

SYSTEMS NEUROSCIENCE (FALL 2018)

[Neurobio 208 and Anat 210]

Neurobio 208 is required for 1st year graduate students in Neurobiology and Behavior and serves as “S” area core courses for the INP. Anat 210 is open to all graduate students in Anatomy and Neurobiology. Graduate students from other departments may enroll in either Neurobio 208 or Anat 210 with permission from the course director, Dr. Ron Frostig.

Time/place: 9:00-10:20AM, MWF in MH 2246

Text: *Neuroscience*, 6th Edition, Purves, D. *et al.* (Eds.) Sinauer, 2017. The instructors will distribute other readings.

Exams and grading: The final grade will be based on performance on the midterm exams. The instructor for that section will announce the format of each exam. Exams will be predominately essay. There will be **no** cumulative final exam, and grades will be normalized to the number of lectures leading to the midterm. Final grade will be based on averaging of all midterms.

Participating Faculty:

<u><i>Neurobiology & Behavior</i></u>	<u><i>Anatomy & Neurobiology</i></u>
Ron Frostig, director	Steve Cramer
Steve Mahler	

Fall 2018

Date	Topic	Instructor	Readings (in text unless noted)
Fri 9/28	Principles of Brain Organization	Mahler	https://my.rocketmix.com/enrollcourse.aspx?courseid=3087 --Please enroll in this and look at it BEFORE CLASS Other helpful resources: http://zoomablebrain.bio.uci.edu/ http://www.exploratorium.edu/memory/braindissection/
Mon 10/1	Neuroanatomy-Dissection	Mahler	William James, 1890, chapter 2 (http://psychclassics.yorku.ca/James/Principles/prin2.htm)
Wed 10/3	Introduction to sensory systems	Frostig	
Fri 10/5	The eye: structure and function	Frostig	Ch.11
Mon 10/8	The eye: structure and function	Frostig	Ch.11
Wed 10/10	Central visual pathways I	Frostig	Ch.12
Fri 10/12	Central visual pathways II	Frostig	Ch. 27

Mon 10/15	Plasticity in the visual system	Frostig	Ch. 25
Wed 10/17	Discussion: visual system	Frostig	
Fri 10/19	1-st Midterm	Frostig	
Mon 10/22	Somatosensory system	Frostig	Ch. 9
Wed 10/24	Plasticity in the somatosensory system	Frostig	Ch. 9
Fri 10/26	Auditory system I	Frostig	Ch.13
Mon 10/29	Auditory system II	Frostig	Ch. 13
Wed 10/31	Discussion Somato/Auditory	Frostig	
Fri 11/2	2-nd Midterm	Frostig	
Mon 11/5	No Class No class – SFN meeting		
Wed 11/7	No class – SFN meeting		
Fri 11/9	Motor systems: organization, motoneurons, spinal cord, supraspinal controls	Cramer	Ch. 16 & Ch. 17, pp. 375-380
Mon 11/12	No class- Veterans Day		
Wed 11/14	Motor, premotor cortex	Cramer	Ch. 17, pp. 380-397
Fri 11/16	Basal Ganglia Cerebellum & brainstem postural controls	Cramer	Ch. 18
Mon 11/19	Cerebellum & brainstem postural controls	Cramer	Ch. 19
Wed 11/21	3-rd midterm	Cramer	
Fri 11/23	No class- Thanksgiving		

Mon 11/26	Prefrontal Cortex 1:Structure, Function 1:Structure, Function	Mahler	Miller & Cohen. An integrative theory of prefrontal cortex function. Annu. Rev. Neurosci. 2001. 24:167-202
Wed 11/28	Prefrontal Cortex 2: Consciousness and other functions	Mahler	Crick & Koch. What is the function of the claustrum? Phil. Trans. R Soc. B 2005. 360,1271-1279 Baizer et al., 2014. Comparative organization of the claustrum: What does structure tell us about function?
Fri 11/30	Modulatory Systems-Theory and the Clinic	Mahler	Nutt et al., 2015 The dopamine theory of addiction: 40 years of highs and lows Berridge, Robinson 2016. Liking, wanting, and the incentive-sensitization theory of addiction
Mon 12/3	Modulatory Systems 1	Mahler	Purves Ch.6
Wed 12/5	Modulatory Systems 2	Mahler	Trillo et al 2013. Ascending monoaminergic systems alterations in Alzheimer's disease. Translating basic science into clinical care
Fri 12/7	4-th Midterm	Mahler	