Honors Functional Neuroanatomy
UHC NROSCI 1013, Graduate 2011
Fall 2019, Detailed Syllabus

Description: Honors Functional Neuroanatomy will examine in detail current knowledge of the structure and function of the human nervous system and how circuits directly contribute to human behavior. Students will learn how structure forms the basis for function and how precision in comprehending and articulating detailed information is vital for expertise in neuroscience. Subjects to be covered include: neurocytology, development, gross structure, sensory systems, motor control, and integrative neural systems. The material will also be considered for how alterations in structure and function contribute to neurological and psychiatric disorders.

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Class: ***Class*** is held four times per week in L9 Clapp Hall: M-W-F from 10:00-10:50 AM plus an additional hour on Wednesday from 11:00-11:50 AM.

An ***optional recitation*** is offered by the Undergraduate Teaching Assistants on Tuesdays starting Sept 3rd from 5:30-6:30 PM in 219B Langley Hall.

Optional ***exam reviews*** will be held by the Graduate Teaching Assistant usually two nights before each exam. Please see CourseWeb for the detailed schedule.

Grading: Students are responsible for ***all*** material presented in **lectures**. Most exam questions come from the **handouts** for each lecture, but additional questions come from the lectures themselves. There are **5 non-cumulative exams, each worth 20%** of the grade. Four exams are given during the scheduled class time, and the fifth exam is given during finals week.

Students in the Graduate 2011 course: The 5 exams count for 80% of your grade. The remaining 20% requires submission of a paper by the end of class, December 6th. Please see Dr. Sesack for further instructions on the paper.

Recommended Textbook (not required) Brodal, *The Central Nervous System, Structure and Function, 4th ed*

Internet Neuroanatomy Sites (*all were working on August 22nd 2019)*

Neurology, Neuroscience & Neurosurgery Master Website
http://www.ucl.ac.uk/ion/library/lib-info/neurology/#history

Blood Supply
http://www.csus.edu/indiv/m/mckeoughd/AanatomyRev/VascSys/Schematic/CerebAsSchematic.htm
http://www.youtube.com/watch?v=cq8PPqUDTSo (Part 1 of 11 part video; need to watch them all)

Cranial Nerves
http://medicine.yale.edu/cranialnerves/

Embryology, including neuroembryology
http://embryology.med.unsw.edu.au/

History of Neuroscience - Milestones in Research
http://faculty.washington.edu/chudler/hist.html

Neuroanatomy Collection
http://neuroanatomy.bsd.uchicago.edu/

Neuroanatomy Tutorial
http://library.med.utah.edu/WebPath/HISTHTML/NEURANAT/NEURANCA.html

Neuron Wikipedia
http://en.wikipedia.org/wiki/Neuron

Neurophysiology Virtual Lab
http://www.hhmi.org/biointeractive/neurophysiology-virtual-lab

Neuroscience for Kids
http://faculty.washington.edu/chudler/neurok.html

Organization of the Retina and Visual System
http://webvision.med.utah.edu

Retinal Receptive Fields and Other Animated Tutorials
http://www.sumanasinc.com/webcontent/animations/neurobiology.html

Synapse Web (electron microscopic and 3D rendering of cellular elements in the nervous system)
http://synapses.clm.utexas.edu/

From Patty Reagan - needs to be purchased for full capacity
https://www.drawittoknowit.com/

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Each block has 7 lectures, with some of the titles below counting as multiple lectures. Please note that new lectures started in the class just before an exam are usually not on that exam.

Dates with no lectures:

September 2nd	Labor Day
October 21st	SFN Meeting
October 23rd	SFN Meeting
November 25th	Thanksgiving recess
November 27th	Thanksgiving recess
November 29th	Thanksgiving recess

Other important dates:

September 6th	Fall term add/drop period ends
October 25th	Fall term deadline for monitored withdrawal
December 12th	Final Exam 12:00-1:50 PM

Block 1
August 26th - September 11th
Exam Review on Sept 11th at ??
EXAM 1 on September 13th at 10:00 AM
Chapters in Brodal: 1-4, 6, 9, 27 (5 optional)
Neurocytology and Simple Circuits (2)
Methods for Studying the Nervous System
Neuroembryology
Gross Structure: Spinal Cord
Gross Structure: Brainstem
Gross Structure: Higher Centers

Block 2
September 11th - September 30th
Exam Review on September 30th at ??
EXAM 2 on October 2nd at 10:00 AM (NOTE: Exam at 10:00, Lecture at 11:00)
Chapters in Brodal: 7, 8, 12-15, 17, 18
Gross Structure: Support and Circulation
Introduction to Sensory Systems, Somatosensory Receptors and Receptive Fields (2)
Ascending Somatosensory Pathways: Dorsal Column and Spinothalamic Tract (2)
Vestibular and Auditory Systems (guest lectures, Yates)(2)

Block 3
October 2nd - 18th
Exam Review on October 24th at ??
EXAM 3 on October 25th at 10:00 AM
Chapters in Brodal: 16, 19-22
Visual System (3)
Olfactory System
Introduction to Motor Systems
Spinal Reflexes and Descending Brainstem Pathways (2)

Block 4
October 28th - November 11th
Exam Review on November 11th at ??
EXAM 4 on November 13th at 10:00 AM (NOTE: Exam at 10:00, Lecture at 11:00)
Chapters in Brodal: 22-25, 28, 29
Eye Movements (guest lecture, Yates)
Descending Pathways for Voluntary Movement
Basal Ganglia (1.5)
Cerebellum (1.5)
Autonomic Nervous System (2)

Block 5
November 13th - December 6th
Exam Review on December 10th at ??
EXAM 5 on December 12 th at 12:00-1:50 PM
Chapters in Brodal: 10, 11, 26, 30-34
Hypothalamus
Reticular Formation and Regulation of Conscious States (1.5)
Limbic Circuitry
Hippocampus
Cerebral Cortex
Cognitive and Neurodegenerative Disorders
Plasticity and Regeneration in the Nervous System