Biobehavioral Prosem, Part 2: Behavioral Neuroscience  
(PSYC 303 A)  
Fall 2013

Professor:  
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Office hours: By appointment

Meeting Time & Location:  
Dewey Hall 100  
Wednesdays (October 17-December 6), 8:30 am-11:30 am

Course Description  
Biobehavioral Prosem is designed to be an advanced survey and analysis of behavioral and biological psychology, with special emphasis on learning theory (Part 1) and behavioral neuroscience (Part 2). Behavioral neuroscience can be defined as “the study of how neural systems work together to produce behavior”. Some people use the term “behavioral neuroscience” to refer to the study of nervous system-behavior relations in non-human animals and “cognitive neuroscience” to refer to the study of nervous system-cognition-behavior relations in humans (and perhaps other primates). These are very loose distinctions and not universally agreed upon but you should be aware of them. In this part of Prosem, we will focus mostly on rodent work because rats and mice are the most commonly used species to study nervous system-behavior relations and because these are the two species that UVM biobehavioral psychologists use.

Course Objectives  
You should leave this course with a basic understanding of research in behavioral neuroscience. By the end of this portion of Prosem, everyone should have some working knowledge of some of the approaches and questions in behavioral neuroscience. While it’s impossible to give you a full overview of behavioral neuroscience in only six weeks, you should get enough of an overview to support further exploration of these topics in our Biobehavioral seminars. It is also hoped that the topics we discuss will give you “food for thought” for how behavioral neuroscience-related approaches might contribute to your own area(s) of research interest.

Course Structure  
Most meetings will be a mixture of lecture and discussion. Generally, I will lecture for about the first half of class. At this point, we’ll take a short break and then come back and spend the rest of class discussing the readings. Reading for a particular class will be on blackboard a week before and should be read before coming to class.

Course Requirements
At the end of each week’s meeting, I will pass out one or more thought questions for the next meeting. These are designed to get you thinking about the readings for that week.

**Due by Friday, November 1st will be a two-sentence description of your “mini-grant application” topic.** I will give you feedback on this by the Weds, November 6 class so you’ll have time to incorporate this feedback into the initial draft of your Specific Aims (due Weds, November 20).

I can be flexible on the topic you choose so that you can try to relate it to your own area(s) of research interest but it must incorporate some aspect of behavioral or cognitive neuroscience (e.g., animal models, imaging) and be translational in nature (e.g., one possibility is to include an animal model and human clinical component; another possibility is to include an imaging component to elucidate mechanisms and a component to translate these findings to people in an institutional or community setting of some sort). You are free to base your topic on one or more of the course readings listed below.

**Due in the Nov.20 class will be a 1 page draft of your Specific Aims.** Format should be: 1” margins all around, 11 pt Arial font, single line spacing. This will likely start with a brief background and significance for human health, a short description of what you propose to study and why, and then 2-4 aims.

**Due by Tuesday December 10th will be a 5 page “mini-grant application”** (1” margins all around, 11 pt Arial font, single line spacing) in the form of Specific Aims (1 page) and Background & Significance (4 pages) for an NIH grant application. This paper will consist of your final Specific Aims (revised to take into account any feedback I give you) and a Background & Significance. Because this is a mock NIH grant, be sure that the significance for human health is clear.

**Grading**

Class participation 15%

Two sentence description of mini-grant topic – 5% (Due Friday, November 1)

One-page draft of specific aims – 15% (Due Wednesday, November 20)
participation in a mock review panel December 4th 25%

Five-page mini-grant (specific aims; background & significance) – 40% (Due Friday, December 10th)

**Course Outline**

**NOTE:** the articles should be read in the order specified for the optimal learning experience!
Readings will be available on the Blackboard course site and by the Psych 1 office.

**Week 1 – Introduction (Oct 16th)**

Go over syllabus and discuss goals and requirements of this portion of the course

**Week 2 – NIH Grant Writing (Oct 23)**

Lecture and discussion on writing, submitting, and receiving reviews for a National Institutes of Health grant


- Example Specific Aims & Background/Significance

- “Barry Connors Grantisms”

**Week 3 – Translational Research and Animal Models (OCT 30th)**

Specific aims writing continued

What makes a topic ‘translational’

**Week 4 -- Overview of Basic Neuroscience (Nov 6)**


**Read all of Chapters 2 and 3 (pp. 23-87)**

Discussion of our “Specific Aims’

**AND – A Neural Circuit Analysis of Behavior: Pavlovian Motor Learning (Nov 20)**


**Week 5– Enriched Environments, Exercise and Brain Plasticity (November 20th)**


**AND Stress and anxiety- lupine et al., 2011, Chronic stress. Cognitive functioning, and mental health**

**Week 6-Discussion of our “Background and Significance sections” and MOCK review Panel (December 4th)**

**Complete mini grant due December 10th 6 p.m.**