid from:	Autumn 2021
Date of approval:	2021-01-20
Department	Department of Linguistics
Main field:	Linguistics
Specialisation:	A1N - Second cycle, has only first-cycle course/s as entry requirements

Decision

This syllabus was decided by the Board of the Department of Linguistics 2021-01-20.

Prerequisites and special admittance requirements

A Bachelor's degree in Linguistics or the equivalent including an individual degree project of 15 ECTS credits or the equivalent in Phonetics or Computational Linguistics. Alternatively a Degree of Master of Science in Speech and Language Pathology or in Audiology. Alternatively a degree of Master of Science in Medicine with a specialisation in Phoniatics. Or a Degree of Bachelor of Science or the equivalent in Computer and Systems Sciences, Computer Science, Mathematics, Mathematical statistics, or Engineering Physics. Alternatively a Bachelor's degree in Music Education with a specialisation in Voice or Chöre singing. Alternatively a degree in Logonomy. English 6 or equivalent.

Course structure

Examination code	Name	Higher Education Credits
1001	Analysis and processing of speech and voice	7.5

Course content

The course provides an overview of fundamental concepts and methods for processing of voice and speech data as well as practical and theoretical introduction to:

1. Time-frequency representations
2. Spectral analysis (Fourier transform, spectral measures, formant estimation)
3. Cepstral analysis and cepstral coefficients
4. Autocorrelation and estimation of fundamental frequency
5. Amplitude measures and calibration
6. Digital filters

The above methods are demonstrated using the computer program Praat and discussed in the context of relevant phonetic phenomena (e.g. vowel quality, voice quality, intonation). Special emphasis is placed on automatization of analysis workflows using Praat's scripting language.

Learning outcomes

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

- carry out acoustic analyses and measurements of speech and voice,
- use relevant terminology and relevant tools to process and analyze acoustic signals,
- automatize acoustic analyses using scripts.

Education

Instruction is given in the form of lectures and laboratory work. Instruction is done remotely or on campus according to information for the course instance in the course catalogue.

The language of instruction is English.

The course description will be made available no later than one month before the course starts.

Forms of examination

a) Forms of examination

The course is examined on the basis of written assignments. The principles for weighting individual course assignments are described in the grading criteria. The language of examination is English. For more information, please refer to the course description. The course description will be made available no later than one month before the course starts.

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 = Inadequate

F = Totally inadequate

c) Grading criteria

Students will be informed of the written grading criteria when the course starts. Once communicated, the grading criteria are binding.

d) Final grade

In order to pass the course, students must receive a grade of E or higher on all examination components, complete all mandatory assignments and meet the attendance requirement. Under special circumstances, the examiner may, after consulting with the coordinating teacher, grant the student exemption from the obligation to participate in certain mandatory course elements or complete mandatory. The student may be assigned a compensatory assignment.

e) Failure to pass

At least two examination opportunities are offered for each course. At least one examination opportunity is offered in an academic year when the course is not given. Students who receive the grade Fx or F twice by the same examiner are entitled to have another examiner appointed for the next examination, unless there are special reasons to the contrary. Such requests should be made to the department board. Students who receive the grade E or higher may not retake the examination to attain a higher grade.

f) Supplementary qualification

Students who have received the grade Fx on the written assignments may be permitted to submit supplementary work in order to convert the grade into a passing grade if the student is close to meeting the criteria for a passing grade. The additional work should be submitted within a week of the examiner notifying the student of the need to complete it. Adequate corrections of simple mistakes related to formatting will be graded using the grades A-E. Adequate corrections of flaws related to understanding – minor misunderstandings, minor inaccuracies or too limited arguments – will be graded using the grades C-E.

Interim

When the syllabus is discontinued, students have the right to be examined according to this syllabus once per semester during a transition period of three semesters.

Limitations

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

Misc

For course instances offered on distance the student need a computer and a connection which means that the course may imply an extra cost for the student in addition to the cost for course literature and other regular study materials.

Required reading

Please see the Department's education pages at www.ling.su.se. An updated reading list will be made available no later than two months before the course starts.