**Introduction to Behavioral Neuroscience**

Psychology 363, Fall 2018, Block 3

Instructor: Dr. Steven Neese

Office/Hours: Law Hall 106D, Mon.1:00-2:00 or by appointment

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**Text:**  Kalat, 2019. Biological Psychology, 13th Edition.

**Course Description:** Physiological psychology attempts to explain sensation, cognition, motivation, emotion, memory, sleep and other aspects of human experience by learning about the physiology of the body. Much of what we know about the causes of behavior is incomplete, and this course serves as an overview of what we think we know and where we can go from here.

**Meeting Times:** Monday-Friday, 9am-11am and 1pm-3pm Tuesday, Wednesday, and Thursday (unless otherwise specified below).

**Educational Priorities and Outcomes:** The components of the course foster the Educational Priorities and Outcomes of Cornell College as follows:

**Learning outcomes - After successfully completing this course, you will be able to:**

1. To learn the basic structures of the brain, understand the structural/functional relationship of the brain in controlling behavior, and the role of neural communication in controlling behavior (knowledge).
2. Integrate the role of neural communication and behavioral experience in understanding the world, facilitate discussion focused on the current direction of physiological psychology and understand the integrated roles of memory, emotion, and cognition in behavior (inquiry, reasoning).
3. Articulate how integrated principles of neuroscience can be used to explain a variety of behaviors, consolidation of memory, and the ability of the brain to recover after injury (communication).

**Summary Statement:** This course supports the Educational Priorities and Outcomes of Cornell College with emphases on knowledge, inquiry, reasoning, and communication.

**Absence Policy:** Students are allowed a total of **2 unexcused absences** (2 morning sessions; 1 morning/1 afternoon, etc.). Given the nature of this course, missing even a single day of classwork can put you behind. Please notify me if you are planning on missing a course period and ask another class member to pass on the information you missed. More than 2 unexcused absences will result in your **final grade** being *lowered by 1/3*.

**Tardiness Policy:** Arriving late to class is disruptive to others. Therefore, all students should arrive on time for each class session. Excessive tardiness (>3 times) will result in your **final grade** being *lowered by 1/3*.

**Grading:**

**Exams (3 x 100 points):** There will be 3 exams during the block. Each of the exams will be worth 100 points each and will cover only the sections of reading material and class discussions from that period of the course (see course schedule below). **Make-up exams will be given only for an approved reason and scheduled within 2 days of the actual exam date.**

**Sheep Brain Practical (50 points):** A 50 question practical will be given at the beginning of week 2. Students will work in groups of two and dissect a sheep brain. A handout will be uploaded to Moodle detailing procedures and terms/anatomical structures to be tested.

**Writing Assignment:** One goal of this course is to evaluate the appropriateness of conclusions derived from behavioral neuroscience research and show an ability to communicate these ideas. This will be done through a writing assignment that involves identifying critical research related to one area of dementia and using that research to write a mini-review. Each paper must follow APA style ([APA guideline website](https://owl.english.purdue.edu/owl/resource/560/01/)). **All papers must be submitted as a printed, hard copy at 9:00 AM at the start of class on the due date. Each day late will result in a minimum reduction of 10% per day.**

1. **Mini-Review Outline (5 points):** Each student will submit an outline of their mini-review. You are free to share materials with others assigned your same disorder, but the outline will be your own.
2. **Mini-Review (55 points):** A mini-review will be submitted following the guidelines given during the class and posted to Moodle. **Grading criteria is listed in Appendix 1.**

**Class participation (15 points):** I expect all in class to join in discussions to contribute to the class. You are expected to participate during class both by asking questions and actively listening to others. Be both vocal and patient. Try to answer the questions that I pose and ask questions yourself. This grade will be a culmination of attendance, classroom behavior, completion of activities in class/lab, and respectful behavior towards students and instructor.

This course consists of work in groups. *You are all adults, take responsibility for your own behavior and* ***there should be no issues with group work***. Each member of the group will contribute equally in the class and discussion.

**The grade scale is:**

93 or above (A) 83-86% (B) 73-76% (C) 63-66% (D)

90-92% (A-) 80-82% (B-) 70-72% (C-) 60-62% (D-)

87-89% (B+) 77-79% (C+) 67-69% (D+) below 60% (F)

Tests: 3 x100 = 300 points

Sheep Brain Practical = 50 points

Outline = 5 points

Mini-review paper = 55 points

Class participation = 15 points

Total = 425 points

**Technology in class:**

1. **Laptop computers:** You may use laptops in class, but for note-taking only. It is not acceptable to be checking your email and surfing the web during class. If this happens you will be asked not to bring your computer to class. If you are easily distracted, bring a notebook and a good pen or pencil!
2. **Cell phones:** Cell phone interruptions are unnecessary, so please ensure that your cell phone does not ring during class. Text messaging during class time is inappropriate, and using the phone as a clock can be disruptive. **We will discuss the cell phone policy in depth on the first day of classes.**

**Cornell College Policies:**

**Academic Honesty expectations:** Cornell College expects all members of the Cornell community to act with academic integrity. An important aspect of academic integrity is respecting the work of others. A student is expected to explicitly acknowledge ideas, claims, observations, or data of others, unless generally known. When a piece of work is submitted for credit, a student is asserting that the submission is her or his work unless there is a citation of a specific source. If there is no appropriate acknowledgement of sources, whether intended or not, this may constitute a violation of the College’s requirement for honesty in academic work and may be treated as a case of academic dishonesty. The procedures regarding how the College deals with cases of academic dishonesty appear in The Catalogue, under the heading “Academic Honesty."

**Students with disabilities:** Cornell College makes reasonable accommodations for persons with disabilities.  Students should notify the Coordinator of Academic Support and Advising and their course instructor of any disability related accommodations within the first three days of the term for which the accommodations are required, due to the fast pace of the block format.  For more information on the documentation required to establish the need for accommodations and the process of requesting the accommodations, see [Cornell College disability website](http://www.cornellcollege.edu/academic-support-and-advising/disabilities/index.shtml).

*These guidelines are described in detail to serve as a point of reference should questions arrive. This document serves as a contract between the student and the instructor.*

**Schedule:**

| **Date** | **Topic/ Reading** | **Lab Sessions/Assignments** |
| --- | --- | --- |
| M October 22 | Introduction to Behavioral Neuroscience  **Introduction** |  |
| T October 23 | Neurons, Cells, and Action Potentials  **Chapter 1** | **Sheep brain**  Pages 1-7 |
| W October 24 | Synapses and Neurotransmitters  **Chapter 2** | **Sheep brain**  Pages 8-9 |
| R October 25 | Neuroanatomy  **Chapter 3** | **Sheep brain**  Pages 10-11 |
| F October 26 | Genetics and Development  **Chapter 4, 102-116; 136-144** |  |
| M October 29 | **Exam 1: 9 am** | **1 hour: Sheep Brain Review** |
| T October 30 | Vision  **Chapter 5** | **Sheep Brain Practical at 2:00 pm** |
| W October 31 | Other Senses  **Chapter 6** | Mini-review Work Day |
| R November 1 | Learning and Memory  **Chapter 12** | Can Alzheimer’s be stopped?  **Mini-Review Outline Due** |
| F November 2 | Emotions  **Chapter 11** |  |
| M November 5 | Sleep  **Chapter 8** |  |
| T November 6 | **Exam 2: 9 am** | **No Afternoon** |
| W November 7 | Movement  **Chapter 7** | Movement Disorders |
| R November 8 | Internal Regulation  **Chapter 9** | Internal Regulation Activity |
| F November 9 | Reproductive Behavior  **Chapter 10** | **Mini-Reviews Due**  **9 AM** |
| M November 12 | Cognitive Function and Language  **Chapter 13** |  |
| T November 13 | Psychological Disorders  **Chapter 14** |  |
| W November 14 | **Final Exam: 9 am** |  |

**Appendix 1: Mini-review Scoring Rubric (55 points)**

|  | **0-2 points** | **3-5 points** | **6-9 points** | **10 points** | **Total** |
| --- | --- | --- | --- | --- | --- |
| **Background/**  **Foundation** | Incomplete or missing pieces of significant information. | There is some indication of published support from the evidence offered. | Clear background provided of epidemiology, pathophysiology and/or disease progression are reached. | Detailed background provided of epidemiology, pathophysiology and/or disease progression are reached. |  |
| **Behavioral Changes/ Diagnosis** | Incomplete or missing pieces of significant information. | There is some indication of published support from the evidence offered. | Clear discussion of behavioral changes and diagnosis are reached. | Detailed discussion of behavioral changes and diagnosis are reached. |  |
| **Comparison to Alzheimer’s Disease** | No comparisons are made from the evidence offered. | There is some indication of a comparison to AD from the evidence offered. | Comparisons and differences to AD are reached from the evidence offered. | Detailed comparisons are reached from the evidence offered. |  |
| **Organization** | Lacks any order and difficult to follow. | Lacks sequential presentation of information; jumps around. | Logical and easy to follow. | Logical and interesting flow; highlights and repeats important information. |  |
|  | **0** | **2** | **3-4** | **5** |  |
| **Articles** | < 6 relevant articles. | 7 relevant articles. | 8-9 relevant articles. | > 10 relevant articles. |  |
| **Format** | Font, spacing, and APA format are incorrect. | Font, spacing, or APA format is correct. | Font and spacing, font and APA, or spacing and APA are correct. | Font, spacing, and APA format are correct. |  |
| **Grammar** | There are > 8 grammatical/ spelling errors. | There are 6-7 grammatical/ spelling errors. | There are 4-5 grammatical/ spelling errors. | There are <3 grammatical/ spelling errors. |  |