

9-1-2009

Cellular Neuroscience Course

Location / Time

Approximately half of lectures will be at one campus and the second half will be at the other:

Wash Sq location: CNS Classroom, 4 Washington Place, Room 815
(<http://www.cns.nyu.edu/images/cnsmap2.gif>)

SOM location: Smilow Research Center, 522 First Ave, 6th floor Conference Room
(<http://www.med.nyu.edu/smilowcenter/>)

Lectures will meet on Tues and Thurs from 12:30 - 2:30 pm

Labs will meet on Fridays from 12:30 - 5:30 pm

Wash Sq location: Silver Center, Room 612

Conferences will meet on Fridays from 3:00 – 5:00 pm (and adjourn to Happy Hour)

SOM location: Smilow Research Center, 522 First Ave, 6th floor Conference Room

Grading

Two in-class exams with a choice of questions

Laboratory write-ups

Conference participation

Introduction to Cellular Neuroscience Syllabus – Fall 2009

TOPIC	DATE	FACULTY	LOCATION
1. Introduction to cellular neuroscience – basic principles	Sept 8	Llinas	SMILOW 601A
2. Cell biology of the neuron: cytoskeleton, motors, & transport	10	Chao	SMILOW 601A
3. Myelination and axon channel domains	15	Rosenbluth	SMILOW 601A
NO CLASSES - NEUROSCIENCE RETREAT	17-18		
4. Membrane biophysics: thermodynamic principles	22	Bloomfield	SMILOW 601A
5. Membrane potential: resting potential & Nernst potential	24	Bloomfield	SMILOW 601A
Conference 1: Molecular & genetic approaches	25	Suh/ Fishell	SMILOW 601A
6. Action potential generation mechanisms I	29	Reyes	MEYER 815A
7. Action potential generation mechanisms II	Oct 1	Reyes	MEYER 815A
Lab 1: Passive Properties	2	Carter	SILVER 612
8. Action potential propagation: cable vs. saltatory conduction	6	Rinzel	MEYER 815A
9. Action potential propagation: cable vs. saltatory conduction	8	Rinzel	MEYER 815A
Conference 2: Action potential	9	Reyes, Chesler	SMILOW 601A
10. Electrotonic transmission and gap junctions	13	Bloomfield	SMILOW 601A
11. Voltage-gated ion channels I (ion selectivity)	15	Rudy	SMILOW 601A
Lab 2: Computer Simulations	16	Carter	SILVER 612
NO CLASS – SOCIETY FOR NEUROSCIENCE MEETING	20		
12. Voltage-gated ion channels II (gating)	22	Rudy	SMILOW 601A
Lab 3: Electrophysiology	23	Carter	SILVER 612
13. Diversity of ionic channels	27	Rudy	SMILOW 601A
14. Quantal hypothesis and synaptic vesicle cycle	29	Llinas	SMILOW 601A
Lab 4: Structure of the Nervous System (EM demo)	30	Aoki	MEYER 1058
MIDTERM EXAM	Nov 3		SMILOW 601A
15. Biochemistry of vesicle release	5	Llinas	SMILOW 601A
Lab 5: Structure of the Nervous System (EM demo)	6	Aoki	MEYER 1058
16. Synaptic function: presynaptic mechanisms	10	Llinas	SMILOW 601A
17. Excitatory synaptic transmission	12	Llinas	SMILOW 601A
Conference 3: Synaptic transmission	13	Llinas	SMILOW 601A
18. Long term synaptic plasticity (LTP, LTD, pre- & post-)	17	Klann	MEYER 815A
19. Inhibitory synaptic transmission	19	Sanes	MEYER 815A
Lab 6: LM Analysis I	20	Aoki	SILVER 612
20. Molecular mechanisms of synaptic plasticity	24	Ziff	MEYER 815A
NO CLASSES - THANKSGIVING	26-27		
21. Biosynthesis of neurotransmitters	Dec 1	Rice	MEYER 815A
22. Neurotransmitter degradation, uptake and transport	3	Rice	MEYER 815A
Conference 4: Synaptic Plasticity	4	Klann, Ziff	SMILOW 601A
23. Glial cells & regulation of extracellular space	8	Chesler	MEYER 815A
24. Metabotropic receptors and modulation of neuron function	10	Rudy	MEYER 815A
Lab 7: LM Analysis II	11	Aoki	SILVER 612
25. Dendritic integration	14	Carter	MEYER 815A
Conference 5: Dendritic Integration	16	Carter	MEYER 815A
Lab 8: LM Analysis III	17	Aoki	SILVER 612
FINAL EXAM	22		SMILOW 601A