

# Cognitive Science 107B/201 -- Systems Neuroscience

## Professor:

Marty Sereno -- sereno - AT - cogsci  
class: MWF 11:00-11:50 AM, Solis 104  
grad-only lectures: M 10:00-10:50 AM, CSB 180, and during ugrad tests  
office hours: M 12:00-2:00 PM, CSB 171, by email appt

## Grad Assistants:

Flavia Filimon -- ee mail: ffilimon - AT - cogsci -- [section notes](#)  
Adam Tierney -- ee mail: atierney - AT - cogsci --  
Matthew Leonard -- ee mail: mkleonar - AT - cogsci --

## Undergraduate Sections for 107B (one will be canceled)

(A01,02) Mon 9:00-9:50 (WLH 2206), 10:00-10:50 (Center 220)  
(A03) Wed 12:00-12:50 (Center 220)  
(A04,05) Fri 1:00-1:50 (Center 218), 2:00-2:50 (Center 205)

## Readings & Tests--Undergraduate: ([test keys](#))

Required: Squire et al., 2003 *Fundamental Neuroscience*  
Recommended: Full attendance (tests emphasize lecture material)  
2 midterms, final -- short-answer (worst midterm:15%, best midterm:45%, final:40%)

## Readings & Tests--Graduate:

Graduate [readings](#)  
3 short-answer homeworks, 3rd includes short paper ([quiz1](#), [quiz2](#), [quiz3+shortpap](#))

## Lecture Topics: (Winter 2007 -- this page: <http://cogsci.ucsd.edu/~sereno/107B>) ([pdf](#))

1/08 -- Neurons -- membrane potential, action potential (Chap 6)  
1/10 -- Neurons -- post-synaptic pot., dendritic propagation (Chap 5)  
1/12 -- Neurons -- NMDA channels and learning (Chap 50, lecture-only)

1/15 -- [HOLIDAY]

1/17 -- Networks -- supervised learning (lecture-only)

1/19 -- Networks -- attractor networks (lecture-only)

1/22 -- Networks -- Hebbian feedforward learning (lecture-only)

1/24 -- Development -- neural tube, cortical areas (Chap 14, 18)

1/26 -- Visual System -- exam review, intro to sensory systems

1/29 -- Visual System -- retina, dLGN (Chap 23)

1/31 -- Visual System -- edges, visual maps (Chap 27, lecture-only)

2/02 -- **1ST EXAM**

2/05 -- Visual System -- visual processing streams (Chap 27, lecture-only)

2/07 -- Visual System -- visual motion (Chap 27, lecture-only)

2/09 -- Visual System -- visual attention, objects (Chap 47, 49)

2/12 -- Somatosensory System -- receptors, brainstem (Chap 23)

2/14 -- Somatosensory System -- somatosensory cortex (Chap 25)

2/16 -- Auditory/Vestibular System -- receptors (Chap 23)

2/19 -- [HOLIDAY]

2/21 -- Auditory System -- sound localization (Chap 26, lecture-only)

2/23 -- Auditory System -- echolocation, speech sounds (Chap 26, lecture-only)

2/26 -- Motor System -- gaze stabilization (Chap 33)

2/28 -- Motor System -- coordinate transformations (Chap 33, 48, lecture-only)

3/02 -- **2ND EXAM**

3/05 -- Motor System -- striatum, cerebellum (Chap 31, 32)

3/07 -- Motor System -- pattern generators, motor cortex (Chap 29, 30)

3/09 -- Limbic System -- connectional anatomy (Chap 34, lecture-only)

3/12 -- Limbic System -- egocentric place, direction (Chap 51, lecture-only)

3/14 -- Human Brain Imaging -- fMRI, EEG, MEG (lecture-only)

3/16 -- Overflow Lecture

3/19 -- **FINAL EXAM (1/2 new, 1/2 cumulative)** (Mon) 11:30-2:30 AM