

Psy 314, Behavioral Neuroscience

Instructor: Dr. Beatrice de Oca.

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Office Hours: Tues & Thurs 10:30 – 11:30 am; Wed 4:30 – 5:45 pm, or by appointment.

Required Text: Biopsychology, 8th Edition, J. Pinel, ISBN-10: 0205832563

Other readings will be assigned during the semester.

Lecture: Monday and Wednesday 6 – 7:15 pm in Broome Library 2330

Lab: Thursday 4 – 5:50 or 6:00 – 7:50 pm in Bell Tower 1716.

This course has a Blackboard site (MyCI) where you can find course information, course announcements, study guides and lecture material. Please verify your correct email address in Blackboard so that I can contact you regarding the class, if necessary.

Catalog description

Neuroanatomy, physiology, pharmacology and their application to cognition, emotion, language, learning, motivation, perception and memory. A lab fee is required.

Course overview

In behavioral neuroscience, we discover the biological basis of behavior, emotions, learning, memory, sleeping, eating, fighting, remembering, forgetting, seeing, hearing, feeling, being a baby, maturing, aging and much, much more. We will incorporate genetics, anatomy, physiology, pharmacology, evolution and more, to better understand psychology.

Student learning objectives

This is a required course for the Psychology major. Students completing this course will be able to do the following:

- Demonstrate an understanding of psychology in relation to natural sciences including biology, physiology, medicine, and neuroscience
- Demonstrate knowledge and understanding of theory and research in the biological and physiological bases of behavior
- Demonstrate knowledge and understanding of the contribution of animal research to our understanding of human behavior and brain physiology
- Demonstrate understanding of APA guidelines for the ethical treatment of human and non-human participants involved in neuroscience research
- Explain behavior using structural, chemical, and functional theories or models of the brain

What activities will help you achieve these objectives?

1. Read the text. In this course, reading the textbook is essential because the information builds upon itself.
2. Don't read a section and go on to the next in a hurry. Stop and summarize for yourself the main idea of that section. This will help you remember the information.
3. The main research project of this class begins by your selection of an article on a recent research finding on the biological basis of a particular behavior or disorder. This will allow you to apply and integrate information from the course to a topic of interest to you. Begin your project early in the semester and work on it periodically. If you wait until the end, you may not be able to put together the scholarly articles you'll need for a project you can be proud of.
4. Participate fully in the lab portion of this course.

How will success in achieving these goals be assessed?

1. There will be 5 exams based on the readings, lecture and laboratory activities. The lowest exam score will be automatically dropped from your grade calculation. If you need to be absent during one exam, that is fine as we'll automatically use only your best 4 scores.
2. One component of the course is a research project involving a short presentation to the class, summaries of 2 journal articles, and a paper that builds on these summaries. You can select an article describing a new research finding from several posted for you on Blackboard. These "seed articles" will be written for a general audience and will be the starting point for your research project. The total project includes:
 - a. **Brief Presentation:** You will prepare and deliver a 5 minute presentation describing the recent development described in the seed article that you downloaded from Blackboard. Your presentation should use PowerPoint presentation software so that you can readily insert graphics as needed. You'll present your article to the class on the lab day we cover that topic. Please approach me at the start of lab so you can do your presentation. Your presentation will be graded using the following criteria: clear, engaging text and graphics; clear, audible and engaging presentation to the class (don't just read); adhere to the 5 minute time limit.
 - b. **Journal Article Summaries (2):** The seed article provided for you on Blackboard is a summary written for a general audience that describes research published in scientific journals. Your first task is to find 2 scientific journal articles that report original research on the research described in the seed article. These 2 journal articles must not be review articles that describe many research studies; instead they should report the results of individual experiments. If possible, one article should be by the researchers whose work was described in the seed article. You'll probably need to search for the journal articles on Psych Info on the CSUCI library website by the researcher's name and the journal title or article topic. If the article's full text is not accessible through Psych Info, you should request it through inter-library loan. We will dedicate time in lab for you to find your 2 articles. Please show me the articles so I can approve them ahead of time. I'll be happy to look at a rough draft before each summary is due. **There are guidelines on Blackboard. Please submit the journal article along with your summary.**
 - c. **Research Paper:** You will also prepare a research paper based on the topic of your presentation. Please follow the guidelines for the paper available on Blackboard.
3. There will be a comprehensive final exam where you will be asked to apply knowledge from the course. A detailed study guide will be provided.
4. Participate in lab activities. The laboratory part of the course is designed to facilitate understanding, application and synthesis of information regarding behavioral neuroscience. It will help make the information in the course meaningful.

Grades (total in the class = 100)

4 exams, each worth 10 points = 40 points
Presentation of current research findings to the class = 3 points
Journal article summaries, 4 points each = 8 points
Research paper = 17
Final Exam = 22
Lab participation = 10

What if? (Class Policy)

1. There are no make up exams without prior approval.
2. The lowest exam grade (not the final) will be dropped.
3. The paper and any other assignments can be turned in one class period late without penalty. After that, the grade is dropped 5% per weekday (excluding weekends).
4. The research paper and summaries must be typed.
5. Your grade may be lowered as a result of application of the CSUCI Policy on Academic Dishonesty (SP 02-01). Please avoid any behavior that may be interpreted as academic dishonesty. All written work is to be your own individual creation. Cite the source of all ideas, facts and opinions in all your work, using APA guidelines. Feel free to discuss with me any questions you have about what

constitutes plagiarism or academic dishonesty. I recommend you consult the catalog for the CSUCI policy on Academic Dishonesty (SP 02-01) and the CSUCI Honor Code (SP 04-38).

6. Final grade determination. Your final grade will be based on the number of points you receive during the semester.

90 - 100 = A

80 - 89 = B

70 - 79 = C

60 - 69 = D

below 59 = F

7. Cal State Channel Islands is committed to equal educational opportunities for qualified students with disabilities in compliance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act (ADA) of 1990. The mission of Disability Accommodation Services is to assist students with disabilities to realize their academic and personal potential. Students with physical, learning, or other disabilities are encouraged to contact the Disability Accommodation Services office at (805) 437-8510 for personal assistance and accommodations.

8. The CSUCI Honor Code

Students shall observe complete honesty in all academic matters. All students are strongly urged to ask their faculty or staff members to clarify what types of conduct are authorized or unauthorized in each course. Violations of the Honor Code include, but are not limited to, taking or attempting to take any of the following actions:

1. Using unauthorized materials or receiving unauthorized assistance during an examination or in connection with any work done for academic credit. Unauthorized materials may include, but are not limited to, notes, textbooks, previous examinations, exhibits, experiments, papers, or other supplementary items.
2. Giving false or misleading information regarding an academic matter.
3. Copying information from another student during an examination.
4. Rendering unauthorized assistance to another student by knowingly permitting him or her to see or copy all or a portion of an examination or any work to be submitted for academic credit.
5. Obtaining prior knowledge of examination materials (including using copies of previously given examinations obtained from files maintained by various groups and organizations) in an unauthorized manner.
6. Providing or obtaining unauthorized copies of any portion of an examination or other course work.
7. Using a commercially prepared paper or research project, or submitting for academic credit any work completed by someone else.
8. Falsifying or attempting to falsify class attendance records for oneself, or for someone else, or having another falsify attendance records on your behalf.
9. Falsifying material relating to course registration or grades, either for oneself or for someone else.
10. Falsifying reasons why a student did not attend a required class or take a scheduled examination.
11. Taking an examination in the place of another student.
12. Making unauthorized changes in any reported grade or on an official academic report form.
13. Falsifying data submitted for academic credit.
14. Collaborating in an unauthorized manner with one or more other students on an examination or any work submitted for academic credit.
15. Committing the act of plagiarism - the deliberate copying, writing, or presenting as one's own the information, ideas, or phrasing of another person without proper acknowledgment of the true source.
16. Using University resources in an academically dishonest manner.
17. Falsifying evidence, intimidating, or influencing someone in connection with an honor violation investigation, hearing, or appeal.

Course Schedule (Schedule may need to change)

Week # & Date	Monday Lecture	Wednesday Lecture	Lab (Thursday)
1 8/27	Ch1 - What is biopsychology?	Ch2 - Evolution, genetics & experience	<ul style="list-style-type: none"> • Introduction to the psychophysiology lab
2 9/3	Labor Day Holiday – no meeting	Ch3 - Neurons & Neuroanatomy: How is the brain organized and how does it send and receive information?	<ul style="list-style-type: none"> • Organization of the nervous system • Lie Detector Activity
3 9/10	Ch. 3 continued	Exam 1 (Ch1-3)	<ul style="list-style-type: none"> • Sign up for seed article in lab. • Overview of Research Project • Selection of journal articles (required).
4 9/17	Ch4 – Neural communication	Ch. 4 – continued. Ch5 – Techniques for studying the neural basis of behavior and cognition.	<ul style="list-style-type: none"> • Processes and forces involved in the action potential • Release of neurotransmitter & the effect of drugs on the synapse.
5 9/24	Ch6 - Vision	Ch. 6 continued	<ul style="list-style-type: none"> • EOG (electro-oculogram)
6 10/1	<ul style="list-style-type: none"> ▪ Ch7 - Hearing and other senses. Awareness and attention. 	<ul style="list-style-type: none"> ▪ Ch. 7 continued 	<ul style="list-style-type: none"> • Summary 1 due • Sound localization: the virtual haircut • Touch: Measuring sensitivity
7 10/8	<ul style="list-style-type: none"> ▪ Exam 2 (Ch4-7) 	<ul style="list-style-type: none"> • Ch8 – Control of Movement 	<ul style="list-style-type: none"> • EMG (electromyogram)
8 10/15	<ul style="list-style-type: none"> • Ch. 8 continued • Ch9 Neural development. How do neurons grow and make connections? 	<ul style="list-style-type: none"> ▪ Ch9 – continued ▪ Ch10 - Brain damage and recovery 	<ul style="list-style-type: none"> • Group activity on neurological disorders. Please bring your textbook.
9 10/22	<ul style="list-style-type: none"> • Ch 11 Learning, remembering and forgetting 	<ul style="list-style-type: none"> • Ch 11 - continued 	<ul style="list-style-type: none"> • Summary 2 due • Memory podcast/ Conditioning Activity
10 10/29	<ul style="list-style-type: none"> ▪ Exam 3 (8 – 11) 	<ul style="list-style-type: none"> ▪ Ch17 - Mind-Body interactions: Emotions, stress and health 	<ul style="list-style-type: none"> ▪ Reactions to stress and threat
11 11/5	<ul style="list-style-type: none"> ▪ Ch12 - Hunger, eating and health 	<ul style="list-style-type: none"> • Ch13 – Hormones and sexual behavior 	<ul style="list-style-type: none"> • TBA
12 11/12	<ul style="list-style-type: none"> • Veteran's Day holiday (11/12) – no meeting 	<ul style="list-style-type: none"> • Ch 14 – Sleep, sleep stages and sleep disorders. 	<ul style="list-style-type: none"> ▪ EEG: looking at brain waves
13 11.19	<ul style="list-style-type: none"> ▪ Exam 4 (17, 12-14) 	<ul style="list-style-type: none"> • Independent activity – no meeting 	<ul style="list-style-type: none"> • Thanksgiving Holiday
14 11/26	<ul style="list-style-type: none"> ▪ Ch. 15 Addiction 	<ul style="list-style-type: none"> ▪ Ch16 - Cognitive neuroscience Left & right hemisphere specialization 	<ul style="list-style-type: none"> • Research papers due in lab. • Split brain activity
15 12/3	<ul style="list-style-type: none"> ▪ Ch 18 – The biological basis of psychological disorders ▪ Papers submitted after today's class are docked 5% per weekday. 	<ul style="list-style-type: none"> ▪ Ch 18 – continued. 	<ul style="list-style-type: none"> • Exam 5 (15, 16 & 18) • Review for final exam
	Final exam week – no class, lab or regular office hours this week. Office hours Monday & Wednesday 6-6:45 pm	Final Exam Wed 12/12 7 – 9 pm	