

**NS/PY 200: INTRODUCTION TO NEUROSCIENCE**  
**Winter 2011**  
**Lecture: Monday/Wednesday/Friday, 12:05-1:00 pm**  
**Location: Pettengill Hall G21**  
**Discussion: occasional Thursdays 12:05-1:00 pm**  
**Location: Pettengill Hall G21**

Instructor: Nancy S. Koven, Ph.D.  
Email: nkoven@bates.edu  
Office Hours: Mondays 1:30-3:30 pm or by appointment (365 Pettengill Hall)

Teaching Assistant: Meg Cadden  
Email: mcadden@bates.edu  
Office Hours: Wednesdays 7:15 - 8:15 pm (Psych Lounge, Pettengill Hall 3<sup>rd</sup> floor)

### **Course Description**

In this course, you will learn how the structure and function of the central and peripheral nervous systems support mind and behavior. Topics include neuroanatomy, neurophysiology, neuropharmacology, developmental neurobiology, sensory perception, homeostasis, and neuropsychiatry. The course is aimed at prospective majors and non-majors interested in exploring a field in which biology and psychology merge, and to which many other disciplines (e.g., chemistry, philosophy, anthropology, linguistics, computer science) have contributed. Prerequisite(s): Psychology 101 or any 100-level biology course.

### **Readings**

- Kalat, James W. (2007). *Biological psychology, 9th ed.* Thomson Wadsworth.

The above text is required for this course and is available at the campus bookstore or through on-line book vendors. Readings for discussion sections are available on the Lyceum course page. These readings, in alphabetical order, include:

- Eastman, N. & Campbell, C. (2006). Neuroscience and legal determination of criminal responsibility. *Nature Reviews Neuroscience*, 7, 311-318.
- Farah, M. J. et al. (2004). Neurocognitive enhancement: What can we do and what should we do? *Nature Reviews Neuroscience*, 5, 421-425.
- Hackman, D. A., Farah, M. J., & Meaney, M. J. (2010). Socioeconomic status and the brain: Mechanistic insights from human and animal research. *Nature Reviews Neuroscience*, 11, 651-659.
- Hyman, S. E. (2007). Can neuroscience be integrated into the DSM-V? *Nature Reviews Neuroscience*, 8, 725-732.
- Murray, R. M., Morrison, P. D., Henquet, C., & Di Forti, M. (2007). Cannabis, the mind, and society: The hash realities. *Nature Reviews Neuroscience*, 8, 885-895.

## **Special Considerations: Students with Disabilities or Learning Differences**

If you have a condition or disability that causes difficulty with learning in the classroom, completing assignments as described, or taking examinations, please see me as soon as possible. Documentation from the Office of the Dean of Students is needed before accommodations can be made. I cannot make accommodations on short notice.

## **Classroom Environment**

It is essential that our classroom be a place in which people feel comfortable expressing their thoughts, feelings, and opinions without fear of unduly critical or judgmental responses, especially during Thursday discussions. I expect all students to be respectful of the widely varied experiences and backgrounds represented by the classroom members as a group. Disrespect or discrimination on any basis will not be tolerated.

## **Academic Honesty**

Cheating on exams will not be tolerated. If anyone is caught cheating, I will take the appropriate action. Any semblance of cheating will result in a formal accusation of cheating, so please avoid all behaviors that might be considered, by a reasonable judge, as cheating. If you are having problems in class that you feel at risk of cheating, please make arrangements to see me after class, during office hours, or by appointment. Plagiarism involves the representation of someone else's work as your own. Plagiarism is as serious an offense as cheating. Please familiarize yourself with the College's policy on academic dishonesty at: <http://abacus.bates.edu/pubs/Plagiarism/plagiarism.html#0>. Plagiarism and/or cheating will result in an automatic failure for the project/exam.

## **GRADING COMPONENTS**

### **In-Class Exams**

There will be 4 exams throughout the semester, each worth 100 points, to assess your grasp of textbook and lecture material. The second, third, and fourth exams will not be cumulative. In other words, the second exam will only cover material that follows the first exam, the third exam will only cover material that follows the second exam, and the fourth exam will only cover material that follows the third exam. Make-up exams will be given only when you have documentation from the Office of the Dean of Students to substantiate your absence. Make-up exams may be in the form of short essay, long essay, and/or oral defense, at my discretion. Special note: Exam 4 will take place during the time period of finals week assigned by the Registrar, which is Friday, April 15<sup>th</sup> from 10:30 am – 11:30 am.

### **Discussion Participation**

Early in the semester, you will be assigned to one of five discussion groups, with each group in charge of discussing an assigned article during one of the Thursday discussion sections. The themes for each discussion group are shown next:

Group	Topic	Reading
A	The cannabinoid brain	Murray et al. (2007)
B	Neurocognitive enhancement	Farah et al. (2004)
C	Socioeconomic status and the brain	Hackman et al. (2010)
D	Neurolaw and civil liberties	Eastman et al. (2006)
E	Neuroscience and mental illness	Hyman (2007)

The discussion sections will be moderated by the instructor and will take place in Pettengill Hall G21 during our normal lecture period, 12:05-1:00 pm. Attendance will be taken at the beginning of the discussion section, and your participation (frequency and quality) will be evaluated. There are 30 points available for participation. Failure to appear at your assigned discussion section will result in an automatic zero for the participation grade. For example, if you are assigned to Group A and miss that discussion section, you will not be allowed to make up for your absence by joining a different discussion section.

### **Research Participation**

Participation in research is a valuable way to get firsthand exposure to the variety of research conducted within the Psychology and Neuroscience programs. There will be a number of student and faculty research projects recruiting participants this semester. You are expected to be involved in the equivalent of 2 units worth of participation or do an alternative writing assignment. You only get credit for participating in approved experiments. All eligible experiments are assigned a number and listed on this webpage:

<http://abacus.bates.edu/acad/depts/psychology/studentresearch.html>

Each experiment has a fixed number of units assigned to it based on the average length of time that it will take to participate. Typically, 1 hour worth of participation is equal to 1 unit, with each quarter hour represented by 0.25 units. Be sure to check the number of units when you sign up for the experiment. To sign up for an experiment, see instructions on the bulletin board in the Psychology Department (3<sup>rd</sup> floor Pettengill Hall). When you sign up for an experiment, you are making an appointment for which you must show up. If you do not show up or cancel with sufficient notice, you will be penalized 5 class points regardless of the credit value of the experiment. Upon completion of the experiment, you will receive a paper receipt of your participation listing the experiment number and the amount of credit you have earned. Save this receipt! Although it is the experimenter's responsibility to report your participation to the department, this receipt is additional proof of your participation. You may need it to resolve discrepancies if they arise. Please note that, for online studies in which your participation is entirely Internet-based, you will be prompted to provide your name and my name upon completion of the online study. This information will be recorded separately from your responses (to maintain the confidentiality of your data) and given to me at the end of the semester so that I can verify your participation.

If you decide to opt for a writing assignment in lieu of research participation, you must notify me of this decision by 2/25/11 so that you receive instruction on the writing assignment in a timely manner. If you do not complete either of these options, you will lose 20 points (4%) off of your final grade.

## Writing Assignment

There is one formal writing assignment for this course that is due at the beginning of the Thursday afternoon discussion section to which you are assigned. This assignment is worth 50 points total. Late papers will be docked 5 points per 24 hour period that it is late. This assignment will be in the form of a “thought paper”. Thought papers are brief, reactionary papers (1.5 – 2.0 pages single spaced) that summarize your responses to the assigned reading. Please use Times New Roman 12 point font and normal margins. Note that you are not summarizing the article itself, but, rather, are personally responding to the content in the article. You can react in numerous ways, such as describing questions that the reading raised for you, describing follow-up research that you think would address issues raised, but not resolved, by the reading, or describing ways that the authors’ ideas can be applied to the real world. Though written in the first person and from the perspective that the audience is familiar with you and with the reading, these thought papers should nonetheless be formal in that you should adhere to the mechanics of good writing. An example will be posted on Lyceum. The purpose of the thought paper is (a) to stimulate analytic thinking prior to class discussion for the writer and (b) provide a means for me to evaluate your level of intellectual engagement with the article.

## Grading

There will be a maximum of 500 points for this course:

Exam 1	100 pts → 20% of total grade
Exam 2	100 pts → 20% of total grade
Exam 3	100 pts → 20% of total grade
Exam 4	100 pts → 20% of total grade
Discussion Participation	30 pts → 6 % of total grade
Written Assignment	50 pts → 10 % of total grade
Research Participation	2 hrs of participation → 20 pts → 4% of total grade

The final letter grade will be based on the number of points you have earned, divided by the total points possible for the course.

# of points	% range	Grade
465-500	93-100	A
450-464	90-92.99	A-
435-449	87-89.99	B+
415-434	83-86.99	B
400-414	80-82.99	B-
385-399	77-79.99	C+
365-384	73-76.99	C
350-364	70-72.99	C-
335-349	67-69.99	D+
315-334	63-66.99	D
300-314	60-62.99	D-
< 300	< 60	F

## Course Calendar

You are expected to read the assigned material *before* the day on which it is listed. As you read, think about the issues that are raised and any questions that come up for you. This will help you gain more from the lectures. The modules refer to the Kalat text. Assigned readings for the discussion sections are posted on our Lyceum page.

<u>Date</u>	<u>Topic</u>	<u>Modules</u>
1/10/11	Course Overview/Major Issues	1.1, 1.2
1/12/11	Nerve Cells and Impulses	2.1
1/14/11	Nerve Cells and Impulses	2.2
1/17/11	NO CLASS: MLK DAY	-----
1/19/11	Synapses	3.1, 3.2
1/20/11	Discussion Section: Group A	as assigned
1/21/11	Synapses	3.2, 3.3
1/24/11	Nervous System Anatomy	4.1
1/26/11	Nervous System Anatomy	4.2
1/27/11	T.A. Review Session (optional attendance)	-----
1/28/11	<b>EXAM 1</b>	-----
1/31/11	Development and Brain Plasticity	5.1
2/2/11	Development and Brain Plasticity	5.2
2/4/11	Chemical Senses	7.3 [guest lecture]
2/7/11	Vision	6.1
2/9/11	Vision	6.2
2/10/11	Vision (extra day of lecture)	6.2
2/11/11	Vision	6.2
2/14/11	Movement	8.1, 8.2
2/16/11	Movement	8.3
2/17/11	T.A. Review Session (optional attendance)	-----
2/18/11	<b>EXAM 2</b>	-----
2/21/11	NO CLASS: WINTER RECESS	-----
2/23/11	NO CLASS: WINTER RECESS	-----
2/25/11	NO CLASS: WINTER RECESS	-----
2/28/11	Wakefulness and Sleep	9.1
3/2/11	Wakefulness and Sleep	9.2
3/4/11	Internal Regulation	10.1
3/7/11	Internal Regulation	10.2
3/9/11	Internal Regulation	10.3
3/10/11	Discussion Section: Group B	as assigned
3/11/11	Emotional Behavior	12.1
3/14/11	Emotional Behavior	12.2
3/16/11	Emotional Behavior	12.3
3/17/11	Review Session (optional attendance)	-----
3/18/11	<b>EXAM 3</b>	-----
3/21/11	Learning and Memory	13.1
3/23/11	Learning and Memory	13.2
3/24/11	Discussion Section: Group C	as assigned
3/25/11	Cognitive Functions	14.1
3/28/11	Cognitive Functions	14.2
3/30/11	Cognitive Functions	14.3
3/31/11	Discussion Section: Group D	as assigned
4/1/11	NO CLASS: MT. DAVID SUMMIT	-----
4/4/11	Psychological Disorders	15.1
4/6/11	Psychological Disorders	15.2
4/7/11	Discussion Section: Group E	as assigned
4/8/11	Psychological Disorders	15.3
TBA	Review Session (optional attendance)	-----
4/15/11	<b>EXAM 4 (10:30 – 11:30 am)</b>	-----