**Cellular Neuroscience (NB&B 207) - Winter 2017**

M,W,F 10:30 – 11:50 : 2246 McGaugh Hall

**Instructors –** Ian Parker (course coordinator) [iparker@uci.edu](mailto:iparker@uci.edu), Raju Metherate [rmethera@uci.edu](mailto:rmethera@uci.edu), Katumi Sumikawa [ksumikaw@uci.edu](mailto:ksumikaw@uci.edu)

**Grading Policy**: Grades will be based on exams and take-home quizzes

**Text:** There is no assigned text.Handouts and readings will beassigned during lectures. Purves et al. "Neuroscience" can be used for introductory material. The 2nd edition is available free at http://www.ncbi.nlm.nih.gov/books/NBK11103/

**Date Topic Instructor**

***Section #1 Ion channels and neuronal electrophysiology***

Jan 9 Introduction to electrical concepts IP

# Jan 11 Passive electrical properties of membranes IP

# Jan 13 Membrane potential, Nernst, Goldman equations IP

# Jan 16 **Martin Luther King Holiday**

# Jan 18 Ion channels – electrophysiology, patch clamping IP

# Jan 20 Ion channels – voltage-gated channels IP

# Jan 23 Ion channels – ligand-gated channels IP

Jan 25 Action potentials RM

# Jan 27 The Hodgkin & Huxley Axon RM

Jan 30 Discussion/review sessionIP/RM

# Feb 1 Chemical synapses, quantal transmission RM

# ***Section #2 Synaptic transmission***

Feb 3 **EXAM #1** (not including material of Feb 1 lecture)

Feb 6 Ca2+ and neurotransmitter release, EPSPs and IPSPs RM

# Feb 8 Slow synaptic potentials RM

Feb 10 Neurotransmitters KS

Feb 13 Molecular mechanisms of vesicular release KS

# Feb 15 Neurotransmitter receptors KS

# Feb 17 Synaptic integration RM

Feb 20 **Presidents Day Holiday**

Feb 22 Second messenger pathways #1 KS

Feb 24 Second messenger pathways #2 KS

Feb 27 Synaptic plasticity KS

# March 1 Discussion/review KS/RM

# March 3 **EXAM #2** (during lecture period – before lab class)

**Cellular Neuroscience Lab (207L)**

March 6 – March 16 Lab class – full time every day I.P. / R.M.

March 16 **Student presentations for lab class**