Cellular Neuroscience (G16.2005001 / NEURL-GA 2201)

Course Directors

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Location / Time

Lectures will meet on Mon and Wed from 9:00 – 11:00 am

Classes are split between the two campuses:

Downtown: 4 Washington Place, Room 815 (CNS Classroom)

Uptown: Alexandria Building, 9th floor Conference Room

Labs will meet on Fridays from 2:00 – 5:00 pm

Downtown: 4 Washington Place, Room 815 (CNS Classroom)

Conferences will meet on Fridays from 2:00 – 5:00 pm

Downtown: 4 Washington Place, Room 815 (CNS Classroom)

Uptown: Alexandria Building, 9th floor Conference Room

Assigned Reading

Molecular and Cellular Physiology of Neurons, 2nd Edition (Gordon Fain)

Handouts

Grading

Two in-class closed book exams with a choice of questions (50% each)

Laboratory and conference participation (50% each)

Syllabus – Fall 2016

DATE	DAY	TOPIC	FACULTY	LOCATION	READING
Sept 7	W	Lecture 1: Introduction to neurons	Aoki	CNS	
Sept 9	**F**	**Lab 1: Electron microscopy discussion**	**Aoki**	**CNS**	
Sept 12	M	Lecture 2: Primer on electricity in neurons	Chesler	Alexandria	
Sept 14	W	Lecture 3: Primer on cell biology of neurons	Burden	Alexandria	
Sept 16	**F**	**Lab 2: Passive properties simulations**	**Rinzel**	**CNS**	
Sept 19	M	Lecture 4: Membrane potentials	Reyes	CNS	
Sept 21	W	Lecture 5: Action potentials	Reyes	CNS	
Sept 23	**F**	**Lab 3: Action potential simulations**	**Rinzel**	**CNS**	
Sept 26	M	Lecture 6: Na+ channels	Tsien	Alexandria	
Sept 28	W	Lecture 7: Ca2+ channels and signaling	Tsien	Alexandria	
Sept 30	**F**	**Lab 4: Electrophysiology discussion**	**Reyes**	**CNS**	
Oct 3	M	Lecture 8: K+ channels	Tsien	Alexandria	
Oct 5	W	Lecture 9: Primer on cell biology of glia	Salzer	Alexandria	
Oct 7	**F**	**Lab 5: Light microscopy discussion**	**Carter**	**CNS**	
Oct 10	**M**	**No Class – Fall Break**			
Oct 12	W	Lecture 10: Gap junctions & electrical synapses	Long	Alexandria	
Oct 14	**F**	**MIDTERM EXAM COVERING LECTURES 1–10**		**CNS**	
Oct 17	M	Lecture 11: Chemical synapses	Tsien	Alexandria	
Oct 19	W	Lecture 12: Presynaptic release	Tsien	Alexandria	
Oct 21	**F**	**Conference 1: Presynaptic**	**Basu**	**Alexandria**	
Oct 24	M	Lecture 13: Excitatory transmission	Carter	CNS	
Oct 26	W	Lecture 14: Inhibitory transmission	Carter	CNS	
Oct 28	**F**	**Conference 2: Postsynaptic**	**Tritsch**	**Alexandria**	
Oct 31	M	Lecture 15: Dendritic integration	Carter	CNS	
Nov 2	W	Lecture 16: Intracellular signaling 1	Ringstad	Alexandria	
Nov 4	**F**	**Conference 3: Dendrites**	**Carter**	**CNS**	
Nov 7	M	Lecture 17: Intracellular signaling 2	Ringstad	Alexandria	
Nov 9	W	Lecture 18: Intracellular signaling 3	Ringstad	Alexandria	
Nov 11	**F**	**No Class – SFN meeting**			
Nov 14	**M**	**No Class – SFN meeting**			
Nov 16	**W**	**No Class – SFN meeting**			
Nov 18	**F**	**Conference 4: Signaling**	**Ringstad**	**Alexandria**	
Nov 21	M	Lecture 19: Neuromodulation 1	Rice	Alexandria	
Nov 23	W	Lecture 20: Neuromodulation 2	Rice	Alexandria	
Nov 25	**F**	**No Class – Thanksgiving**			
Nov 28	M	Lecture 21: Synaptic plasticity 1	Froemke	Alexandria	
Nov 30	W	Lecture 22: Synaptic plasticity 2	Froemke	Alexandria	
Dec 2	**F**	**Conference 5: Plasticity**	**Froemke**	**Alexandria**	
Dec 5	M	Lecture 23: Sensory transduction 1	Nagel	Alexandria	
Dec 7	W	Lecture 24: Sensory transduction 2	Nagel	Alexandria	
Dec 9	**F**	**Conference 6: Sensation**	**Nagel**	**Alexandria**	
Dec 12	M	Lecture 25: Circuits	Carter	CNS	
Dec 14	**W**	**FINAL EXAM COVERING LECTURES 11 – 25**		**CNS**	