

Class time: T, Th 12:30 a.m. – 1:50 p.m., Cresap 101

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COURSE DESCRIPTION: This course covers topics in acoustic phonetics and speech perception. In the first half of the course, the acoustic theory of speech production is introduced and the acoustic correlates of speech sounds are presented. We also cover acoustic-phonetic features of connected speech. In the second half of the course, we turn our attention to the perception of speech signals. We address such topics as phonetic categorization, speech perception and linguistic experience, and the role of speech perception in phonology.

PREREQUISITES: Linguistics 350 and 450-1, or permission of the instructor.

READING: Johnson, Keith (1997) *Acoustic and Auditory Phonetics*, 2nd Edition. Blackwell Publishers. Supplemental readings to be made available as needed.

COURSE REQUIREMENTS AND GRADING:

Class participation/presentations	20%
5 Lab Assignments (6% each)	30%
2 Homework Assignments (5% each)	10%
Quizzes (2 x 15% each)	30%
Final paper	10%

Additional text book resources for acoustic and auditory phonetics:

- Ladefoged, Peter (1996) *Elements of Acoustic Phonetics*. 2nd Edition. The University of Chicago Press.
- Rosen, Stuart and Howell, Peter (1991) *Signals and Systems for Speech and Hearing*. Academic Press.
- Stevens, Kenneth (1998) *Acoustic Phonetics*. MIT Press
- Moore, Brian C. J. (1989) *An Introduction to the Psychology of Hearing*. 5th Edition. Elsevier Press

Tentative list of supplemental readings:

Vowel spaces:

1. Peterson, G. E. & Barney, H.L. (1952). Control methods used in a study of the vowels. *Journal of the Acoustical Society of America*, 24, 175-184.
2. Smiljanic, R. and Bradlow, A. R. (2005) Production and perception of clear speech in Croatian and English. *Journal of the Acoustical Society of America*, 118 (3), 1677-1688.
3. Clopper, C, Pison, D. and de Jong, K. (2005). Acoustic characteristics of the vowel systems of six regional varieties of American English. *Journal of the Acoustical Society of America*, 118 (3), 1661-1676.

Voicing categories:

4. Lisker, L. and Abramson, A. (1964). A cross-language study of voicing in initial stops: Acoustical measurements. *Word*, 20, 384-422.

5. Cho, T. and Ladefoged, P. (1999). Variation and universals in VOT: Evidence from 18 languages. *Journal of Phonetics*, 27, 207-229.
6. Kang, K-H, and Guion, S. (2006). Phonological systems in bilinguals: Age of learning effects on the stop consonant systems of Korean-English bilinguals. *Journal of the Acoustical Society of America*, 119 (3), 1672-1683.

Connected speech/Coarticulation:

7. Hawkins, S. and Nguyen, N. (2004) Influence of syllable-coda voicing on the acoustic properties of syllable-onset /l/ in English. *Journal of Phonetics*, 32, 199-231.
8. Fon, J. and Johnson, K. (2004) Syllable onset intervals as an indicator of discourse and syntactic boundaries in Taiwan Mandarin. *Language and Speech*, 47(1) 57-82.
9. Davidson, L. (2006). Phonology, phonetics, or frequency: Influences on the production of non-native sequences. *Journal of Phonetics*, 34, 104-137.

Categorization/Categorical Perception:

10. Liberman, A.M., Harris, K. S., Hoffman, H.S. & Griffith, B. C. (1957). The discrimination of speech sounds within and across phoneme boundaries. *Journal of Experimental Psychology*, 54, 358-368.
11. Ganong, W.F. (1980). Phonetic categorization in auditory word perception. *Journal of Experimental Psychology: Human Perception and Performance*, 6, 110-125.
12. Connine, C. M. (2004) It's not what you hear but how often you hear it: On the neglected role of phonological variant frequency in auditory word recognition. *Psychonomic Bulletin and Review*, 11(6), 1084-1089.

Speech Perception Development:

13. Werker, J. F. and Tees, R. C. (1984) Cross-language speech perception: Evidence from perceptual reorganization during the first year of life. *Infant Behavior and Development*, 7, 49-63.
14. Polka, L., Colantonio, C. & Sundara, M. (2001). "A cross-language comparison of /d/ -/ð/ perception: Evidence for a new developmental pattern." *Journal of Acoustical Society of America*, 109, 2190-2220.
15. Jessica Maye & Daniel Weiss (2003). Statistical cues facilitate infants' discrimination of difficult phonetic contrasts. *Proceedings of the 27th Annual Boston University Conference on Language Development*: 508-518.

Non-native and Second Language Speech Perception:

16. Hakuta, K., Bialystok, E., & Wiley, E. (2003). Critical evidence: Test of the critical period hypothesis for 2nd language acquisition, *Psychological Science*, 14, 31-38.
17. Bent, T., Bradlow, A. R., and Wright, B. A (2006). The influence of linguistic experience on pitch perception in speech and non-speech sounds. *Journal of Experimental Psychology: Human Perception and Performance*, 32(1), 97-103
18. Best, C. T., McRoberts, G. W. and Sithole, N. M. (1988) Examination of perceptual reorganization for nonnative speech contrasts: Zulu click discrimination by English-speaking adults and infants. *Journal of Experimental Psychology: Human Perception and Performance*, 14(3), 345-360.

Tentative Course Outline

Week	Date	Topic	Work Due	Reading
1	3/28	Introduction		
	3/30	Basics (acoustics, filters, audition)		Johnson, chaps 1, 3
2	4/4	Digital Signal Processing	Lab 1: Recording Speech	Johnson, chap 2 (only 2.1 & 2.2)
	4/6			
3	4/11	Acoustic Theory of Speech Production	HW 1: Basic Acoustics	Johnson, chap 5
	4/13	Vowels		Johnson, chap 6
4	4/18	Consonants	Lab 2: Vowel Spaces	Articles 1, 2, 3
	4/20			Johnson, chaps 7, 8, 9
5	4/25	Connected Speech	HW 2: Acoustic Theory of Speech Production	Articles 4, 5, 6
	4/27			Articles 7, 8, 9
6	5/2	Categorization/Categorical Perception	Lab 3: Voicing Categories	Articles 10, 11, 12
	5/4		Quiz 1: Acoustic Phonetics	
7	5/9	Speech Perception & Linguistic Experience	Lab 4: Categorization	Articles 13, 14, 15
	5/11			
8	5/16	Conclusions	(I will hand out Quiz 2 questions and final paper assignment.)	Articles 16, 17, 18
	5/18			
9	5/23	Reading Period	Final paper: 1 page abstract/plan	
	5/25		Quiz 2: Speech Perception	
10			Final paper due – June 2 or June 5	