

**NRO B60F**  
**1999/2000**

**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.; or by appointment
- 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. S128
- Labs:** P0001 T 2-4 p.m. S227 TA: Mani Vessal  
P0002 W 7-9 p.m. S227 Janelle LeBoutillier  
P0003 F 10-12 noon S227 John Mielke

***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 Exam: Multiple Choice, Short Answer

Midterm 30% Week of October 25, 1999 Room S128, S143 5-7 p.m.  
(material covered to date)

Lab Exam 1 20% Week of November 1, 1999 Rooms S240/242/248/250 5-7 p.m. (Tentative)  
(material covered to date; see lab handout; Bell ringer lab practical as well as short answer written)

Lab Exam 2 10% Week of November 29, 1999 Rooms S240/242/248/250 5-7 p.m. (Tentative)  
(Comprehensive, with emphasis on material covered since 1st Lab Exam)

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

**Itinerary - NRO B60F**

|   |          |  |
|---|----------|--|
| T | Sept. 14 | Introduction to course; no labs this week.               |
| R | Sept. 16 | Chapter 1: The Organization of the nervous system.       |
| T | Sept. 21 | Chapter 1 (cont'd.)                                      |
| R | Sept. 23 | Chapter 2: Electrical Signals of Nerve Cells             |
| T | Sept. 28 | Chapter 2 (cont'd.)                                      |
| R | Sept. 30 | Chapter 2 (cont'd.)                                      |
| T | Oct. 5   | Chapter 3: Voltage-Dependent Membrane Permeability       |
| R | Oct. 7   | Chapter 3 (cont'd.)                                      |
| T | Oct. 12  | Chapter 3 (cont'd.)                                      |
| R | Oct. 14  | Chapter 3 (cont'd.) and<br>Chapter 4: Channels and Pumps |
| T | Oct. 19  | Chapter 4 (cont'd.)                                      |
| R | Oct. 21  | Chapter 4 (cont'd.)                                      |
| T | Oct. 26  | Chapter 5: Synaptic Transmission                         |

***Week of Midterm Exam, Chapters 1 - 4, 30% of grade***

|   |         |                     |
|---|---------|---------------------|
| R | Oct. 28 | Chapter 5 (cont'd.) |
| T | Nov. 2  | Chapter 5 (cont'd.) |

***Week of Lab Exam 1, 20% of grade***

|   |        |                              |
|---|--------|------------------------------|
| R | Nov. 4 | Chapter 6: Neurotransmitters |
| T | Nov. 9 | Chapter 6 (cont'd.)          |

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|---|---------|---|
| R | Nov. 11 | Chapter 6 (cont'd.)                                     |
| T | Nov. 16 | Chapter 7: Neurotransmitter Receptors and Their Effects |
| R | Nov. 18 | Chapter 7 (cont'd.)                                     |
| T | Nov. 23 | Chapter 7 (cont'd.)                                     |
| R | Nov. 25 | Chapter 20: Early Brain Development                     |
| T | Nov. 30 | Chapter 20 (cont'd.)                                    |

***Week of Lab Exam 2, 10% of grade***

|   |              |  |
|---|--------------|--|
| R | Dec. 2       | Chapter 20 (cont'd.)                                       |
| F | Dec. 6       | <b><i>Last Day of Classes</i></b>                          |
|   | Dec. 13 - 21 | <b><i>Final Exam Period, date TBA<br/>40% of grade</i></b> |