

PSY 502 Physiological Psychology
1:30 – 2:45 pm TuTh, Poe 228

Instructor: Doug Gillan Poe 640D, 515-1715, doug_gillan@ncsu.edu, Office Hours by Appointment

Course Prerequisites: Twelve hours of PSY including PSY 200, 400, 410

Student Learning Outcomes (i.e., Course Objectives): Factual Knowledge: (1) Basic concepts in brain and behavior; (2) In-depth expertise on selected topics; (3) Application of knowledge

Skills: Develop ability to read biopsychology literature and evaluate scientific arguments about interactions among the brain and psychological processes and behavior

Readings:

(1) Readings will be available on WebCT Vista site (<http://vista.ncsu.edu>)

(2) Students will identify readings for individual topics

Course Outline/Schedule (all dates approximate)

Aug 23 - 30: Philosophy

Philosophy of Science

Philosophy of Mind

Neurophilosophy

Sept 4 – 13: Methods

Recording

Electrophysiological Activity

Single Unit

Multiple Unit

EEG

ERP

Magnetic Activity

MEG

Imaging

PET Scan

CAT Scan

fMRI

Disruption

Ablation

Lesion

Permanent

Non-experimental Brain Damage

Stroke

Head Injury

Accident

Disease

Experimental Brain Damage

Electrical

Chemical

Temporary
Cooling
Transcranial Magnetic Stimulation
Gene Knock-out

Stimulation

Electrical
Chemical
Magnetic

Sept 18 – 27: Neuroscience

Neurons

Physiology
Biophysics

Neurochemistry

Neurotransmitters
Psychopharmacology
Drugs of Abuse
Treatment of Psychological disorders

Neuroanatomy

Peripheral
Central
Spinal Cord
Brain

Structures

Principles of Organization

Pathways

Oct 2 – 4 HFES Annual Meeting (work on projects)

Oct 9 – 25: Perceptual Systems

Note: Oct 11 is Fall Break, class not held

Vision

Retinal Processing and Cortical Processing
Color
Object
Motion

Audition

Peripheral Processing
Pitch Perception
Sound Localization

Cortical Processing

Other Senses

Chemical Senses (Taste and Olfaction)
Skin Senses

Oct 30 – Nov 8: Motivation

Thirst

Intracellular Thirst
Extracellular Thirst

Hunger

Peripheral Mechanisms
 Central Mechanisms
 Sexual Behavior
 Emotion
Nov 13 – Nov 20: Learning and Memory
 Working Memory
 Executive Control
 Visuospatial
 Articulatory Loop
 LTM
 Semantic Memory
 Procedural Memory
 Acquisition
 Simple associations
 Complex Learning
 Thinking
 Reasoning
 Problem-Solving
 Math
 Everyday Problems
 Language
Nov 22 – Thanksgiving Holiday
Nov 27 – Nov 29: Motor Systems
 Spinal mechanisms
 Muscle Spindle system
 Reflex arc
 Brain mechanisms
 Motor programs
 Controlled movements
 Motor disorders
Dec 4 - 6: Development
 Brain development
 Changes in Neurons
 Structural changes
 Experience-based changes

Grading:

Graded Activities

Class Participation/Discussion	40% (400 points)
Class Leadership Sessions	40% (400 points)
Project	20% (200 points)

Here is the idealized grading distribution:

<u>Grade</u>	<u>Points</u>
A	900 – 1000

B	800 – 899.9
C	700 – 799.9
D	600 – 699.9
F	Below 600

Policy on incomplete grades:

An IN grade will be assigned only for work that has been interrupted by a serious, unanticipated and uncontrollable event (e.g., illness, death in the family, accident) that is not due to negligence by the student. An IN grade will not be assigned as a substitute for a failing grade or to allow you to avoid receiving a failing grade.

Attendance Policy / Making up Assignments:

Attendance: Your contribution to class discussion is critical both for accomplishing your own course objectives as well as contributing to the development of others in the class.

What is an *Excused* absence? An excused absence requires an acceptable and well-documented excuse. UNACCEPTABLE excuses include other exams or papers due the same day, desire to leave town for recreational purposes, and so on. Pending adequate documentation, ACCEPTABLE excuses include illness, family emergency, a team trip (with prior notification), out-of-town job interview (with prior notification). For more details about excused and unexcused absences, you may wish to review:

http://www.ncsu.edu/provost/academic_policies/attend/reg.htm

The synergy and success of the course is greatly dependent on the involvement of each individual student brings. It is important that you read and develop ideas regarding the reading assignments as well as integrate the materials from each lecture in the class activities and assignments. The expectation is that each person will come to class prepared and ready to discuss the topic of the day. Assessments will be based on attendance and actual products produced for class assignments.

Making up assignments: All work should be completed and submitted by the announced date. For late assignments, the grade will be reduced by 5% for work that is 1 to 3 days late, and will be reduced by 2% of the grade for every additional 3 day period after that. If you know in advance that you will miss an assignment, contact me well in advance to make alternative arrangements. If you miss an assignment because of a last-minute illness or injury, contact me the same day to make alternative arrangements.

NC State policy on Working with Students with Disabilities:

" Reasonable accommodations will be made for students with verifiable disabilities. In order to take advantage of available accommodations, students must register with Disability Services for Students at 1900 Student Health Center, Campus Box 7509, 515-7653. For more information on NC State's policy on working with students with

disabilities, please see the Academic Accommodations for Students with Disabilities Regulation (REG02.20.1)"

Please tell me immediately so that I can begin to make the appropriate arrangements.

For more details on NC State's policy on working with students with disabilities, see the following web site:

http://www2.ncsu.edu/ncsu/provost/info/hat/current/appendix/appen_k.html

Also refer to the following web site that describes NC State's Disability Services for Students (DSS) program

http://www2.ncsu.edu/ncsu/stud_affairs/counseling_center/dss

Academic Honesty Policy

This class will follow the NC State University Code of Student Policy Conduct (POL11.35.1). The Code of Student Conduct Policy describes the University policy on academic integrity and can be found at

http://www.ncsu.edu/policies/student_services/student_discipline/POL11.35.1.php

Honor Pledge: "I have neither given nor received unauthorized aid on this test or assignment." My understanding and expectation is that your signature on any test or assignment means that you have followed the Honor Code by neither giving nor receiving unauthorized aid. If you are caught giving or receiving help in graded activities without having received authorization to do so, or if you are caught in any other violations of the University's Academic Integrity Policy, you will be prosecuted accordingly. For more details on the NC State's academic honesty policy, see: <http://www.fis.ncsu.edu/ncsulegal/41.03-codeof.html>.
