Overview
This class will present an introduction to the brain mechanisms underlying mental processes and intelligent behavior. We will describe the anatomy of the brain, the properties of brain cells that enable them to perform computations, and the neural circuit mechanisms underlying sensory perception, motor control, memory and thinking. We will try to emphasize basic principles over rote learning. The class arc will go from basic introductory material all the way to latest research in the field of behavioral neuroscience.

Textbook
The optional text for the class is: "Behavioral Neuroscience", S. Marc Breedlove and Neil V. Watson, Sinauer Associates, Inc. Publishers, Sunderland, Massachusetts 2017. (The previous seven editions were titled "Biological Psychology"). This will give beneficial background material and further reading - but earlier (and hence cheaper) editions would also be useful.

Instructors
David Foster, professor in the Psychology Department and the Helen Wills Neuroscience Institute, is an expert in the neurophysiology of the hippocampus. His work focuses on "replay" phenomena, in which hippocampal neurons re-activate sequences of activity patterns from previous behavior, a phenomenon thought to underlie memory processing.

The Graduate Student Instructors are: Adam Krause (Prof. Matthew Walker laboratory) and Neta Gotlieb (Prof. Lance Kriegsfeld laboratory).

The lectures will be every Monday and Wednesday (see Syllabus) at 2pm in the Genetic & Plant Biology room 100.

Contact Information
Instructor TBD email TBA Office Hours: TBD
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Lecture/Exam Calendar

Part I: Biological Foundations

1. Introduction
2. The structure of the nervous system
3. Functional properties of neurons
   Labor Day - no class
4. Communication between neurons
5. Cellular mechanisms of memory I
6. Cellular mechanisms of memory II

Part II: Sensorimotor Processing

7. Introduction to sensory systems
8. Vision: the eye
9. Vision: the brain
10. Hearing and the vestibular system
11. Somatosensation
12. Motor control
13. Movement disorders

Part III: Behavioral Control

14. Reward systems
15. Computation with neural networks
16. Short-term memory
17. Long-term memory
18. Emotion
19. Drugs and addiction
20. Attention and consciousness
21. Stress - lecture by Neta Gotlieb
22. Sleep - lecture by Adam Krause
23. Executive control
   Thanksgiving - no class
24. Beyond individual neurons: sequence replay
   Q & A session

Discussion Sections

Weekly, 6 sections with max 25 students each:
Instructor TBD TBD
Important Information

Announcements
All important class announcements will be made through bcourses.
We will also make use of the forums feature of bcourses. If you have a question about the class material, rather than emailing, please post it to the forums, where one of the instructors will answer it. If you don’t understand something, it is likely that many students in the class don’t understand it, and so by posting your question to the forums, the entire class benefits. We also encourage you to answer other student’s questions if you know the answer.

Assessments
There will be two midterms and one final examination. Each midterm will constitute 30% of your grade. The final will be cumulative and will contribute 35% of the overall grade. 5% of the overall grade will be determined from RPP (see below).
Attendance at discussions sections as well as lectures is compulsory. We will record attendance and use it to make decisions when grades lie on a grade boundary.

Regrade Policy
We do our best to avoid mistakes in grading. However, please note that we are as likely to make a mistake and assign credit where it wasn’t deserved as we are to fail to assign credit where it was deserved. You are welcome to request a regrade, but please note that the entire paper will be regraded, with the result that your grade can either go up or down. Obviously, if you feel like we’ve made a big mistake, it is still in your best interest to have the entire paper regraded. However, if it is something small, you may be better off not requesting a regrade. The decision is yours.
Please understand that this policy is to try to ensure equitable treatment across the entire class of students. Different students have different personalities and some are less likely to complain about grades than others. This policy ensures that those differences do not end up affecting your grade.

Research Participant Program (RPP)
All students taking Psychology classes must serve as research participants. The maximum number of credits that can count towards your final grade is 3 (see table below). Please make sure that you assign your credits to this class before the end of semester (end of instruction). Even if this is your only psychology class, you must assign the credits. Failure to assign the credits will result in lower grades due to missed credit.

In order to learn how to create an RPP account and start participating in experiments, please go to the following link:

http://psychology.berkeley.edu/students/undergraduate-program/research-participation-program

and click on "RPP Information for Students".
You can also direct questions to rpp@berkeley.edu

The contribution of RPP credits to the overall grade is:
1 credit: 2%
2 credits: 4%
3 credits: 5%
Rules of Conduct

We expect all students to adhere to the UC Berkeley Honor Code: honesty, integrity and respect for others. Cheating and plagiarism are never tolerated.

The University of California strives to prevent and respond to harassment and discrimination. Engaging in such behavior may result in removal from class or the University. If you are the subject of harassment or discrimination there are resources available to support you. Please contact the Confidential Care Advocate (http://sa.berkeley.edu/dean/confidential-care-advocate) for non-judgmental, caring assistance with options, rights and guidance through any process you may choose. Survivors of sexual violence may also want to view the following website: http://survivorsupport.berkeley.edu

For more information about how the University responds to harassment and discrimination, please visit the Office for the Prevention of Harassment and Discrimination website: https://ophd.berkeley.edu