Upper-level Undergraduate/Graduate Course in Neuroscience
Center for Neural Science, NYU
Instructor: John Rinzel

SPECIAL TOPICS IN NEURAL SCIENCE: Perceptual Dynamics
NEURL-UA 302/NEURL-GA 3042
Wednesday, 4:00-6:00pm, Meyer Rm 815. J. Rinzel. 1st class: Sept 5, 2012
Prerequisite: Calculus I-II. (seek consent of instructor if in doubt).

This is a seminar course to develop familiarity with dynamics, behavioral and neuronal, associated with a range of perceptual phenomena. The format will be mixed: lectures, journal-club-like presentation of papers, and exploration with computer-driven stimuli. We will discuss neuronal mechanistic models and computational models to go with the behavior. Our approach will be case-study; relevant background will be presented. We will emphasize auditory perception (spatial hearing, pitch, auditory scene analysis) but we will likely include case studies from vision (e.g., binocular rivalry), somatosensory (vibrotactile frequency discrimination) and time perception. Computer codes will be with Matlab, likely pre-written and modifiable by students; Matlab expertise is not a prerequisite.

Book and supporting materials:
See demos (under topics) on the book’s web page:
https://mustelid.physiol.ox.ac.uk/drupal/

http://webpages.mcgill.ca/staff/Group2/abregm1/web/

MAD: the Matlab Auditory Demos. Sheffield
http://staffwww.dcs.shef.ac.uk/people/M.Cooke/MAD/docs/whatfor.htm