

PSY C69S The Synaptic Organization of the Brain

Spring, 1997; Room S357; Th: 3-5 p.m.

Instructor: Professor Gwen O. Ivy

Office: S-569, Phone 287-7438

Office Hours: T 1-2, W 2-3, TH 5-6, 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. Third Edition. Gordon M. Shepherd (ed.), Oxford University Press, New York, 1990.

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 Exam - Feb. 27, 3-5 pm, S-357 (multiple choice, short answer, label diagrams, draw circuits)	30%
Final Exam - Final exam period, TBA (same format as midterm; emphasis placed on material after midterm)	40%
Quizzes in class (surprise!) and take-home	10%
Term Paper - Due April 11 Ten pages, topic of your choice approved by instructor	20%
Critique - Due at time of final exam, five pages minimum On Rakic's theory of neocortical parcellation of columns during development and its relevance for cortical neuroplasticity. Article placed on reserve in library.	10%

* 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.

1997 PSY C69S Schedule of Topics

DATE :	TOPIC :
January 9	Introduction to the course Begin chapter one : Introduction to synaptic circuits
16	Finish chapter one, begin chapter two : Membrane properties and neurotransmitter actions
23	Chapter two, continued
30	Chapter two, continued
February 6	Chapter five, Olfactory Bulb
13	Olfactory Bulb, continued
20	READING WEEK! NO CLASS!
27	MIDTERM EXAM
March 6	Chapter seven, Cerebellum
13	Cerebellum, continued
20	Chapter eleven, Hippocampus
27	Hippocampus, continued
April 3	Chapter twelve, Neocortex
10	Neocortex, continued