



**Karolinska
Institutet**

Course syllabus for

Speech and Sound - Production and Perception, 10.5 credits

Tal och ljud - produktion och perception, 10.5 hp

This course syllabus is valid from autumn 2023.

Please note that the course syllabus is available in the following versions:

[Autumn2015](#) , [Autumn2016](#) , [Autumn2017](#) , [Autumn2018](#) , [Autumn2019](#) , [Autumn2020](#) , [Autumn2021](#) , [Autumn2022](#) , Autumn2023

Course code	1AU049
Course name	Speech and Sound - Production and Perception
Credits	10.5 credits
Form of Education	Higher Education, study regulation 2007
Main field of study	Audiology
Level	G2 - First cycle 2
Grading scale	Pass, Fail
Department	Department of Clinical Science, Intervention and Technology
Decided by	Programnämnd 4
Decision date	2014-11-05
Revised by	Education committee CLINTEC
Last revision	2023-03-13
Course syllabus valid from	Autumn 2023

Specific entry requirements

For admission to the course, it is required that the student has managed at least 45 HE credits from semester 1-2 and a pass grade in part 1 and 2 from the course Clinical Audiology 1.

Objectives

The course is to give the student an introduction to the human communication process from a phonetic, acoustic and auditory perspective. It is also to give the student a basic knowledge in how humans notice and experience sounds, as well as psychoacoustic concepts and methods of measurement.

The expected learning outcomes of the course

On completion of the course, the student should be able to:

- describe and explain basic concepts in phonetics
- describe and identify vowels and consonants, both articulatory and acoustically, and be able to

- interpret simple speech spectrograms
- describe phonation mechanisms and voice in normal speech
- explain how speech communication may be affected by hearing impairment
- describe and explain basic concepts in sound perception
- relate these concepts of sound perception to the normal-hearing individual's auditory experience and how this can be measured
- relate the most common types of hearing impairments to perceptual consequences
- choose, motivate and apply simple psychoacoustic methods of measurement.

Content

The course consists of three modules:

Phonetics, 3.0 hp

Grading scale: GU

The part is an overview of the subject which introduces the theories of speech. The module deals with articulatory, acoustic and auditory phonetics as well as phonology and voice theory.

Auditory perception, 4.5 hp

Grading scale: GU

This module highlights how humans notice and experience sounds. The emphasis lies on perception, but the course also includes cognitive aspects of hearing. Concepts such as auditory threshold, loudness, masking, time and frequency resolution and localization are thoroughly discussed. Normal hearing is covered, as well as perceptual consequences of the most common types of hearing impairments.

Psychoacoustic measurements, 3.0 hp

Grading scale: GU

In this module, psychoacoustic methods of measurement are covered. How one carries out psychoacoustic measurements is covered in theory and practice.

Teaching methods

Forms of work that occur are

- lectures
- laboratory sessions
- group work
- seminars.

Laboratory sessions and seminars are compulsory. In case of absence from a compulsory part, the student is responsible for contacting the course coordinator for a complementary assignment.

The examiner decides how absence from compulsory course elements can be made up. Study results cannot be reported until the student has participated in compulsory course elements or compensated for any absence in accordance with instructions from the course coordinator. Absence from a compulsory course element could imply that the student cannot retake the element until the next time the course is offered.

Examination

Examination takes place through

Phonetics, 3 credits

- Written examination
- Attendance at compulsory.

Auditory perception, 4,5 credits

- Written examination
- Attendance at compulsory.

Psychoacoustic measurements, 3 credits

- Written laboratory report by group
- Oral presentation in a group
- Attendance at compulsory.

Students who do not pass a regular examination are entitled to re-sit the examination on five more occasions. Each time the course is offered, one regular examination and two additional examinations are given. Each occasion the student participates in the same test counts as an examination. Supplementary additions to a written assignment is counted as one examination. Submission of a blank exam paper is regarded as an examination. In case a student is registered for an examination but does not attend, this is not regarded as an examination.

In the event of absence from a mandatory educational element, the student is responsible for contacting the teacher in charge of the course for substitute assignment. The examiner assesses whether and how a student can make up for missed compulsory education elements. Absence from a compulsory educational element may mean that the student cannot complete other parts of the course, a final examination or make up for the educational element until the next time the course is offered.

If there are special reasons, or the need for adaptation for a student with a disability, the examiner may make a decision to depart from the syllabus's regulations regarding form of examination, number of examination opportunities, the possibility of supplementation or exemption from mandatory educational elements, etc. Content and learning objectives and the level of expected skills, knowledge and abilities may not be changed, removed or lowered.

Transitional provisions

Examination may take place under the previous reading list during a period of one year after the renewal of the reading list. Examination will be provided during a period of two years after a close-down of the course.

Other directives

Assessment criteria for the examination, specific instructions for certain tasks and a schedule specifying mandatory elements and a list of responsible teachers can be found on the relevant learning platform at the start of the course.

The course evaluation will be carried out according to the guidelines that are established by the Board of education. The course evaluation will be carried out both through a written course evaluation at the end of the course, and through an oral course forum at least once in connection with the course.,.

The course can be taught in English, if incoming exchange students are attending the course.

The course will not be credited in a degree together with another course the student has completed and passed which completely or partly corresponds to the contents of this course.

Literature and other teaching aids

Mandatory literature

Jakielski, Kathy J.; Gildersleeve-Neumann, Christina

Phonetic science for clinical practice

San Diego : Plural Publishing, [2018] - PDF (xii, 330 sidor)

ISBN:9781635500486 LIBRIS-ID:x73wr87cv3nvplq7

URL: [Online access for KIB](#)

[Library search](#)

Johnson, Keith

Acoustic and auditory phonetics

3 ed. : Malden, MA : Wiley-Blackwell, 2012 - ix, 222 p.

ISBN:978-1-4051-9466-2 (pbk. : alk. paper) LIBRIS-ID:12458552

Chapters 6 and 7

[Library search](#)

Plack, Christopher J.

The sense of hearing

Third edition. : Abingdon, Oxon : Routledge, 2018 - vii, 329 pages

ISBN:9781138632585 LIBRIS-ID:8jqmvw2v68dq6p6t

[Library search](#)

Gelfand, Stanley A.

Hearing : An Introduction to Psychological and Physiological Acoustics, Sixth Edition

New edition 6 : London : Taylor and Francis, 2017. - 1 online resource

ISBN:978-1-4987-7543-4- LIBRIS-ID:22247481

URL: [Table of Contents / Abstracts](#)

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Scientific papers and other relevant literature may be added.

Recommended literature

Johnson, Keith

Acoustic and auditory phonetics

3 ed. : Malden, MA : Wiley-Blackwell, 2012 - ix, 222 p.

ISBN:978-1-4051-9466-2 (pbk. : alk. paper) LIBRIS-ID:12458552

[Library search](#)

In-depth literature

Engstrand, Olle

Fonetikens grunder

Lund : Studentlitteratur, 2004 - 355 s.

ISBN:91-44-04238-8 (inb.) LIBRIS-ID:9673093

URL: http://www.studentlitteratur.se/fonetikensgrunder_z_Ljudexempel_övningsuppgifter_termordlista_länkar_till_andra_relevanta_webbplatser

[Library search](#)

Pickles, James O.

An introduction to the physiology of hearing

Fourth edition : Leiden : Brill, 2013 - xxiii, 430 pages

ISBN:9789004243774 LIBRIS-ID:17415410

[Library search](#)

Schnupp, Jan; Nelken, Israel; King, Andrew

Auditory neuroscience : making sense of sound

Cambridge, Mass. : MIT Press, [2012?] - x, 356 pages

ISBN:9780262518024 LIBRIS-ID:fs582n89cbp4nmgl

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