

PSYCH 3: Introduction to How the Brain Works (1 unit)

Summer 2019, TTh 3:30 – 5:00 pm, 2040 VLSB

Instructor

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Office hours: I can meet before or after class, just let me know

Course Description

This course is for students who are fascinated and curious about the human mind and brain, and for students who seek a rigorous yet accessible introduction to brain function. The course will give an overview of our current understanding of how the brain works and how it is altered by experience. How is it that we learn? How do we store memories? Specifically, this class will provide an introduction to the structure and function of sensory systems and the motor systems, as well as discussions of several interesting disorders and phenomena such as face blindness, synesthesia, and phantom limbs. In addition, we will discuss the capacity of the young and adult brain for plasticity and learning and present classical experiments to illustrate our understanding of these topics. We will learn about how language is processed in the brain, using insight from stroke patients and imaging studies. Finally, we will discuss the reward pathway and some neurological disorders, such as depression and Alzheimer's Disease.

Course Objectives

- To provide students with an overview of the functioning and structure of the mammalian nervous system.
- To introduce and compare the organization and function of sensory systems and how this relates to perception.
- To provide information on the functioning of the motor system in the context of plasticity and advances in prosthetics.
- To present an introduction to the neural mechanisms of learning and memory.
- To provide an environment that promotes discussion and questioning from and among the students.

Reading Materials

Required: Oliver Sacks, *The Man Who Mistook His Wife For a Hat and Other Clinical Tales*, 1985, Touchstone: Simon & Schuster. ISBN: 978-1491514078.

You can find this book used in bookstores, or buy it cheap online. You can probably also find pdfs of individual chapters online.

Recommended: Bryan Kolb and Ian Q. Whishaw, *An Introduction to Brain and Behavior 5th edition*, 2016, Worth Publishers. ISBN: 978-1464106019

A copy of the 4th edition of the Kolb textbook is available for 1 week loan at the Biosciences library in VLSB.

Reading: There will be reading assignments in the Oliver Sacks book that you should complete before coming to class. Reading assignments are listed on the class schedule. The textbook reading assignments are recommended, but not required.

bCourses: You should be enrolled in the bCourses PSYCH 3 website, which can be found at <https://bcourses.berkeley.edu/>

Please check the website frequently for assignments and announcements. Lecture slides will be posted in the Files section before class. All the quizzes and homework will be through bCourses and you can find them in the Assignments section.

Please also use Piazza on bCourses to ask questions about the class or material.

Class Organization

Online Quizzes: There will be four quizzes posted on bCourses about the material covered during the previous lectures. Quizzes will be open for a few days and you can take them twice. Your top score will count towards your final grade. **Quizzes will be due at 3:30pm on the days specified on the schedule.** Late quizzes will not be accepted

Reading and response assignments: You will have four reading assignments in the Oliver Sacks book that cover similar topics to what we will cover in class. Read the assigned chapters and write one paragraph that discusses the reading on bCourses (more than 6 sentences). In your response to the reading, you should discuss what you learned, what you found surprising or interesting and any questions you still have on the material. Your responses will be graded based on effort. The assignments are listed on the class schedule.

In-class Exams: Exams are closed book. They test your learning from lectures, online quizzes and the assigned Oliver Sacks chapters. You will not be tested on material in the textbook that was not covered in class. The exams will be given during the lecture period and will be multiple choice.

Exam 2 will focus on material from lecture 6-10, but you will still need to know earlier material (as it relates to the new material).

Grades:

Online quizzes	20 %
Reading responses	10 %
Exam 1	35 %
Exam 2	35 %

Accommodations

If you need disability-related accommodations in this class, if you have emergency medical information you wish to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately. Please see me privately after class or email me.

Students who need academic accommodations (for example, a notetaker), should request them from the Disabled Students' Program, 260 César Chávez Center, 642-0518 (voice or TTY).

If you have questions, comments, concerns: Please do not hesitate to contact the instructor! I am always available by email.

Policy on Cheating

Cheating is absolutely forbidden. The following constitutes cheating:

Plagiarism: It is defined as using another person's words without quotation marks and/or reference. In preparing reading responses, you may paraphrase written information from texts or articles but you must use your own words, clearly cite the source and identify the text that was paraphrased, and demonstrate that you understand that information. If you quote directly or nearly directly from a source, you must indicate this with the use of quotation marks and cite the source of the information.

Copying: Copying answers or using notes during an exam is considered cheating. Please keep your eyes on your own paper.

Altered Answers: Changing an answer on a reading assignment or exam, then trying to have the grade changed is considered cheating.

Impersonation: False representation of yourself as someone else in this course is a gravely serious offense. Please be prepared to show photo identification preferably a student ID card or driver's license, if asked.

Consequences: A person cheating on homework or exam will receive a 0 (zero) for that assignment or exam; their name and a description of the offense will be sent to the Dean of Students. Cheating offenses are punished by disciplinary probation, suspension, or expulsion. These actions are noted on your transcript! Please see the website of the Center for Student Conduct (<http://campuslife.berkeley.edu/conduct/code-of-conduct/policies>) for more information on student cheating and penalties.

If You See Cheating: If you think a fellow student is cheating, I urge you to discretely tell me about it. I will maintain your anonymity.

Class Schedule (subject to change)

Sacks = reading and response to Oliver Sacks book (see below), due on bCourses at 3:30pm
Online quiz = on bCourses and due at 3:30pm on the day indicated

Date	Day	Lec	Topic	Assignments due	Textbook (in Kolb)
July 9	T	1	Introduction to nervous system		Ch 2, 3
July 11	Th	2	Neuronal signaling		Ch 4, 5
July 16	T	3	Somatosensory system	Sacks #1 (Ch. 3,4,6) Online quiz 1	Ch 11
July 18	Th	4	Visual system	Sacks #2 (Ch. 1)	Ch 9
July 23	T	5	Motor system	Online quiz 2	Ch 11
July 25	Th		Exam 1 (Lec 1-5)		
July 30	T	6	Sleep		Ch 13
Aug 1	Th	7	Learning and memory	Sacks #3 (Ch. 2)	Ch 14
Aug 6	T	8	Language	Sacks #4 (Ch. 9) Online quiz 3	Ch 10
Aug 8	Th	9	Emotion and motivation		Ch 12
Aug 13	T	10	Neurological disorders	Online quiz 4	Ch 16
Aug 15	Th		Exam 2 (Lec 6-10)		

Reading and response assignments for Oliver Sacks book. Late reading assignments will not be accepted.

1) Read chapter 3, 4 and 6 about the somatosensory system

Response due on bCourses July 16 at 3:30pm

Since there are multiple chapters, try to briefly summarize them all and then focus on one particular chapter you found the most interesting

2) Read chapter 1 about visual perception

Response due on bCourses July 18 at 3:30pm

3) Read chapter 2 about loss of memory

Response due on bCourses Aug 1 at 3:30pm

4) Read chapter 9 about language impairment (aphasia)

Response due on bCourses Aug 6 at 3:30pm