

## CLPS 2400: Core Course in Neural Basis of Behavior

**Spring 2013**

**H hour: TTh 9-10:20**

The goal of this course is to introduce students to the study of brain structure and function from a comparative, evolutionary perspective.

### **Readings:**

Readings will be taken from the original literature. All assigned readings will be posted on myCourses.

### **Requirements:**

1. Class attendance and participation are mandatory. These will comprise 10% of your grade.

2. Daily class assignments will consist of:

(a) 1-2 page analyses of specific topics or assigned papers

(b) submission through myCourses of an "Illuminating Question" on the assigned readings for each class day. These questions will form the basis for class discussion.

(c) analyses of websites

(d) attending and reporting on colloquia related to brain function

Specific assignments for each week will be announced in class and posted on myCourses. In total, these weekly assignments will comprise 40% of your grade.

3. Project 1: Using the Swanson paper as a model, write a paper and prepare a class presentation on the topic "What is the \_\_\_\_\_", with the blank being a brain area of your choice. (You can use any brain area except the amygdala). The topic must be approached from a comparative perspective and contain specific data on at least 2 different vertebrate families. The paper must be 5-10 pages in length and include at least 10 references. The class presentation can be a video, a powerpoint, an art project, etc. Presentations will be scheduled during the month of March, with the paper due one week subsequent to your presentation. Presentations must include assignment of a paper for the class to read and comment on. 25% of your grade.

4. Project 2: Following the model of project 1, write a paper and prepare a class presentation on the topic "What is the anatomical basis of behavior X." Your paper should describe the control of this behavior in at least 2 different vertebrate species. Presentations will be scheduled during the month of April, with the paper due one week subsequent to your presentation. 25% of your grade.

### **SCHEDULE AND ASSIGNMENTS**

1. Assignment 1, due Tuesday January 29:

What makes a good animal model?

2-3 page paper, with at least 5 cited sources, addressing this question. Be prepared to present your answers in class.

2. Thursday January 31: Vertebrate phylogeny and the comparative method

Reading: Hodos and Campbell (1969), *Scala naturae*.

Submit an illuminating question on this reading by midnight January 30.

3. Tuesday February 5:

Reading: Swanson (2000), *What is the brain?*

Submit an illuminating question on this reading by midnight February 4.

4. Assignment 2, due Thursday February 7: Identifying and evaluating websites of comparative and evolutionary neuroanatomy, including the two listed below.

<http://www.brainmuseum.org/>

<http://www.brain-map.org/>

Also identify and report on a website of a current researcher in comparative neuroanatomy.

5. Tuesday February 12: Review of and quiz on basic neuroanatomy (see lecture slides on myCourses)

6. Thursday February 14: Allometry, phylogenetic comparisons

Reading: Harvey and Krebs (1990), *Comparing brains*.

Submit an illuminating question on this reading by midnight February 13.

7. Assignment 3, due Tuesday February 19:

Early theories of brain evolution.

Choose one theorist and present that person's theory to the class. Submit an annotated bibliography of your sources.

Herrick (invasion hypothesis)

Bishop (cephalization)

Ariens Kappers (neurobiotaxis)

MacLean (triune brain theory)

Ebbesson (parcellation theory)

Jerison (encephalization)

8. Tuesday February 21

Reading: Northcutt and Kaas (1995)

Submit an illuminating question on this reading by midnight February 20.