

Biopsychology (PSY 304)

University of Oregon
Winter 2015

MW 10:00 – 11:20 ♦ 145 Straub ♦ 4 credits ♦ CRN: 25254

Labs: ♦ Th 10:00 – 11:20; 307 Deady (CRN: 25255)
♦ Th 12:00 – 1:20; 307 Deady (CRN: 25256)
♦ F 10:00 – 11:20; 191 Anstett (CRN: 25257)
♦ F 12:00 – 1:20; 191 Anstett (CRN: 25258)

Prerequisites: none

Instructor: Paul Dassonville, Ph.D.
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Telephone: 541-346-4956
Office hours: MW 1:00 – 2:00, or by appt.

Graduate Teaching Fellows (GTFs):

GTF: Jeff Peterson, M.S.	GTF: Iryna Yavorska, M.S.
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General Course Description: Three pounds of meat – that’s enough for a small dinner party if you’re buying a roast, or a Quarter-Pounder for you and each of eleven of your closest friends. But did you know that three pounds of meat can also hold a lifetime of memories, emotions, thoughts and desires? In this course, we explore the brain, the three pounds of meat that make us who we are.

To understand the workings of the brain, we begin by exploring the cells, or neurons, that make up the brain – their structure and function, with a focus mostly on the ways in which these neurons “communicate” with one another using electrical currents and chemical signals. We also discuss how the chemical interaction between neurons is 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 also study the anatomy of the brain and the way in which different functions are segregated within the tissue. We then explore many of these functions in depth, including, for example:

- ♦ Sensation (vision, touch, hearing, taste and smell), which allows us to discover things about the world around us.
- ♦ Learning and memory, which provides a means of storing (and later recalling) that new-found 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 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, schizophrenia, and depression, to name a few.

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 of the information you learned to your own lives;
- ♦ Understand (with appropriate skepticism) neuroscience-related reports in the popular press;

Required Text: *The Mind's Machine, 2nd Ed.*, by Watson & Breedlove, Sinauer 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. Supplemental material for the textbook (including practice quizzes) can be found at <http://2e.mindsmachine.com> (when registering for the site, you will need to enter the instructor's email address, prd@uoregon.edu).

Course Website: The official course website is on Canvas (<http://canvas.uoregon.edu>). Please notify the instructor or GTF if you have difficulty logging into the site. This site will provide supplemental information for the course (syllabus, course outline, grades, images from the lecture, study guides, etc.).

Optional Websites: You can get more neuroscience-related information in the External Links module on the Canvas site, or at the following web sites:

<http://brainconnection.positscience.com/>

<http://www.neuroguide.com>

<http://faculty.washington.edu/chudler/introb.html>

<http://www.mindhacks.com/>

http://ect.downstate.edu/courseware/neuro_atlas/

<http://www.drugfree.org/drug-guide>

<http://www.newscientist.com/topic/brain>

<http://www.erowid.org/psychoactives/>

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

Course Format: The material in this course will be presented through a combination of assigned reading from the text, class lectures, and in-class/in-lab videos, demonstrations and discussion. Lecture material and readings will have some overlap, but will not be replications of each other; some lecture material will not be covered in the readings and vice versa. You are expected to do the assigned reading *before* the corresponding lecture. Reading the material before the corresponding lectures will help your performance in two ways. First, discussions of the material during lecture will be more fruitful if you have at least a general understanding of the material beforehand, helping you to ultimately comprehend and retain the material. 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 (see below)*.

Grading: Grading will be based on the combined scores from lab/participation (7.5%), quizzes (12.5%), two midterm exams (25% each), and the final exam (30%). Letter grades will be determined as follows: A (90 – 100% of total possible points), B (80 – 89%), C (70 – 79%), D (60 – 69%), F (0 – 60%); +’s and –’s will also be assigned (e.g., 90 – 93 = A–; 93 – 97 = A; 97 – 100 = A+). However, the instructor reserves the right to relax (but not stiffen) these criteria, depending on the actual distribution of grades.

Lab/participation (7.5% of final grade): Lab/participation scores will be determined by class participation (discussion, questions, etc., within the lab, lecture and office hours) and lab attendance. The weekly lab sections will be spent doing hands-on demonstrations/discussions, review sessions for the exams, or retaking the midterms. Attendance at the review sessions or midterm retakes is optional, but *to receive full credit for the lab participation portion of the final score, 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. For the make-up assignment, you must either attend one of the events listed in the Lab Documents module of the Canvas site, or listen to one of the podcasts linked there (these may be updated throughout the term, as new material presents itself). Then, you must write a short response paper on the event or podcast (at least 2 pages, 12 point font, double spaced, 1 inch margins) – tell what you found most interesting, describe insights that you gained, discuss related issues that were brought to mind, etc. Email your paper (in pdf or doc format) to the instructor for credit. **NOTE: You are only allowed one paper to make up for one missed lab.** 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 (12.5%): Short quizzes will occasionally be given in class (see the course outline, below). 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 12.5% 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 (Midterm #1: 25%, Midterm #2: 25%, & Final: 30%): The midterm and final exams will be composed of multiple choice, matching, fill-in-the-blank and short answer questions. The two midterm exams (but not the final exam) can also be optionally retaken during the lab period immediately following the exam, with the total exam grade equal to an average of the original and retaken exams; 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 exam 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 your instructor ***immediately***.

Extra Credit: Students interested in an extra credit assignment can serve as subjects in the Psychology Human Subjects Pool. The Human Subjects Pool is designed to provide students the opportunity to see first hand 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 serve as a subject, 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 79 up to an 82, 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 on 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 or GTF.***

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 contact your instructor or GTF to discuss the details of the requirement.

Classroom climate: It is my goal that you feel comfortable and respected – both by me and your peers – in this class. Please let me know if I or other students make you feel uncomfortable, so that corrections can be made. If you feel that you or someone else has been the victim of bias in this class, you may consider contacting the Bias Response Team (bias.uoregon.edu/index.html).

Classroom Etiquette: Students in large classes often believe they are invisible, that they will not be noticed, and that one's individual behavior does not matter. *This is not true!* You can make a difference by listening attentively, asking questions, and contributing to discussions. Just as actively engaged students have a positive influence on the classroom environment, activities like talking to your neighbor, texting, coming late, leaving early, personal grooming, reading the newspaper, loud yawns, sleeping, surfing the web, or cell phone use can be extremely disruptive. PLEASE make sure that you and your fellow students get the most from this course by abstaining from such activities. Cell phone use (for texting, calls, or web surfing) is prohibited (also, please silence your ringer before each class). Laptops can be used only for taking notes (no web surfing, checking Facebook, etc.), and they are highly discouraged even for that purpose.

Students Needing Accommodations for Accessibility: If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with me 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 and needed accommodations. For a list of resources provided by the Accessible Education Center, please see 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 me as soon as possible to make any necessary

special arrangements. If you think you may need to use a dictionary for in-class exams, you must ask to have your dictionary checked by me or one of the GTFs prior to the exam. Electronic dictionaries are not permitted.

Academic Honesty: All work submitted in this course must be your own. Violations will be taken seriously, and will be noted on student disciplinary records. If you are caught cheating, you will receive a 0 on the assignment; you may also receive a failing grade for the course. If you are in doubt regarding any aspect of these issues as they pertain to this course, please consult with the instructor before you complete any relevant requirements of the course. For more information, see the UO web site regarding student conduct, uodos.uoregon.edu/StudentConductandCommunityStandards/AcademicMisconduct.aspx.

Course Outline: This is only a working draft of the course outline; it will be revised as the quarter progresses. Additional readings may be added. Dates on which particular topics are to be presented in lecture are subject to change, as are reading assignment due dates; however, we will not change the dates of quizzes or exams unless absolutely necessary. The official updated version of the outline will reside on the Blackboard web site. Updated print versions can also be obtained from the instructor or GTFs during normal office hours.

Week	Date	Topic	Reading	Exams/Quizzes
1	Jan. 4	Intro to Brain & Behavior	Chapter 1	Quiz #1 (take home)
	Jan. 6	Cells & Structures I	Chapter 2	
2	Jan. 11	Cells & Structures II		Quiz #1 due
	Jan. 13	Neurophysiology I	Chapter 3	Quiz 2
3	Jan. 18	<i>MLK, Jr.'s Birthday</i>		
	Jan. 20	Neurophysiology II		Quiz #3
4	Jan. 25	The Chemistry of Behavior I	Chapter 4	
	Jan. 27	<i>Midterm Exam #1 – Chapters 1, 2 and 3</i>		Midterm exam #1
5	Feb. 1	The Chemistry of Behavior II		
	Feb. 3	Vision I	Chapter 7	Quiz #4
6	Feb. 8	Vision II		
	Feb. 10	Vision III		Quiz #5
7	Feb. 15	Hormones & Sex I	Chapter 8	
	Feb. 17	Hormones & Sex II		Quiz #6
8	Feb. 22	Biological Rhythms & Sleep I	Chapter 10	
	Feb. 24	<i>Midterm Exam #2 – Chapters 4, 7 and 8</i>		Midterm exam #2
9	Feb. 29	Biological Rhythms & Sleep II		
	Mar. 2	Emotions, Aggression & Stress	Chapter 11	Quiz #7
10	Mar. 7	Memory & Learning I	Chapter 13 (pgs. 368-393)	
	Mar. 9	Memory & Learning II		Quiz #8
11	Thursday, Mar. 17, 10:15 am	<i>Final Exam – Cumulative, but focused mainly on Chapters 10, 11 and 13 (pgs. 368-393)</i>		Final exam