



PSYC 318
Physiological Psychology
MWF 10-10:50am
Clough 118

Dr. Kim Gerecke
gereckek@rhodes.edu
843-3990
Office hours: Before or after class or by appointment

Required Text:

Carlson, NR (2005) Foundations of Physiological Psychology, 6th Edition. Boston: Allyn and Bacon.

Vanderwolf, CH & Cooley, KC (1979) The Sheep Brain: A Photographic Series, 2nd Edition. London: AJ Kirby Co.

Class Objectives

This course will investigate how the brain's normal and abnormal functioning affects human experience and behavior. Particular emphasis will be placed on those aspects of neuroanatomy, neurochemistry, and physiology, which directly influence experience, motivation, language, thought, and learning.

Upon successfully completing this course, you will gain an understanding of:

- the basic structure and functions of the central and peripheral nervous systems;
- the operation of systems that bring information from the environment into the nervous system;
- the operation of systems that produce behavioral output that affects the environment;
- how hormones and the behavior they govern interact with the environment and each other;
- how homeostatic mechanisms and brain reward systems influence behavior;
- how the nervous system processes and stores new information;
- the nervous system's roles in emotional reactions;
- the nervous system's role in certain neurological and psychological disorders;
- the complex interplay among physiology, behavior, and environmental circumstances.

At the end of this course, you should be able to:

- Be able to identify brain structures, describe their functions, and the role they play systems functioning.
- Understand the structure, function and hierarchical organization of the brain.
- Be able to discuss various technologies and clinical methods for studying the brain.
- Be able to describe the potential outcome of damage to nervous system structures.



Class Schedule

A detailed class schedule is located below. There are times when we will move through material more quickly and other times when we may need to slow down. Therefore, this schedule is tentative with changes to be announced in class. I will try to post changes to the schedule, but ultimately, it is your responsibility since you are expected to attend class.

DAY	DATE	TOPICS
Wednesday	August 23	First day stuff and introduction
Friday	25	Chapter 2 – Structure and function of cells of the nervous system
Monday	28	“ *** ”
Wednesday	30	Chapter 3 – Structure of the nervous system
Friday	September 1	“ *** ”
Monday	4	No Class - Labor Day Holiday
Wednesday	6	Neuroanatomy Lab (Frazier Jelke Room 119W) ***
Friday	8	“ *** ”
Monday	11	“ *** ”
Wednesday	13	“ *** ”
Friday	15	Catch-up/Review
Monday	18	Test #1
Wednesday	20	Chapter 4 - Psychopharmacology
Friday	22	“ *** ” (Division of groups for presentations)
Monday	25	Chapter 5 – Methods and strategies of research
Wednesday	27	“ *** ”
Friday	29	Sensory Systems (Vision) – Chpt. 6 & Oliver Sacks (Assignment 1 due)
Monday	October 2	“ *** ”
Wednesday	4	Chapter 7 – Audition, the body senses, and the chemical senses (Group Assignment #1)
Friday	6	“ *** ”
Monday	9	Catch up/ Review
Wednesday	11	Test #2
Friday	13	Chapter 8 – Sleep and biological rhythm
Monday	16	No class – Fall Break
Wednesday	18	Chapter 8
Friday	20	Chapter 9 – Reproductive behavior
Monday	23	“ *** ”
Wednesday	25	Chapter 10 - Emotion (Assignment 2 due)
Friday	27	“ *** ” (Group Assignment #2)
Monday	30	Catch up/ Review
Wednesday	November 1	Test #3
Friday	3	Chapter 12 – Learning and memory
Monday	6	“ *** ”
Wednesday	8	Chapter 13 – Human Communication
Friday	10	“ *** ”
Monday	13	Chapter 14, 15, 16 – Neurological disorders
Wednesday	15	“ *** ” (Assignment 3 Due)



Friday	17	“ *** ” (Group Assignment #3)
Monday	20	“ *** ”
W, F	22, 24	No Class – Thanksgiving Break
Monday	27	“ (Informal Group Rehearsals)
Wednesday	29	“ (Informal Group Rehearsals)
Friday	December 1	Presentations – Group I – Paper Due for Group I members
Monday	4	Presentations – Group II – Paper Due for Group II members
Wednesday	6	Catch-up/Review
Wednesday	12/13 8:30 AM	Test #4 (Final Exam)

*** Note: On lab days, we will meet in Frazier-Jelke Room 119W, which is in the NW corner in the basement of FJ. Please be on time or early if possible.

NEUROANATOMY: Throughout this course we will be discussing several functional systems of the CNS and their structural components. Since anatomical, structural relationships often describe underlying systemic functions, we will take a closer look at an animal model of CNS organization in neuroanatomy labs. These labs will allow you the opportunity to identify homologous human brain structures on a sheep brain. We will also perform minimal dissection in order to observe subcortical structures that we will discuss throughout the semester. You will also have an opportunity to observe the microscopic structure of the nervous and sensory systems. Again, structure often defines function and you will need to know both.

GRADING:	Exam 1	100 points
	Exam 2	100 points
	Exam 3	100 points
	Exam 4	100 points
	Assignments	60 points
	Group Project	50 points
	<u>Written Report</u>	<u>50 points</u>
	Total	610 points

EXAMS: Exams are designed to test your ability to integrate material from the book/class in a short answer format. For some sections of the course I may design both in-class and take-home exam questions. In class exams are difficult to complete within 50 minutes. Therefore, I do not ask for perfect essay quality answers. As long as I can decipher the meaning from the answer (and that meaning is correct) you will get full credit. I will not take off points for misspelled words or bad grammar, unless it makes the answer unclear. You should not feel constrained by words in your answers (i.e., you can draw pictures, use diagrams or anything else that conveys meaning). Your neuroanatomy exam will include a partial lab practical.

ASSIGNMENTS: Several assignments will be given to you throughout the semester to help give depth to class material or to material that we will not cover in class. Assignments may include, but are not limited to



internet research, library research or thoughtful consideration of particular questions or handouts provided. Assignments and their instructions will be provided in class.

ACADEMIC DISHONESTY: Explicit details concerning honor code violations are listed in your college handbook. Honor code violations will not be tolerated and will be reported immediately to the appropriate authority. Please review the Rhodes College academic dishonesty policies. Since you will be required to submit a written research paper for this course, pay special attention to the section on plagiarism.

GROUP PROJECT & WRITTEN REPORT: The class will be evenly divided into 2 groups. Each group will be responsible for teaching one class period at the end of the semester. You are to report on a neurological, behavioral or affective disorder from the physiological psychology standpoint. I would like your group to choose the specific topic by a consensus of the members. However, a few possible topics include, but are not limited to Alzheimer's Disease, Huntington's Disease, Schizophrenia, Autism, ADHD, Depression/Bipolar Disorder, etc. The presentation should include, but not be limited to, a discussion of the disease pathology, etiology, behavioral outcomes, treatment strategies as well as history and future directions sections. Although other media will be made available upon request, the lecture should be presented using Microsoft Powerpoint.

In addition to the group effort on the class presentation, you are also required to submit an individual written report. The idea here is for each of you to take on a small portion of the larger group project. You should research and synthesize this material into a research report to be discussed below. As a group, you are to combine the individual elements in such a way as to produce a coherent and stimulating lecture. Since each of you will perform literature reviews as part of your written report, the lecture should reflect a knowledge of the current literature (with citations where appropriate). The main body of the written report is to be at least 10 double-spaced pages not including the title page or bibliography. You must use a minimum of 5 primary sources (i.e., journal articles, book chapters and other reputable sources and not internet materials). Again, the written report will reflect your individual effort in the larger group project. In an effort to facilitate the group project a number of required group submissions have been scheduled. Each of these submissions will require approval by me before the group can progress. The purpose for and required submission after each group meeting is listed below:

Group meeting:

- #1 Topic – submit a topic & a rough draft of possible subtopics
- #2 Subtopics & division of labor – submit formal subtopics and who is to be responsible for each.
- #3 Outline - submit a presentation outline and a list of the players
- #4 Rehearsal – no submission required, but please rehearse as a group. You will be graded not only on content as mentioned above, but also on style, flow and time limit. Trust me – if you do not practice your talk together, it will show