

***NRO B60F***  
***1998***  
***NEUROSCIENCE I: CELL ANATOMY AND PHYSIOLOGY***

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- Professor:** Dr. Gwen O. Ivy
- Office:** S569
- Office Hours:** Tuesday: 5-6 p.m.; Thursday: 6-7 p.m.; Friday: 3-4 p.m.
- Phone:** 287-7438
- Textbook:** Neuroscience by D. Purves, et al (eds).  
May be purchased in the bookstore
- Lab Text:** The Sheep Brain: A Photographic Series by C.H. Van derwolf and  
Richard K. Cooley (May be purchased in the bookstore).
- Lectures:** T 4-5 p.m. S143  
R 4-6 p.m. S125
- Labs:** P0001 T 2-4 p.m. S227 TA: Joanne Karalis  
P0002 W 7-9 p.m. S227 TA: John Mielke  
P0003 F 10-12 noon S227 TA: Mike Michael  
P0004 F 12-2 p.m. S227 TA: Joanne Karalis

***Course Description***

This course is really a fairly sophisticated introduction to the field of neuroscience; a virtual springboard from which to enter all of the other Neuroscience courses in our program. As well, this course can provide a physiological foundation for many of our psychology courses. We will cover the gross as well as cellular structure and function of the nervous system in depth. In particular, we will study the cellular and molecular biology of nervous system cells: neurons, glial cells, meninges, choroid plexus, blood brain barrier, ventricular and vascular systems.

We will explore neuronal physiology at the cell and molecular levels in order to better understand the complex mechanisms of intercellular communication in the nervous system, including neuroregulator systems. Finally, we will briefly cover the development and plasticity of the vertebrate nervous system.

The laboratory will cover gross and cellular anatomy of the nervous system. Sheep brains will be dissected and a wide variety of nervous system structures will be examined in 3-D. The fine histology and function of several systems, as well as several neuroanatomical techniques will be discussed and/or demonstrated. Students should bring their own dissecting equipment. The labs may also include discussion of scientific articles to be handed out at appropriate times.

### ***Grading***

Midterm Exams: Multiple Choice, Short Answer

Midterm 1                      Wednesday, October 7      Room S128, S143      5-7 p.m.  
15%                              (material covered to date)

Midterm 2                      Friday, November 13      Room S309, S319      5-7 p.m.  
15%                              (material covered since midterm 1)

Lab Exam 1                      Week of October 26                      Rooms S240/242/248/250      5-7 p.m. (Tentative)  
15%                              (material covered to date; see lab handout; Bell ringer lab practical as well as short answer written)

Lab Exam 2                      Week of December 1                      Rooms S240/242/248/250      5-7 p.m. (Tentative)  
15%                              (Comprehensive, with emphasis on material covered since 1st Lab Exam)

Final Exam                      Multiple choice, short answers  
40%                              3 hours during Final Exam Period, TBA  
   [Comprehensive from lectures and text (not from Labs)]

**Itinerary - NRO B60F**

T	Sept. 15	Introduction to course; no labs this week.
R	Sept. 17	Chapter 1: The Organization of the nervous system.
T	Sept. 22	Chapter 1 (cont'd.)
R	Sept. 24	Chapter 2: Electrical Signals of Nerve Cells
T	Sept. 29	Chapter 2 (cont'd.)
R	Oct. 1	Chapter 2 (cont'd.)
T	Oct. 6	Chapter 3: Voltage-Dependent Membrane Permeability
R	Oct. 8	Chapter 3 (cont'd.)
T	Oct. 13	Chapter 3 (cont'd.)
R	Oct. 15	Chapter 4: Channels and Pumps
T	Oct. 20	Chapter 4 (cont'd.)
R	Oct. 22	Chapter 4 (con'td.)
T	Oct. 27	Chapter 5: Synaptic Transmission
R	Oct. 29	Chapter 5 (cont'd.)
T	Nov. 3	Chapter 5 (cont'd.)
R	Nov. 5	Chapter 6: Neurotransmitters
T	Nov. 10	Chapter 6 (cont'd.)
R	Nov. 12	Chapter 6 (cont'd.)
T	Nov. 17	Chapter 7: Neurotransmitter Receptors and Their Effects

R	Nov. 19	Chapter 7 (cont'd.)
T	Nov. 24	Chapter 7 (cont'd.)
R	Nov. 26	Chapter 20: Early Brain Development
T	Dec. 1	Chapter 20 (cont'd.)
R	Dec. 3	Chapter 20 (cont'd.)
T	Dec. 8	Chapter 22: Modification of Developing Brain Circuits by Neural Activity
R	Dec. 10	Chapter 22 (cont'd.)
F	Dec. 11	<i>Last Day of Classes</i>