ECE 537  **Speech Processing Fundamentals**  credit: 4 hours.
Development of an intuitive understanding of speech processing by the auditory system, in three parts. I): The theory of acoustics of speech production, introductory acoustic phonetics, inhomogeneous transmission line theory (and reflectance), room acoustics, the short-time Fourier Transform (and its inverse), and signal processing of speech (LPC, CELP, VQ). II): Psychoacoustics of speech perception, critical bands, masking (JNDS), and the physiology of the auditory pathway (cochlear modeling). III): Information theory entropy, channel capacity, the confusion matrix, state models, EM algorithms, and Bayesian networks. Presentation of classic papers on speech processing and speech perception by student groups. MATLAB (or equivalent) programming in majority of assignments. Prerequisite: ECE 310.

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<td>29993</td>
<td>Lecture</td>
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<td>MWF</td>
<td>3013 - Electrical &amp; Computer Eng Bldg</td>
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Restricted to Graduate - Urbana-Champaign.