

# BIOL 447 & 647, Neurophysiology Fall 2006

## OBJECTIVES OF THIS COURSE:

An exploration into the basic concepts related to the activity of the nervous system. This course will focus on electrical and chemical signaling within the nervous system and the ability to control and regulate other physiologic systems. Three class hours, three laboratory hours.

## PREREQUISITES:

**BIO 203** Principles of Biology: Molecules, Cells, Development  
\*or permission of Instructor

## INSTRUCTOR:

John D. Griffin, Ph.D., Associate Professor

**Office:** Room 202, Millington Hall (Research Lab, Room 9)  
**Telephone:** 221-2257  
**E-mail:** [jdgr2@wm.edu](mailto:jdgr2@wm.edu)

## OFFICE HOURS:

Monday	10:00am	-	12:00pm
Wednesday	10:00am	-	12:00pm
Friday	10:00am	-	12:00pm

## LECTURES:

### Millington Hall, Room 117

Monday	9:00am	-	9:50am
Wednesday	9:00am	-	9:50am
Friday	9:00am	-	9:50am

## **LABS:**

### **Millington Hall, Room 315**

Section 01: Tuesday 9:30am - 12:20pm  
Section 02: Tuesday 1:00pm - 3:50pm

## **TEXTS & MATERIALS:**

### Required:

Mathews, G.G., Neurobiology, 2<sup>nd</sup> Edition, Blackwell Science Inc. Malden, MA 2001.  
ISBN # 0-632-04496-9

Text Website: <http://www.blackwellpublishing.com/matthews/>

### CourseInfo Website:

[http://blackboard.wm.edu/webapps/portal/frameset.jsp?tab=courses&url=%2Fbin%2Fcommon%2Fcourse.pl%3Fcourse\\_id%3D\\_3113\\_1](http://blackboard.wm.edu/webapps/portal/frameset.jsp?tab=courses&url=%2Fbin%2Fcommon%2Fcourse.pl%3Fcourse_id%3D_3113_1)

### Required Technology:

eInstruction **RF** Response Pad (Classroom **P**articipation **S**ystem (CPS) pads – **RF**)

### Optional Multimedia:

ADAM Interactive Physiology Website Subscription: <http://www.interactivephysiology.com>  
(A link is provided on the CoursInfo Website.)

## **REQUIREMENTS:**

### **Attendance:**

Class attendance is expected.

### **Makeup work:**

Except in extreme cases, please inform me prior to your absence, so that we may decide on the proper way for you to make up the missed work.

### **Academic Honor:**

Any violation of the William and Mary Honor Code will be reported. Bottom Line.....Don't do it.

### **Tape Recorders:**

Unless a student has a documented learning disability, tape recorders are not allowed.

### **Grading:**

Participation in classroom discussions is expected and will be part of the final grading for

this class. Students are expected to be able to convey their thoughts in class and may be called on at any time. Bottom line.....be prepared for the topics to be discussed in class. (DO THE READING!) I reserve the right to give a pop quiz if I feel one is needed.

There will be three midterm exams, as noted in the course outline. Each is worth 20% of your final grade. The Final Exam, will be given during final exam week and is worth 22% of your final grade for the course. 3% of your grade will dependent on your participation on the creation of review questions. The remaining 15% will be based on your lab assignments and participation.

**Grading Scale:**

A: 92 - 100	C+: 77 - 79.9
A-: 90 - 91.9	C: 70 - 76.9
B+: 87 - 89.9	D+: 67 - 69.9
B: 82 - 86.9	D: 60 - 66.9
B-: 80 - 81.9	F: less than 60

**COURSE OUTLINE:**

<u>Date:</u>	<u>Topics:</u>	<u>Chapter</u>	<u>Pages</u>
8/30	Course Introduction	-----	-----
9/01	A Preview...	1	1 – 19
9/04	Organization of the Nervous System	2	20 – 35
9/05	No Labs		
9/06	Fluids & the Plasma Membrane	3	39 – 49
9/08	The Membrane Potential	3	49 – 65
9/11	The Action Potential	4	66 – 78
9/12	Introductory Lab		
9/13	Cellular Mechanisms & Propagation	4	78 – 91
9/15	Review		
9/18	Exam I		
9/19	Neuromuscular Lab #1		
9/20	The Neuromuscular Junction, Part 1	5	92 – 106
9/22	The Neuromuscular Junction, Part 2	5	106 – 113
9/25	CNS Synapses	6	114 – 135
9/26	Neuromuscular Lab #2		
9/27	Motor Control, Part 1	7	138 – 151
9/29	Motor Control, Part 2	7	151 – 163
10/02	Spinal Motor, Part 1	8	164 – 179
10/03	Neuromuscular Lab #3		
10/04	Spinal Motor, Part 2	8	179 – 187
10/06	Brain Motor, Part 1	9	188 – 201
10/09	Brain Motor, Part 2	9	201 – 209
10/10	Neuromuscular Lab #4		
10/11	Review		
10/13	Exam II		
10/16	Fall Break		
10/17	Fall Break		
10/18	Sensory Systems	13	282 – 297
10/20	Somatic Senses	14	298 – 317
10/23	Retina, Part 1	15	318 – 332

10/24	Sensory Lab #1		
10/25	Retina, Part 2	15	332 – 351
10/27	Higher Visual Processing, Part 1	16	352 – 368
10/30	Higher Visual Processing, Part 2	16	368 – 378
10/31	Sensory Lab #2		
11/01	Hearing & Vibration, Part 1	17	379 – 392
11/03	Hearing & Vibration, Part 2	17	392 – 401
11/06	Chemical Senses, Part 1	18	402 – 413
11/07	Sensory Lab #3		
11/08	Chemical Senses, Part 2	18	413 – 425
11/10	Review		
11/13	Exam III		
11/14	Saccades & Polygraph Lab		
11/15	Sensorimotor Integration, Part 1	10	210 – 226
11/17	Sensorimotor Integration, Part 2	10	226 – 235
11/20	ANS – Heart	11	236 – 250
11/21	ANS Lab #1		
11/22	Thanksgiving Break		
11/24	Thanksgiving Break		
11/27	ANS – Preganglionic	11	250 – 258
11/28	ANS Lab #2		
11/29	Respiration, Part 1		ADAM CD Rom
12/01	Respiration, Part 2		ADAM CD Rom
12/04	The Hypothalamus, Part 1	12	259 – 269
12/05	ANS Lab #3		
12/06	The Hypothalamus, Part 2	12	269 – 279
12/08	Review		

Final Exam (During Exam Period)