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:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>900 – 1000</td>
</tr>
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</table>
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/append_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.