

## **COURSE INFORMATION**

Course Number/Name	Biology 4300/5300 Neurobiology
Section	1
Date/Time/Location	Fall 2009/TTh 11-12:20/SUPP 116
Professor Name/Office – telephone/e-mail-	Dr. Dana M. García/ 112 SUPP 245-3368/ dana_garcia@txstate.edu
Webpage	www.bio.txstate.edu/~garcia/garcia.htm

## **COURSE DESCRIPTION**

In this course students will get an overview of neuroscience, particularly the areas of neuroanatomy, neurophysiology, and evolutionary and developmental neurobiology.

Prerequisite: BIO 2450 with a grade of “C” or higher.

Recommended: BIO 3300 or BIO 4441

## **COURSE OBJECTIVES**

- To familiarize students with the topics in neuroscience described above, with a particular emphasis on cellular mechanisms
- To hone students’ analytical, creative and practical skills and knowledge, particularly as they pertain to neurobiology
- To think critically about the construction of knowledge both by examining how we’ve come to our current state of knowledge about neuroscience (what sorts of experiments were involved) and observing the multicultural construction of knowledge by recognizing who has contributed to our understanding.
- To increase students’ awareness of the diversity of scientists who have contributed to our current understanding of neuroscience and of their own potential for contributing to the field

## **REQUIRED TEXT:**

Neuroscience 4th ed. by Purves, et al.

## **ASSESSMENT**

One of my jobs as professor is to evaluate your mastery of the skills and content of this course and ideally your ability to think critically and practically about the material we cover. In other words, can you apply what you’ve learned to novel situations? Students acquire knowledge in different ways and they convey what they’ve learned in different ways. Accordingly, students’ grade in this course will be determined by a variety of assessment approaches, including brief in-class quizzes and in-class minute papers and in class multiple choice exams for all. Students are invited to submit questions for the multiple choice exams. In past semesters, I have modified students’ questions and used them on the exam.

## ASSIGNMENTS, GRADING SCALE AND DUE DATES

ASSIGNMENTS	POINTS	DATE OR DATE DUE
Find a neuroscience-related, journal article with an author who shares your family name	5 pts	Sept 3
Minute papers	3 pts each	Surprise/Pop
Pop quizzes	3 pts each	Pop
Exams	100 pts each	See schedule below.

Assignment of letter grades will be as follows: A = 90 to 100, B = 80 to 89, etc. Minute papers and pop quizzes will figure in as “extra credit” on the exam immediately following them, but the upper limit of the exam score is 100 pts. Grades in 4300 will be based on the highest three exam scores plus their attendant extra credit. Students in 5300 will have additional assignments (to be determined).

Date	Topic	Chapter
8/27	Introduction to the course and overview of the nervous system	1
9/1 – 9/10	Electrical signals, membrane permeability, channels and transporters	2-4
9/15	Synaptic transmission	5
9/17 – 9/24	Neurotransmitters, neurotransmitter receptors and their effects	6-7
<b>9/29</b>	<b>Exam I</b>	
10/1 – 10/6	Somatosensory system and pain	9-10
10/8 – 10/15	Vision and central visual pathways	11-12
10/20 – 10/27	The auditory and vestibular systems	13-14
10/29 – 11/3	The chemical senses	15
<b>11/5</b>	<b>Exam II</b>	
11/10 – 11/12	Lower motor neuron circuits and motor control	16
11/17 – 11/19	Upper motor neuron control of brainstem and spinal cord	17
11/24 – 12/1	Modulation of movement	18-19
12/3	Brain Development and synaptic plasticity	8; 22-25
<b>12/10 11-1:30</b>	<b>Final Exam (non-comprehensive)/Make-up exam (comprehensive)</b>	

### UNIVERSITY and COURSE POLICIES

*Withdrawing from the course.* The automatic "W" date is 10/26/09. For information on how to drop see <http://www.registrar.txstate.edu/registration/drop-a-class.html>

*Attendance Policy.* Attendance of lectures is the responsibility of the student. (1) Success in a course is generally correlated with attendance, (2) part of your assessment is based on “pop” assignments, and (3) Murphy’s law indicates that all extra credit and tips for the exam will be given on the one day that YOU are absent.

*Honor code violations.* University policies regarding academic dishonesty, including definitions and disciplinary actions, can be found at <http://www.txstate.edu/effective/upps/upps-07-10-01.html> . In addition to other possible disciplinary actions, students caught in an act of academic dishonesty will receive an "F" in the course, regardless of the point value of the assignment. Students should direct questions relating to academic dishonesty to Dr. García.

Anonymous allegations of academic dishonesty will not be investigated. Other allegations will be investigated, and the identity of the accuser will be protected to the extent possible.

#### ADDITIONAL COMMENTS

“Effective teaching requires teaching individuals.” (Hilberg and Tharp 2002)

Hilberg, R. and R. Tharp (2002). "Theoretical perspectives, research findings, and classroom implications of the learning styles of American Indian and Alaska Native students." ERIC Digest.

## **“NEURO HONORS”**

About 10 students will be invited to be “Neuro Honors” students. The students will be selected based on (1) interest, (2) GPA, (3) availability to meet weekly with “honors” group and me to review material and (4) availability to meet weekly with student group for a discussion session.

“Neuro Honors” students will be evaluated by their student group and by comparison of the achievement of participating students with non-participating students.

In addition to meeting with students, “Neuro Honors” students will be expected to help in grading of minute papers and pop quizzes.

Selection to participate can be considered an honor (and be noted as such on one’s resume). In addition, this class can count for credit towards graduating in the University Honors Program as an honors course by contract and may be designated on a student’s transcript as having been taken for honors credit. To earn this designation, students will need to be accepted into the University Honors Program and fill out the honors contract course application found on the University Honors website at <http://www.txstate.edu/honors/current/forms.html>.