BIOPSYCHOLOGY (PSY 304)

University of Oregon
Fall 2015
MW 12:00-1:20 pm ♦ 245 Straub ♦ 4 credits ♦ CRN: 15265

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Labs: Th 10:00-11:20am, 253 Straub (CRN: 15267)
Th 12:00-1:20pm, 251 Straub (CRN: 15266)
F 12:00-1:20pm, 254 Straub (CRN: 15268)
F 2:00-3:20pm, 254 Straub (CRN: 15269)

Course Overview

What can studying the brain tell us about how humans think, act, feel, and remember? In this course, we will answer this question and explore how a three pound piece of meat (the brain) makes us who we are.

To understand the workings of the brain, we will begin by examining the cells that make up the brain, focusing on the ways in which these neurons "communicate" with one another using electrical currents and chemical signals. We will discuss how the chemical interactions between neurons are affected by drugs (those prescribed by a doctor, as well as those that aren't…), so that we can better understand their behavioral effects and associated benefits and dangers. We will examine the anatomy of the brain and the way in which different functions are segregated within the tissue. We explore many of these functions in depth, including:

- ♦ Sensation, which allows us to discover things about the world around us, and movement, which allows us to act on this information;
- ♦ Learning and memory, which provides a means of storing (and later recalling) new information;
- ♦ Reproductive behavior, which is – well, you know what *that's* for…;
- ♦ Sleep, which might seem to be a time when the brain simply shuts down, but in reality is a time when the brain is highly active;
- ♦ Emotions, which modulate and color our behavior and interactions with others.

Finally, we will discuss what happens when things go wrong in the brain – lesions due to trauma or stroke, developmental disorders like Down Syndrome and autism, degenerative disorders like Alzheimer's and Parkinson's Disease, and mental health disorders like schizophrenia and depression.

The course assumes no prior knowledge of biology or neuroscience – the only prerequisite is a desire to learn how a piece of meat can think, act, and feel.

Course Goals

By the end of this course you should be able to:

- ♦ Identify neural structures and anatomical subdivisions of the nervous system, explain neural communication, and discuss how chemicals affect neural processing;
- ♦ Describe how our underlying physiology influences a wide range of human behaviors;
- ♦ Reflect on course topics and apply some of the information you learned to your own lives.

Required Text

Watson, N. V., & Breedlove, S. M. (2016). *The Mind's Machine.* (2nd Ed). Sunderland, MA: Sinaeur Associates, Inc. http://www.sinauer.com/catalog/psychology/the-mind-s-machine.html

(Please notify me immediately if you have difficulty obtaining the text from the bookstore).

Course Website

The official course website is on Canvas (http://canvas.uoregon.edu). Please notify the instructor or TAs if you have difficulty logging into the site. This site will provide supplemental information and materials for the course (syllabus, grades, lecture slides, etc.).

Optional Websites

You can get more neuroscience-related information from the External Links directory in the Canvas site, or at the following websites:

http://brainconnection.brainhq.com/
http://faculty.washington.edu/chudler/introb.html
http://ect.downstate.edu/courseware/neuro_atlas/
http://www.newscientist.com/topic/brain
http://www.mindhacks.com/
http://www.neuroguide.com
http://blogs.nature.com/nn/actionpotential/
http://www.drugfree.org/drug-guide
http://www.erowid.org/psychoactives/

If you know of other websites of interest, please pass them along to the instructor.

Course Requirements

Reading Assignments

All assigned readings should be completed *before* the corresponding lecture. Doing the reading in advance of class will help your performance in two ways. First, if you have a general understanding of the material presented in the reading, you will increase your comprehension and retention of the material presented in lecture. Second, questions drawn from the assigned readings will be included on the regularly scheduled quizzes, *even if they have not yet been discussed in lecture*. Although we do not have time to cover every topic from the readings in class, **you are responsible for all of the material in the assigned readings.**

Lectures

Regular lecture attendance is essential for success in this course. Although a lot of the content presented in class will be based on the reading assignments, **some of the course material is not discussed in the text and will be presented *in class* only.** Lecture slides will be posted in PDF format on Canvas. These slides are meant as a study aid but should not replace lecture attendance, as they will not be comprehensive of everything that was said in lecture. You should actively take notes in lecture rather than relying solely on the posted slides. Additionally, I always welcome questions from students during lecture. Please speak up if anything is unclear.

Labs

The weekly lab sections will be spent doing hands-on demonstrations/discussions, reviewing course material for the exams, or retaking the midterms. Lab scores will be determined by lab participation (discussion, questions, etc.) and lab attendance. Attendance at the review sessions or midterm retakes is optional, but *to receive full credit for lab participation and attendance, you must attend all of the sessions in which hands-on demonstrations are performed.* If you are unable to attend the lab section in which you are enrolled, you may attend one of the other sections (space permitting). However, if circumstances in your life make it impossible to attend any lab section during a given week, you may do a make-up assignment to earn up to 90% of the missed lab. Please contact the instructor for further details, but note that **only one make-up assignment is allowed.** If you find that you will be missing two or more labs throughout the term for valid reasons, please notify the instructor as soon as possible to discuss other possible remedies.

Quizzes

Short quizzes will be given at the beginning of some classes (see the course schedule below for details). Quizzes will contain 3 multiple-choice questions that pertain to the recently presented lecture material and the readings from the text. Questions will occasionally be drawn from readings that have been assigned but have not yet been discussed in lecture (even those due the day of the quiz); however, these questions will be of a more general nature and should be easily answered if you have read the material.

Of the eight quizzes, the two with the lowest scores will be dropped, with the average score of the remaining six yielding 12% of the final grade. ***No make-up quizzes will be offered***; if you miss a quiz, that grade will be one of the two that will be dropped.

Exams

There will be two midterms and one final exam, each composed of multiple-choice, matching, fill-in-the-blank and short-answer questions. You will have the option of retaking the two midterm exams (but not the final exam) during the lab period immediately following the exam. If you retake an exam, your grade will be the average of your original and retaken exam scores; however, if the retaken exam has a lower score than the original, only the original will be counted. The final exam will contain questions drawn from the entire course, but with a greater focus on material covered since Midterm #2. ***No make-up exams will be given without evidence of a valid excuse, and the final cannot be taken earlier or later than the time listed in the University final exam schedule - if you know in advance that you cannot take all exams at the appointed times (see the course schedule below), do not take this course!*** If unforeseen circumstances during the term prevent you from taking an exam, notify the instructors ***immediately***.

Grading

Final grades in this course will be determined by the following:

- Lab Participation (8%)
- Quizzes (12%)
- Two Midterm Exams (25% each)
- Final Exam: 30%

Grades will be distributed as follows:

A+	97-100%	B+	87-89%	C+	77-79%	D+	67-69%	F	0-59%
A	93-96%	B	83-86%	C	73-76%	D	63-66%		
A-	90-92%	B-	80-82%	C-	70-72%	D-	60-62%		

However, the instructor reserves the right to relax (but not stiffen) these criteria, depending on the actual distribution of grades.

Extra Credit

Students interested in an extra credit assignment can serve as participants in the Psychology Human Subjects Pool. The Human Subjects Pool is designed to provide students the opportunity to see firsthand how psychology experiments are performed; at the same time, you'll be providing data that will help a researcher learn how the brain works. If you decide to participate, you will earn 1 point of extra credit toward your *final grade in the course* for each hour you participate, up to a maximum of 3 points (credits beyond the maximum of 3 will not be counted). For example, 3 hours of credit would increase a final grade of 78 up to an 81, giving you a B- for the course instead of a C+.

To participate, follow the guidelines for the Human Subject Pool posted at http://psychology.uoregon.edu/research/human-subjects-pool/. Since it is impossible to predict the number of experiments that will be available in any given week, I suggest that you *do not wait until the last week of the term before participating.* It is uncertain whether any experiments will be available during finals week. Note that it is your responsibility to faithfully follow the rules of Human Subject Pool, as described at http://psychology.uoregon.edu/research/human-subjects-pool/. If you do not follow these rules, you will be

penalized, in the form of a subtraction from your already-completed extra credit. **If you have any questions or comments about this extra credit assignment, do not hesitate to contact your instructor.**

Students that prefer not to participate in the Psychology Human Subjects Pool can instead collect extra credit by writing a short paper on a topic within Biopsychology. If this is your preference, please see your instructor to discuss the details of the requirement.

Classroom Etiquette

As a courtesy to me and to your fellow classmates, please arrive on time for class and stay for the duration of the class period. Getting up in the middle of class is very disruptive. Please turn off cell phones and any electronic devices that might be distracting to others at the beginning of class.

Academic Honesty

All work submitted in this course must be your own. Violations will be taken very seriously and are noted on student disciplinary records. If you have any questions about what constitutes academic dishonesty, please ask me. For more information, see the UO website regarding academic honesty at: http://uodos.uoregon.edu/StudentConductandCommunityStandards/AcademicMisconduct.aspx

Office Hours

Please come visit us during our office hours if you are having difficulty in the class, if you have questions about class material, or if you are simply inspired by biopsychology! The TAs and I are here to help you and look forward to talking with you.

Special Accommodations

Accessible Education Center (AEC)

If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with the instructor as soon as possible. Also, please request that a counselor at the Accessible Education Center (uoaec@uoregon.edu, tel. 541-346-1155) send a letter verifying your disability. For a list of resources provided by the Accessible Education Center, please see http://aec.uoregon.edu.

Students for Whom English is a Second Language

If you are a non-native English speaker and think you may have trouble in this course due to language difficulties, please see the instructor as soon as possible to make any necessary special arrangements.

Course Schedule

**Indicates a required lab*

***The course schedule may change, but quiz and exam dates will not be changed unless absolutely necessary.*

Week	Date	Topic	Reading	Exams/Quizzes
1	M 9/28	Intro to Brain & Behavior	Ch. 1	Quiz #1 (take home)
	W 9/30	Cells & Structures I	Ch. 2	
	***Lab 1**	*Video*		
2	M 10/5	Cells & Structures II		Quiz #2; Quiz #1 due
	W 10/7	Neurophysiology I	Ch. 3	
	**Lab 2*	*Brains*		
3	M 10/12	Neurophysiology II		Quiz #3
	W 10/14	The Chemistry of Behavior I	Ch. 4	
	Lab 3	*Review*		
4	**M 10/19**	**Midterm Exam #1 (Ch. 1, 2, 3)**		**Exam #1**
	W 10/21	The Chemistry of Behavior II		
	Lab 4	*Exam #1 Retake*		
5	M 10/26	Sensorimotor System	Ch. 5	Quiz #4
	W 10/28	Vision I	Ch. 7	
	**Lab 5*	*Frankenroach*		
6	M 11/2	Vision II		Quiz #5
	W 11/4	Hormones & Sex I	Ch. 8	
	**Lab 6*	*Prisms*		
7	M 11/9	Hormones & Sex II		Quiz #6
	W 11/11	Biological Rhythms & Sleep I	Ch. 10	
	Lab 7	*Review*		
8	**M 11/16**	**Midterm Exam #2 (Ch. 4, 5, 7, 8)**		**Exam #2**
	W 11/18	Biological Rhythms & Sleep II		
	Lab 8	*Exam #2 Retake*		
9	M 11/23	Emotions, Aggression, & Stress	Ch. 11	Quiz #7
	W 11/25	Memory, Learning, & Development I	Ch. 13	
	No Lab	*Thanksgiving Holiday*		
10	M 11/30	Memory, Learning, & Development II		Quiz #8
	W 12/2	Psychopathology	Ch. 12	
	Lab 9	*Review*		
11	**Th 12/10 10:15am**	**Final Exam (cumulative, but focused on Ch. 10, 11, 12, 13)**		