COURSE SYLLABUS
PSCHOLOGY B60F: BRAIN MECHANISMS AND BEHAVIOR

Fall 1994

Instructor: N. W. Milgram
Office Hours - Wednesday 11-1:00
Teaching Assistants:
Elizbeth Head
Room S-516
287-7402
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Room S-150
287-7449

Lectures:	Monday	10-11	H215
	Wednesday	10-11	S319
	Friday	10-11	H215
Labs	Tuesday	2-4	S240
	Wednesday	7-9	S237
	Friday	12-2	S237

Course Description:

This course is intended to provide students with the basic introductory background necessary for pursuing more advanced courses in the Neurosciences. Lecture topics include:

1. Introduction
2. Gross anatomy of nervous system
3. Structure and biology of nervous system cells.
4. Non neural cells and structures
5. Physiology of neurons
6. Intracellular communication
7. Neuroregulator systems

The labs will cover gross and cellular anatomy and will include a sheep brain dissection and histological examination of nervous system tissue. Students are suggested to bring their own dissecting equipment.

Grading:

Midterm Exams (1): 30%
October 28- Lectures, Text - chapters 1,2,3,4, + Readings

Lab Exams (2): 25% (12.5% each T.B.A)

Final Exam 45%

The midterm and final exams will be a combination of objective (multiple choice and fill in the blanks) and short answer questions. The questions will be based on all assigned material including lectures, lecture notes, and assigned readings. The final exam will include everything covered during the entire course, but the material in the second half of the course will be more heavily weighted.

The lab exams will include identification (bell ringer) and written components.
The exams will be held during regularly scheduled lecture periods.

Course Materials

Lecture Notes: (Can be purchased at cost)

Assigned Scientific American Readings:

1. Raichle, M.E. Visualizing the mind. 1994, 270,58-65.
2. Cowan, W.M. The development of the brain. 1979, (September), 112-133.
3. Selkoe, D.J. Amyloid protein and Alzheimer's disorder. 1991 (November).
4. Goldstein, G.W., & Betz, A.L. The blood-brain barrier. February, 1993.
5. Neher, E. & Sakmann, B. The patch clamp technique. 1992, (March), 44-51.
6. Carmichael, S.W., & Winkler, H. The adrenal chromaffin cell. 1985, 253, 40-49.
7. Linder, M.E. & Gilman, A.G. G proteins. 1992 (July).
8. Snyder, S.H. & Bredt, D.S. Biological roles of nitric oxide. 1992, (May), 68-77.
9. Gottlieb, D.I. GABAergic neurons. 1988, 258, 82-89.

SCHEDULE

Date	Lecture Topic	Assigned Readings
Sept		
12	Introduction	Notes, Chapter 1
14	What is Neuroscience? Gross Anatomy	Raichle
16	Gross Anatomy	Cowan
19	Functions of nervous system	
21	Structure of Neurons	Notes, Chapter 2
23	Cell Biology of Neurons	
26	Cell Biology of Neurons	Selkoe
28	Cell Membrane	
30	Cytoskeleton	
Oct		
3	Astrocytes, Oligodendrocytes	Notes, Chapter 3 Goldstein & Betz
5	Microglia, Ventricles	
7	Blood supply brain imaging techniques	
10	*Thanksgiving, no classes*	
12	Neurophysiology: History	Notes: Chapter 4
14	Membrane potentials	
17	Membrane potentials	
19	Action potential	
21	Action potential mechanisms	Neher and Sackmann
24	Ion Channels	
26	Review	
	28 First Midterm exam	
31	Extracellular recording	
NOV		
2	Synaptic structure	Notes: Chapter 5
4	Synaptic transmission	

7	Quantal analysis	
9	Transmitter release mechanisms	
11	Signal transduction mechanisms	Lindner & Gilman
	Classes cancelled on week of NOV 14 - Neuroscience Society Meeting	
21	Signal transduction mechanisms	
23	Non synaptic transmission	Synder & Brett
25	Neuroregulators	Notes: Chapter 6
28	Acetylcholine	
30	Biogenic amines	Carmichael & Winkler
DEC 2	Biogenic Amines	
5	Amino Acids	Gottlieb
7	Neuropeptides	
9	Review	