

Schedule for BME 6350

	Date	Topic	Due	Reading		
				Author	PMID	Title
1	Tuesday	Course overview				
2	Thursday	Intro - neurons and synapses	*			
3	Tuesday	Intro - neural circuits				
4	Thursday	Intro - classic methods	*			
5	Tuesday	Intro - neural coding				
6	Thursday	Tutorial for PS1 and PS2		Niell	18650330	Highly selective receptive fields in mouse visual cortex
7	Tuesday	Intro - fluorescence imaging				
8	Thursday	High-density electrodes	* PS1	Jun	29120427	Fully integrated silicon probes for high-density recording of neural activity
9	Tuesday	Mesoscale imaging				
10	Thursday	Two-photon microscopy	*	Svoboda	16772166	Principles of two-photon excitation microscopy and its applications to neuroscience
11	Tuesday	Flexible electrodes		Luan	37289556	Emerging penetrating neural electrodes: in pursuit of large scale and longevity
12	Thursday	Neural data analysis	* PS2	Lazebnik	12242150	Can a biologist fix a radio?
13	Tuesday	Quantifying behavior		Pereira	33169033	Quantifying behavior to understand the brain
14	Thursday	Prelim Exam	*			
	Tuesday	Fall break				
15	Thursday	Deep brain stimulation	*	Krauss	33244188	Technology of deep brain stimulation: current status and future directions
16	Tuesday	Viruses		Bedbrook	29709207	Viral strategies for targeting the central and peripheral nervous systems
17	Thursday	Tutorial for PS3	*	Schwartz	16889482	Spike-triggered neural characterization
18	Tuesday	Optogenetics		Boyden	16116447	Millisecond-timescale, genetically targeted optical control of neural activity
19	Thursday	Chemogenetics	*	Roth	26889809	DREADDs for neuroscientists
20	Tuesday	Transcranial magnetic stimulation		Hallett	17640522	Transcranial magnetic stimulation: a primer
21	Thursday	Ultrasound	* PS3	Rabut	33058769	Ultrasound technologies for imaging and modulating neural activity
22	Tuesday	Brain-machine interface		Ganguly	19621062	Emergence of a stable cortical map for neuroprosthetic control
23	Thursday	Brain-machine interface	*	Morgan stanley		Brain computer inerface primer: the next big medtech opportunity?
24	Tuesday	Brain-machine interface		Bensmaia	33230305	Restoration of sensory information via bionic hands
25	Thursday	Prelim Exam				
26	Tuesday	Neuroethics		Nature		Abandoned: the human cost of neurotechnology failure
	Thursday	Thanksgiving				
27	Tuesday	Final presentations	*			
28	Thursday	Final presentations	* FR			

* exercise at the end of class