

# Spoken Language and Computers

Spring 2026

**Instructor:** Jieun Song

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**Course No:** HSS402, CTP402

**Time:** Tue/Thu 14:30-15:45

**Course Language:** English

**Teaching Assistant:** Minjeong Kim ([minjeong.kim@kaist.ac.kr](mailto:minjeong.kim@kaist.ac.kr))

## COURSE DESCRIPTION

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This course aims to explain articulatory and acoustic properties of speech sounds (vowels, consonants, and suprasegmentals) and how these sounds are transmitted, and processed by a listener during speech communication. This course will also cover the topic of speech variability that arises due to speaker, accent, and style. In addition, we are going to understand recent advances in speech technologies and their applications (e.g., AI voice assistants, VR), and discuss how the understanding of speech production and perception can enhance the new technologies.

Some lectures will be followed by lab sessions in which students will have the opportunity to analyse characteristics of speech sounds both descriptively and with acoustic tools such as Praat. They will also propose their own research project based on what is taught in this course and present it at the final project conference day.

\*Please note that this is a senior level undergraduate course that is also available to graduate students. You'll thus investigate the topics in depth by participating in discussions and developing a research project.

## COURSE SCHEDULE AND READINGS

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	Lecture	Lab
<b>Week 1</b> [Mar 3 & 5]	What is phonetics? Introduction to speech production The acoustic analysis of speech	
<b>Week 2</b> [Mar 10 & 12]	Describing vowels	Finding your way around Praat: The basics
<b>Week 3</b> [Mar 17 & 19]	Source-filter theory & formant frequencies in vowels (1, 2)	Visit the speech science laboratory and make sound recordings
<b>Week 4</b> [Mar 24 & 26]	Describing consonants	Formant analysis and vowel chart

<b>Week 5</b> [Mar 31 & Apr 2]	Sounds of the world's languages Acoustics of stops and affricates	
<b>Week 6</b> [Apr 7 & 9]	Acoustics of fricatives	VOT analysis
<b>Week 7</b> [Apr 14 & 16]	Acoustics of laterals and nasals	Analysis of Fricatives
<b>Week 8</b> [Apr 21 & 23]	Study week	
<b>Week 9</b> [Apr 28 & 30]	Allophonic variation Suprasegmentals (1)	
<b>Week 10</b> [May 7]	Suprasegmentals (2)	
<b>Week 11</b> [May 12 & 14]	Applications of phonetics	Make synthetic speech
<b>Week 12</b> [May 19 & 21]	Phonation types	Analysis of voice quality
<b>Week 13</b> [May 26 & 28]	Accent	
<b>Week 14</b> [Jun 2 & 4]	Speaking style	Diapix task
<b>Week 15</b> [Jun 9 & 11]	Final project conference day	Final project conference day
<b>Week 16</b>	Study week	

## GRADING

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Quizzes **30%**; Assignment **35%**; Lab **20%**; Attendance & Participation **15%**