

Preliminary Syllabus
PSYC G4232y: *Production and Perception of Language*, Spring, 2011

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I. Bulletin Description

PSYC G4232y

Term: Spring 2011

Faculty: Robert Remez

Title: Production and Perception of Language

Activity: Seminar

Pts: 4

Approval: Instructor

Days/Time: Tuesday, 6:10-8:00 pm

Bldg/Rm: 405 Schermerhorn Hall

Prerequisites: Two courses in Psychology and instructor's permission

Review of theories and current research on the production and perception of language.

Topics include phonetic expression, motoric and perceptual organization, speech codes and memory codes, spoken word recognition, phrase formation, and the effects of context in perception and production.

II. A full description of the content of the course

The course is organized into four components. First, students will consider basic descriptive literature to establish the parallel structural properties of the production and the perception of language. Then, perceptual literature will be examined for evidence of natural constraints that limit or govern linguistic exchanges. Then, the plausibility of theory will be tested by the challenges posed by the conditions of ordinary spoken conversations. The last component addresses the problems and prospects of research using animal models.

III. The rationale for giving the course

Within the study of cognitive psychology, recent advances in the accounts of spoken communication have exhibited wide influence. This seminar introduces classic and contemporary aspects of this technical literature, and is suitable for advanced undergraduates in the majors (Psychology, Neuroscience & Behavior) and for graduate students pursuing the Masters and the Doctorate.

For undergraduates who are majoring in Psychology or in Neuroscience & Behavior, and for students participating in the Postbac Psychology Program, PSYC G4232 will fulfill these degree requirements:

- For the Psychology major or concentration and the Psychology Postbac program, it will satisfy the Group I (perception and cognition) requirement.
- For the Neuroscience & Behavior joint major, it will fulfill the 5th Psychology requirement—one advanced psychology seminar from a list approved by the Department.
- For the psychology Minor in Engineering, it will count toward the group requirement: “Any four courses from, at a minimum, two of the three groups.”
- PSYC G4232 will also satisfy the Senior Seminar requirement of the Barnard Psychology Major.

For the science requirements of the College and General Studies, PSYC G4232 will qualify as one term of the requirement, provided that the student obtains permission of the

instructor and has completed the necessary prerequisites. We anticipate that this course will rarely be used to fulfill this requirement.

At the graduate level PSYC G4232 will apply toward the “two seriously graded advanced seminars” requirement of the Psychology Ph. D. Program.

IV. *The reading list and weekly syllabus*

Week 1: *January 18, 2011: General Overview and Organizational Meeting.*

Klatt, D. H. (1989). Review of selected models of speech perception. In W. Marslen-Wilson (Ed.), *Lexical Representation and Process* (pp. 169-226). Cambridge, Massachusetts: MIT Press.

Levelt, W. J. M. (1989). The speaker as information processor. From *Speaking* (pp. 1-28). Cambridge, Massachusetts: MIT Press

Week 2: *January 25, 2011: Articulatory and Acoustic Basis of Segmental Contrasts: Consonants.*

Goldstein, L., & Fowler, C. (2003). Articulatory phonology: A phonology for public language use. In Meyer, A. & Schiller, N., *Phonetics and Phonology in Language Comprehension and Production: Differences and Similarities* (pp. 159-207). New York: Mouton.

Raphael, L. J. (2005). Acoustic cues to the perception of segmental phonemes. In D. B. Pisoni and R. E. Remez (Eds.), *The Handbook of Speech Perception* (pp. 182-205). Oxford: Blackwell.

Week 3: *February 1, 2011: Articulatory and Acoustic Basis of Segmental Contrasts: Vowels.*

Houde, J. F., & Jordan, M. I. (1999). Sensorimotor adaptation in speech production. *Science*, 279, 1213-1216.

Ladefoged, P. & Broadbent, D. E. (1957). Information conveyed by vowels. *Journal of the Acoustical Society of America*, 29, 98-104.

Week 4: *February 8, 2011: A General Account of Phonetic Sensitivity.*

Harris, C. M. (1953). A study of the building blocks of speech. *Journal of the Acoustical Society of America*, 25, 962-969.

Iacoboni, M., Woods, R. P., Brass, M., Bekkering, H., Mazziotta, J. C., & Rizzolatti G. (1999). Cortical mechanisms of human imitation. *Science*, 286, 2526-2528.

Liberman, A. M., & Mattingly, I. G. (1985). The motor theory of speech perception revised. *Cognition*, 21, 1-36.

Lindblom, B. (1996). Role of articulation in speech perception: Clues from production. *Journal of the Acoustical Society of America*, 99, 1683-1692.

Pardo, J. S., & Remez, R. E. (2006). The perception of speech. In M. Traxler and M. A. Gernsbacher (Eds.), *The Handbook of Psycholinguistics, 2nd ed.* (pp. 201-248). New York: Academic Press.

Week 5: *February 15, 2011: Perception in the Psychophysics Laboratory.*

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.

Costa, A., Cutler, A., & Sebastián-Gallés, N. (1998). Effects of phoneme repertoire on phoneme decision. *Perception & Psychophysics*, 60, 1022-1031.

Samuel, A. G. (1982). Phonetic prototypes. *Perception & Psychophysics*, 31, 307-314.

Week 6: *February 22, 2011: Perception as Information Processing.*

Dahan, D., Drucker, S. J., & Scarborough, R. A. (2008). Talker adaptation in speech perception: adjusting the signal or the representations? *Cognition*, 108, 710-718.

Goldinger, S. D. (1998). Echoes of echoes? An episodic theory of lexical access. *Psychological Review*, 105, 251-279.

- Luce, P. A., Pisoni, D. B., & Goldinger, S. D. (1990). Similarity neighborhoods of spoken words. In G. T. M. Altmann (Ed.), *Cognitive Models of Speech Processing: Psycholinguistic and Computational Perspectives* (pp. 122-147). Cambridge: MIT Press.
- Pisoni, D. B. (1973). Auditory and phonetic memory codes in the discrimination of consonants and vowels. *Perception & Psychophysics*, 13, 253-260.
- Pisoni, D. B. (1975). Auditory short-term memory and vowel perception. *Memory & Cognition*, 3, 7-18.
- Week 7:** March 1, 2011: *Speech Perception on the Corner, Part 1: Semantic Context.*
- Fowler, C. A., & Housum, J. (1987). Talkers' signaling of "new" and "old" words in speech and listeners' perception and use of the distinction. *Journal of Memory and Language*, 26, 489-504.
- Lieberman, P. (1963). Some effects of semantic and grammatical context on the production and perception of speech. *Language and Speech*, 6, 172-187.
- Week 8:** March 8, 2011: *Speech Perception on the Corner, Part 2: Pragmatic Context.*
- Bradlow, A. R., & Bent, T. (2002). The clear speech effect for non-native listeners. *Journal of the Acoustical Society of America*, 112, 272-284.
- Clarke, C. M., & Garrett, M. F. (2004). Rapid adaptation to foreign-accented English. *Journal of the Acoustical Society of America*, 116, 3647-3658.
- Eisner, F., & McQueen, J. M. (2006). Perceptual learning in speech: Stability over time. *Journal of the Acoustical Society of America*, 119, 1950-1953.
- Kraljic, T., Brennan, S. E., & Samuel, A. G. (2008). Accommodating variation: Dialects, idiolects, and speech processing. *Cognition*, 107, 54-81.
- Week 9:** March 22, 2011: *Speech Perception on the Corner, Part III. Integrative Perceptual Acts*
- Cutler, A. (2008). The abstract representations in speech processing. *Quarterly Journal of Experimental Psychology*, 61, 1601-1619.
- Pardo, J. S. (2006). On phonetic convergence during conversational interaction. *Journal of the Acoustical Society of America*, 119, 2382-2393.
- Vatikiotis-Bateson, E., Eigsti, I.-M., Yano, S., Munhall, K. G. (1998). Eye movement of perceivers during audiovisual speech perception. *Perception & Psychophysics*. 60, 926-940.
- Week 10:** March 29, 2011: *Perceptual Organization of Speech.*
- Eimas, P. D., & Miller, J. L. (1992). Organization in the perception of speech by young infants. *Psychological Science*, 3, 340-345.
- Remez, R. E., Pardo, J. S., Piorkowski, R. L., & Rubin, P. E. (2001). On the bistability of sinewave analogues of speech. *Psychological Science*, 12, 24-29.
- Shannon, R. V., Zeng, F.-G., Kamath, V., Wygonski, J., & Ekelid, M. (1995). Speech recognition with primarily temporal cues. *Science*, 270, 303-304.
- Week 11:** April 5, 2011: *Multimodal Speech Perception, Part 1.*
- Bertelson, P., Vroomen, J., & de Gelder, B. (2003). Visual recalibration of auditory speech identification: A McGurk aftereffect. *Psychological Science*, 14, 592-597.
- McGurk, H., & McDonald, J. (1976). Hearing lips and seeing voices. *Nature*, 264, 746-748.
- Week 12:** April 12, 2011: *Multimodal Speech Perception, Part 2.*
- Fowler, C. A., & Dekle, D. J. (1991). Listening with eye and hand: Cross-modal contributions to speech perception. *Journal of Experimental Psychology: Human Perception and Performance*, 17, 816-828.
- Sekiyama, K. (1997). Cultural and linguistic factors in audiovisual speech processing: The McGurk effect in Chinese subjects. *Perception & Psychophysics*, 59, 73-80.
- Week 13:** April 19, 2011: *Concurrent Identification of Words and Talkers.*
- Nygaard, L. C., Sommers, M. S., & Pisoni, D. B. (1994). Speech perception as a talker-contingent process. *Psychological Science*, 5, 42-46.

- Remez, R. E., Fellowes, J. M., & Rubin, P. E. (1997). Talker identification based on phonetic information. *Journal of Experimental Psychology: Human Perception and Performance*, 23, 651-666.
- Remez, R. E. (in press). Spoken expression of individual identity and the listener. in E. Morsella (Ed.), *Expressing Oneself/Expressing One's Self: A Festschrift in Honor of Robert M. Krauss* (pp. 000-000). London: Taylor & Francis.

Week 14: April 26, 2011: *Animal Models of Perception and Production.*

- Holt, L. L. & Lotto, A. J. (2008). Speech perception within an auditory cognitive science framework. *Current Directions in Psychological Science*, 17, 42-46.
- Kluender, K. R, Diehl, R. L., & Killeen, P. R. (1987). Japanese quail can learn phonetic categories. *Science*, 237, 1195-1197.
- Kuhl, P. K., & Miller, J. D. (1975). Speech perception by the chinchilla: Voiced-voiceless distinction in alveolar plosive consonants. *Science*, 190, 69-72.
- Trout, J. D. (2001). The biological basis of speech: What to infer from talking to the animals. *Psychological Review*, 108, 523-549.

V. Course requirements

Each week, a pair of students will be designated as the leader and the rapporteur of the discussion of an assigned reading. The leader will present a summary and a critique of the reading, and propose questions to guide the discussion by the seminar. The discussion will be chronicled by the rapporteur, and posted on the website of the seminar as a record of our intellectual work. Each student will also prepare an original paper appraising an empirical project in the light of the scientific themes of the seminar. The topic of the paper may be freely chosen from the technical literature on the perception and production of language. A student's grade in the course will be based on participation as leader of the discussion, as rapporteur, as discussant within the seminar, and on the final paper project. The course grade will indicate the student's achievement as discussion leader (30%), as rapporteur (20%), as a participant in weekly discussions (20%) and as the author of the paper project (30%).