PSY 210: 'Introduction to Neuroscience' Spring 2012

Instructor: Adam Hall
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Office hours: Wed 11-12, Fri 3-4, or by appointment
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Text: "Neuroscience: Exploring the Brain" by Bear, Connors, & Paradiso, 3rd Edition, 2007

Course Description: An introduction to the organization and function of the mammalian nervous system. An in-depth exploration of the brain using multiple levels of analysis ranging from molecular to cognitive and behavioral approaches. An appreciation of how brain cells interact to orchestrate adaptive responses and experiences. The material will be presented at a level accessible for science as well as non-science majors. This course has no prerequisites.

Course Objectives: This course will survey the organization and function of the nervous system in a way that is accessible to both science and non-science students alike. We begin by tracing the historical antecedents of the modern field of neuroscience, then take a close look at the structure and function of individual neurons, how they communicate, and how they are arranged to form the nervous system. We will examine the structure and function of the systems that serve the senses bringing information about our environment to the brain and how that information is processed. Additionally, we will explore the neurobiology of motivation and memory, and if time allows, other areas of interest. This is a great deal to accomplish in only one semester, but it will be fun and manageable if you don't fall behind in your work. If there is anything that you do not understand or need help with, please come to office hours or make an appointment to see me.

Lecture Attendance: It is expected that you attend every class meeting. Material covered in lecture is information considered most important and will be covered on exams. In addition, important announcements regarding changes in scheduling or assignments may be made in class. If you miss a class meeting, get the class notes from a colleague, and drop by in office hours to confirm your understanding.

Assessment: Your grade in this course will be comprised of 3 semester exams, 2 homework assignments and 1 final exam. All exams are closed-book and based upon material presented in lecture. The final exam will be self-scheduled during Finals Period and will cover material in the last section of the course as well as questions drawn from the whole semester's teaching. Homework assignments will be posted on Moodle or discussed in class and are due on the day noted in the course schedule. Please place a hardcopy of your answers in the box outside my office (Ford Hall 202A) or bring your completed work to class.

Weighting of Exams and Homework

- **Exam 1:** 25%
- **Exam 2:** 25%
- **Exam 3:** 25%

Total 50%

(Note: There will be three exams administered throughout the course of the semester. The average of your **two best exam scores** will be added towards your final grade. Exams will consist of short answer questions).

- **Final Exam: 25%** that will count towards your final grade. It will cover the final topic on memory systems (~15%) and include a few questions relating to the course as a whole (~10%)
- **Homework (x2) : 25%** total.

Your final grade will be calculated in the following manner:

Numerical Average	Letter Grade
100-93	A
92.9-90	A-
89.9-87.5	B+
87.4-82.6	B
82.5-80	B-
79.9-77.5	C+
77.4-72.6	C
72.5-70	C-
69.9-67.6	D+
67.5-62.6	D
62.5-60	D-

The course schedule outlined below is subject to revision as needed throughout the semester; such revisions will be announced in class and/or *via* Moodle.

Course Schedule and Readings

Week 1: January 26

Thursday: Introduction and overview of course

Week 2: Jan/Feb 31, 2

Tuesday: Origins, history, progress in neuroscience (*Chapter 1*)
Thursday: Cells of the nervous system (*Chapter 2*)

Week 3: February 7, 9

Tuesday: Neuronal membrane at rest (*Chapter 3*)
Thursday: Action potentials (*Chapter 4*)

Week 4: February 14, 16

Tuesday: Action potentials cont.
Thursday: Synaptic transmission (*Chapter 5*)

Week 5: February 21, 23

Tuesday: Neurotransmitters (*Chapter 6*)
Thursday: RALLY DAY : NO CLASS. *EXAM 1 (administered through Young library)*

Week 6: Feb/March 28, 1

Tuesday: Neurotransmitters (*cont)*
Thursday: Neuroanatomy (*Chapter 7*)

Week 7: March 6, 8

Tuesday: Nervous system structure cont.
Thursday: Chemical Senses (*Chapter 8*) *HOMEWORK 1 DUE in class*

Week 8: March 13, 15

Tuesday: Chemical Senses (cont)
Thursday: Visual system: the Retina (Chapter 9)

SPRING BREAK – No Classes March 20,22

Week 9: March 27, 29

Tuesday: Visual system: central processing (*Chapter 10*)
Thursday: Touch and Pain (*Chapter 12*) *EXAM 2 (administered by Young library)*

Week 10: April 3,5

Tuesday: Chemical control of behavior (*Chapters 15*)
Thursday: Motivation (*Chapter 16*) *HOMEWORK 2 DUE in class.*

Week 11: April 10, 12

Tuesday: Neural bases of sexual behaviors (*Chapter 17*)
Thursday: Neurodevelopment, neurogenesis and plasticity (*Chapter 23*)
EXAM 3 (administered by Young library)

Week 12: April 17, 19.

Tuesday: Memory Systems (*Chapter 24)*
Thursday: Molecular bases of learning and memory (*Chapter 25*)

Week 13: April 24, 26

Tuesday: Guest Lecture on Cognitive Neuroscience
Thursday Molecular bases of learning and memory (cont.)

Week 14: May 1, 3

Tuesday: Molecular bases of learning and memory (cont.)
Thursday: *Review for final exam*