NRO C69F The Synaptic Organization of the Brain

Fall, 1998; Room H402; F 1-3 p.m.
Instructor: Professor Gwen O. Ivy
Office: S-569, Phone 287-7438
Office Hours: T 5-6, TH 6-7, F 3-4 or by appointment

Course Description

Synaptic organization may be defined as the study of principles underlying the organization of neurons and synapses into circuits that mediate the functional operations of different brain regions. It is a multidisciplinary subject, requiring the integration of results from studies in molecular neurobiology, neuroanatomy, neurophysiology, neurochemistry, neuropharmacology, development and behavior, as well as theoretical studies of computational neural models and neuronal networks. It is also a multilevel subject, beginning with the properties of the individual synapse and building up through microcircuits and neurons to the local circuits characteristic of a given region and finally, to the interactions between various circuits that form a given system.

Text

The Synaptic Organization of the Brain. Fourth Edition. Gordon M. Shepherd (ed.), Oxford University Press, New York, 1998.

Organization

The course will meet weekly for two hours and will consist of lectures by the instructor and extensive class discussions. The textbook will be the major source of information, supplemented by illustrations and concepts provided by the instructor in class.

EVALUATION

Midterm Exams - **Oct. 16**, H214, 5-7 p.m.;	20%
Nov. 13, S128, 5-7 p.m.	20%
(multiple choice, short answer, label diagrams, draw circuits)	
Final Exam - Final exam period, TBA	30%
(same format as midterm; emphasis placed on material after midterm)	
*Quizzes in class (surprise!) and take-home	10%
Term Paper - Due Dec. 11 (Last day of class)	20%
Ten pages, topic of your choice approved by instructor	

* There are no "make up" quizzes without a doctor's note or other valid document. This is to encourage you to attend class and participate.

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Schedule of Topics

DATE :			TOPIC :
F	Sept.	18	Introduction to the course Begin Chapter 1: Introduction to synaptic circuits
F		25	Chapter 1
F	Oct.	2	Chapter 1; begin Chapter 2: Membrane properties and neurotransmitter actions
F	Oct.	9	Chapter 2: (cont'd.)
F		16	Chapter 2 : (cont'd.)
F		23	Chapter 5: Olfactory Bulb
F		30	Chapter 5 : (cont'd.)
F	Nov.	6	Chapter 7: Cerebellum
F		13	Chapter 7: Cerebellum (cont'd.)
		20	Chapter 11: Hippocampus
		27	Chapter 11: Hippocampus (cont'd.)
F	Dec.	4	Chapter 12: Neocortex
F	Dec.	11	Chapter 12: Neocortex (cont'd.) Last Day of Classes