CELLULAR AND MOLECULAR NEUROBIOLOGY (NBIO 722 and 723)				
SCHEDULE 2013-2014				
MWF 10-11:50 Neurosci Res Bldg 3rd Floor Conf Room (3118 NRB)				
				Last update: 7/15/2013
				Blue - no class/breaks/holidays. Red: Exams, Meetings.
FALL 2013				
BLOCK 1A: Neurobiology Bootcamp (722A)				
			Stuber, Ghukasyan, Fuchs, Brenman, Judson, Robinson, Sparta, Besheer	
August			**Sessions:**	**9**
	21	**W**	Judson	Neuronal Diversity in the CNS (molecular biology handout, problem set?)
	23	**F**	Robinson	Gross Brain Neuroanatomy
	26	**M**	Stuber	Functional mouse/rat brain neuroanatomy (Allen Brain Atlas)
	28	**W**	Brenman	Molecular Techniques for Neuroscience I
	30	**F**	Brenman	Molecular Techniques for Neuroscience II (Everyvector/Vector NTI)
September	**2**	**M**		**Labor Day NO Classes**
	4	**W**	Ghukasyan	Imaging Methods - I
	6	**F**	Ghukasyan	Imaging Methods - II (Image J)
	9	**M**	Fuchs	Statistics and Experimental Design for Neuroscience I
	11	**W**	Stuber/Sparta	Statistics and experimental design for neuroscience II (SPSS)
	16	**M**		REPORT DUE
BLOCK 1B: ELECTRICAL SIGNALING (722A)				
			***Manis, Frohlich, Smith, Sealock**	
			Note: Problem set Review sessions handled by TAs.	
			Sessions:	**10**
September	**13**	**F**	RS	Membrane Potentials, Nernst, GHK
	16	**M**	PBM	Resistance, Capacitance, passive membranes. Problem set #1 handed out.
	18	**W**	PBM	Electrophysiology toolbox: Current clamp, Voltage clamp, Boltzmann functions. Problem set #2 hande
	20	**F**	FF	Channels: Voltage dpendence, activation, inactivation, permeation
	23	**M**	FF	Action potential, Hodgin Huxley. Problem set #3 (action potentials) handed out.
	25	**W**	RS	Ion Channel Structures
	27	**F**	PBM	Propagation in axons: Problem set #4 handed out, plus MS in NIA
	30	**M**	PBM	Calcium Channels and excitability
October	**1**	**T**		Optional ephys demonstrations - Philpot, Kash, Manis, Stuber, Smith
	2	**W**	PBM	Potassium channels, Ih channels and intrisnic firing patterns,
	4	**F**	SS	Action potential initiation, dendritic excitability, backpropagation
	4	**F**		**TAKE HOME EXAM POSTED**
	4	**F**		***Noon meeting, faculty of Blocks 1 and 2**
	7	**M**		**no class exam day**
	7	**M**		**Exam due at 4 pm**
BLOCK 2: NEUROPHARMACOLOGY (722B)				
			***KASH, BRENMAN, HARDEN, NICHOLAS, WEISS, McELLIGOTT**	
			Sessions:	**10**
October	**9**	**W**	RN/EW	Intro to cell signaling; overview of G-protein coupled receptor superfamily (cut?)
	11	**F**	EW/RN	G Protein signaling
	14	**M**	EW/RN	Regulation of effectors by G proteins
	16	**W**	KH	Receptor Binding Theory, Ligand binding analysis
	18	**F**	KH	Ligand binding analysis continued
	21	**M**	ZM	Ionotropic glutamate receptors
	23	**W**	ZM	Metabotropic Glutamate Receptors
	25	**F**	TK	GABA-gated ion channels: pharmacology and molecular biology
	28	**M**	JB	Neurotransmitter receptor trafficking and localization (update material)
	30	**W**	TK	Neuromodulators: Release, Receptors, and Signaling
November	**1**	**F**		**TAKE HOME EXAM POSTED**
	1	**F**		***Noon meeting, faculty of Blocks 1 and 2**
	1	**F**		no class exam day
	4	**M**		Exam due at 4pm
BLOCK 3: SYNAPTIC TRANSMISSION AND PLASTICITY (722C)				
			***PHILPOT, CARELLI, KASH, MCCARTHY, WIGHTMAN, STUBER**	
			Sessions:	**10**
	4	M	KM	Ca signaling #1
	6	**W**	KM	Ca signaling #2
	8	**F**		NO CLASS SfN Meeting
	11	**M**		NO CLASS SfN Meeting
	13	**W**		NO CLASS SfN Meeting
	15	**F**	TK	Electrophysiological analysis of neurotransmitter release , Problem Set 1
	18	**M**	TK	Molecular mechanisms of neurotransmitter release
	20	**W**	TK	Uniquantal and multiquantal release in the CNS, Problem set 1 discussion
	22	**F**	TK	Modulation of release; short-term plasticity, retrograde signaling
	25	**M**	RMW/GS	Approaches to assessing transmitter release
	27	**W**	BP	Synaptic plasticity: introduction to LTP and LTD
	29	**F**		**NO CLASS Thanksgiving Holiday**
December	**2**	**M**	BP	Synaptic plasticity: expression and maintenance of LTP and LTD
	4	**W**		
	6	**F**		TAKE HOME EXAM POSTED
	6	**F**		Noon meeting, faculty of Blocks 3 and 4
	9	**M**		Exam due at 4pm

SPRING, 2014				
BLOCK 4: DEVELOPMENT OF THE NERVOUS SYSTEM (723A)				
			***CREWS, MANESS, ANTON, DESHMUKH**	
			Sessions:	**9**
January	**8**	**W**	SC	Genetic switches and the generation of neuronal diversity I
	10	**F**	SC	Genetic switches and the generation of neuronal diversity II
	13	**M**		Mammalian neurogenesis
	15	**W**		Neural Stem Cells
	17	**F**	EA	Neuronal Migration
	20	**M**		**No class - MLK HOLIDAY**
	22	**W**	EA	Glial Development
	24	**F**	PFM	Molecular Control of Axon Guidance
	27	**M**	PFM	Development of Topographic Maps
	29	**W**	MD	Neuronal cell death and neurotrophin function during development
	31	**F**	PFM	Synaptic Adhesion Molecules: Neurexins and Neuroligins
February	**3**	**M**	PFM	Synaptic Adhesion Molecules: the LRR superfamily
	3	**M**		**TAKE HOME EXAM BLOCK 4 POSTED**
	5	**W**		***noon meeting, faculty of Blocks 4 and 5**
	5	**W**		**No class -- exam day**
	6	**Th**		**TAKE HOME EXAM BLOCK 4 DUE 4 PM**
BLOCK 5:		**CNS: ANATOMY AND FUNCTION OF SENSORY AND MOTOR SYSTEMS (723B)**		
			***ZYLKA, FITZPATRICK, MANIS, SNIDER, STUBER, PHILPOT, WEISS, STREET CHENEY**	
			Sessions:	**17**
	7	**F**	EW	Vertebrate Retina
	10	**M**	EW	Phototransduction: cGMP channels, adaptation, rhodopsin shutoff
	12	**W**	BP	Organization and basic function of primary visual cortex
	14	**F**	BP	Visual cortex function and processing: lessons from modern methods
	17	**M**	RC	Mechanosensory channels: transduction
	19	**W**	RC	Mechanosensory channels: adaptation; freq tuning
	21	**F**	MZ	Pain - Peripheral mechanisms
	24	**M**	MZ	Pain - Central mechanisms
	26	**W**	MZ	Touch and the somatosensory cortex
	28	**F**	WS	Motor Cortex and Cerebellum
March	**3**	**M**	WS	Spinal circuits and central pattern generating motor units
	5	**W**	GDS	Neurocircuitry of the Basal Ganglia
	7	**F**	PBM/DCF	Hearing: The eighth nerve and cochlear nucleus
	10			No class - Spring Break
	12			No class - Spring Break
	14			No class - Spring Break
	17	**M**	DCF	The auditory brainstem, coincidence detection
	19	**W**	PBM/DCF	Auditory Cortex
	21	**F**	SS	Sensory organs: Taste
	24	**M**	SS	Sensory pathways: Olfaction
	24	**M**		**TAKE HOME EXAM BLOCK 5 POSTED**
	26	**W**		***noon meeting, faculty of Blocks 5 and 6**
	26	**W**		**No class - exam day**
	27	**Th**		**TAKE HOME EXAM BLOCK 5 DUE 4 PM**
BLOCK 6:		**CNS:NEUROBIOLOGICAL DISORDERS AND DISEASE (723C)**		
			***SNIDER, DICHTER, GILMORE, FROHLICH, STUBER, ZYLKA, PIVEN**	
			Sessions:	**11**
	28	**F**	GS	Obesity and Eating Disorders
	31	**M**	GS	Addiction
April	**2**	**W**	GS	Fear and Anxiety
	4	**F**	FF	Epilepsy as a brain network disorder
	7	**M**	GD	Imaging of the CNS 1
	9	**W**	GD	Imaging of the CNS 2
	11	**F**	JP	Autism
	14	**M**	MZ	Molecular Genetics of Austism Spectrum Disorders
	16	**W**	JG	Schizophrenia
	18	**F**		No Class - Holiday
	21	**M**	WS	Alzhheimer's
	23	**W**	WS	ALS and Parkinsons
	25	**F**	WS	Regeneration
	25	**F**		**TAKE HOME EXAM BLOCK 5 POSTED**
	28	**M**		**TAKE HOME EXAM BLOCK 5 DUE 4 PM**