

## **Biopsychology (PSY 304)**

University of Oregon Summer 2014

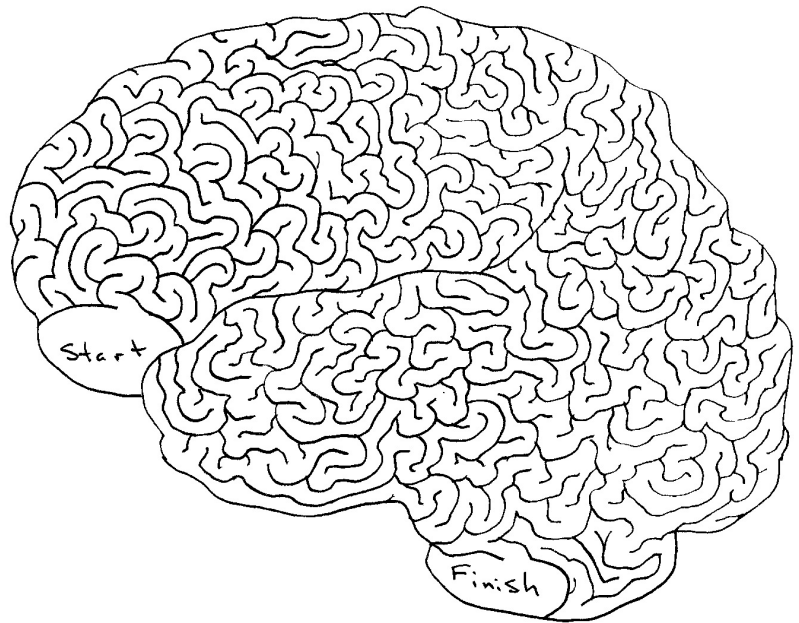
Time: MTWR, 2:00pm to 4:20pm, July 21<sup>st</sup>-August 14<sup>th</sup>

Location: ED 117

Instructors (office): Jenn Lewis (Franklin 228)

Office hours: Wednesday 10:45am-1:45pm or By appointment

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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, 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, which allows us to discover things about the world around us.
- Learning and memory, which provides a means of storing (and later recalling) that newfound information.
- 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.

### **Required Text:**

*Biological Psychology* 7<sup>th</sup> ed. by Breedlove and Watson

**Course Website:**

The official course website is on Blackboard (<http://blackboard.uoregon.edu>). Please notify me if you have difficulty logging into the site or accessing any of the material. This site will provide information for the course (course outline, grades, copies of lecture slides, etc.). This will also be where you will take your online quizzes.

**Optional Weblinks:**

You can get more neuroscience-related information at the External Links directory in the Blackboard site, or at the following web sites:

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

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

[http://ect.downstate.edu/courseware/neuro\\_atlas/](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 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 videos, demonstrations and discussion. Lecture material and readings will have overlap a lot, but will not be replications of each other; some lecture material will not be covered in the readings and vice versa. Lectures will also focus more in depth and often include additional information. 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 daily quiz.

**Grading:**

Grading will be based on the combined scores of ten quizzes (15% total), class participation (12% total), and four exams (73% total) for a total of 100 points. 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%). However, the instructors reserve the right to relax (but not stiffen) this criterion, depending on the actual distribution of grades.

**Class Participation (12%):**

Participation points will be determined by class participation (discussion, questions, etc., within both the lab and class activity) and class attendance. Class attendance will be determined by turning in your student info card (to be created in class) each day (half a point). If time permits we'll have a class activity or discussion in each lecture that will be spent doing either hands-on demonstrations/discussions, review sessions for the exams, etc. Participation gets you the points for the day (half a point). Class days with no activity will result in a full point for attendance. Please discuss with the instructor ahead of time if you think you'll have any trouble participating in the activity and an alternate assignment can be completed.

**Quizzes (15%):**

Short quizzes will be required for each day of class. These quizzes will range from 10-15 questions, are open book and will be timed. You will take each quiz via Blackboard. With the exception of Quiz 1, all quizzes will be due before the next class period. The quizzes will open up immediately after class and close promptly at 1:59pm the next day. There will be 12 quizzes throughout the course. Questions will be drawn from assigned readings for that day. These questions will be of a more general nature and should be easily answered if you have done a first pass of the reading. Of the 12 quizzes, the lowest 2 scores will be dropped. The average score of the remaining 10 will yield 15% of the final grade. No make-up quizzes will be offered. If you miss a quiz then that grade will be the one that will be dropped.

**Exams (Exam #1: 17%, Exam #2: 18%, Exam #3: 18%, & Exam #4: 20%):**

An exam will fall on the 4<sup>th</sup> day of each week (i.e., MTW: lecture, R: exam; Note\*: Special time for the final). The exams will be composed of multiple choice, matching, fill-in-the-blank and short answer questions. The last exam will contain questions drawn from the entire course, but with a greater focus on material covered since Exam #3. The Exams will be made up of material from the readings and lectures and will include some of the questions from the quizzes. *No make-up exams will be given without evidence of a valid excuse, and the last 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), then do not take this course!* If unforeseen circumstances during the term prevent you from taking an exam, notify the 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://psychweb.uoregon.edu/undergraduates/humansubs>. 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://psychweb.uoregon.edu/undergraduates/humansubs>. 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 me. 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 Prof. Lewis to discuss the

details of the requirement.

**Academic Learning Services:** If you have difficulty with the course materials at any time, you are encouraged to contact the instructor so that we can provide timely assistance. In addition, the resources of the Academic Learning Services (<http://als.uoregon.edu/services/services.html>) can be invaluable to students that require assistance in, for example, perfecting good study habits or honing their writing skills.

**Students with Disabilities:** 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. Please do not wait until the middle or end of the term. Also, please request that the Counselor for Students with Disabilities (Hillary Gerdes, [hgerdes@oregon.uoregon.edu](mailto:hgerdes@oregon.uoregon.edu), tel. 346-3211, TTY 346-1083) send a letter verifying your disability. For a list of resources provided by the Office of Disability Services, please see <http://ds.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.

**Academic Honesty:** All work submitted in this course must be your own. For the consequences of academic dishonesty, refer to the Schedule of Classes published quarterly. Violations will be taken seriously and are noted on student disciplinary records. 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 academic honesty at:

[http://studentlife.uoregon.edu/programs/student\\_judi\\_affairs/conduct-code.htm](http://studentlife.uoregon.edu/programs/student_judi_affairs/conduct-code.htm)).

### **Course Outline:**

This is only a working draft of the course outline. It may be revised as the term progresses. Dates on which particular topics are to be presented in lecture are subject to change. 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 instructors or teaching assistant during normal office hours.

- Week 1: Biological Psychology intro; Functional Neuroanatomy; Neurophysiology;
- Week 2: The Chemistry of the Brain; Hormones and the Brain; Biological rhythms, sleep and Dreaming
- Week 3: Sensation, Hearing, Vision, Taste, Smell; Learning and Memory
- Week 4: Attention and Higher Cognition; Emotions, Aggression and Stress; Psychopathology

Week	Date	Topic	Reading	Exams/Quizzes
1	July 21	Course overview and Intro to Biological Psychology	Chapter 1	Quiz #1
	July 22	Functional Neuroanatomy	Chapter 2	Quiz #2
	July 23	Neurophysiology	Chapter 3	Quiz #3
	<b>July 24</b>	<b>Test 1</b>		<b>Test 1</b>
2	July 28	The Chemistry of Behavior	Chapter 4	Quiz #4
	July 29	Hormones and the Brain	Chapter 5	Quiz #5
	July 30	Biological Rhythms & Sleep	Chapter 14	Quiz #6
	<b>July 31</b>	<b>Test 2</b>		<b>Test 2</b>
3	August 4	Whirlwind tour of Senses	TBA	Quiz #7
	August 5	Senses and motor day2	TBA	Quiz #8
	August 6	Learning and Memory	Chapter 17	Quiz #9
	<b>August 7</b>	<b>Test 3</b>		<b>Test 3</b>
4	August 11	Attention and Higher Cognition	Chapter 18	Quiz #10
	August 12	Emotions	Chapter 15	Quiz #11
	August 13	Psychopathology	Chapter 16	Quiz#12
	August 14	<b><i>Final Exam – Comprehensive, but focused mainly on Chapters 18, 15, 16</i></b>		<b>Test 4</b>

**Important! Final note:** Much of the exam material will primarily be based on lecture material. This includes both what is in the slides and what the instructors say when fleshing out the slides. Therefore, it is strongly suggested that you take good notes and attend class. If you anticipate not being able to attend class regularly then you may want to consider dropping the course. This is a 10-week course condensed into 4 weeks and contains somewhat challenging material. We will move quickly and cover a lot of ground. As the instructor, I will do all I can to facilitate your learning of the material, but please take note that to do well in this course it will require a significant amount of effort and diligence on your part. Please do not hesitate to ask questions during lecture, schedule office visits, and/or email me with any questions or needs for clarification of the material. This is not an easy course but it is definitely possible to do well if you put forth the effort and take advantage of all resources.

