

**MCB 165: NEUROCHEMISTRY**  
**Department of Molecular and Cell Biology**  
**University of California, Berkeley**  
**Winter-Spring Semester 2013**

This class covers various aspects of synaptic chemistry, with a focus on human cellular and molecular psychopharmacology: the study at the brain neural-network and synapse levels of mechanisms of action of various psychoactive drugs. In this class, these cellular and molecular actions are placed in the context of attempts to probe and more deeply understand the relationships between brain physiology and mental experience - the so-called mind-body problem - and how these relationships relate to current understanding of mental health and disease.

Two Lectures and one optional Discussion Section meeting each week.

Lecture times: Tuesday and Thursday at 5:10 - 6:30 pm - 2060 VLSB

Instructor: David Presti 249 Life Sciences Addition (LSA)  
phone and voicemail: 643-2111 <presti@berkeley.edu>

Office hours: Tuesday 3:30-4:00 pm, Wednesday 1:30-2:00 pm, Thursday 11:30 am-12:00 pm  
I will also generally be available after each lecture for questions.

Weekly discussion sections: Wednesday 6:00 to 7:00 pm, 2070 VLSB  
Wednesday 11:00 am to Noon, 174 Barrows

Graduate Student Instructor (GSI): Drew Friedmann <df@berkeley.edu>  
Office hour: Monday 3-4 pm in 349 LSA

Required reading:

- *The Double Helix* by James Watson (1968)
- all other required readings will be posted on the course bSpace site

**Prerequisites:** Biochemistry and sufficient familiarity with the basics of cell biology and neurophysiology are required. You need to be able to read and understand publications from the primary scientific research literature in basic neuroscience. It is also recommended that you have taken, or are concurrently taking, MCB 160. For those needing additional background or review in cellular and molecular neurobiology, it is recommended to look at relevant chapters in *Principles of Neural Science* by Kandel, Schwartz, et al. Copies of this book are on reserve in the Biosciences Library in VLSB (under the course heading of MCB 160). The more background you have in neuroscience before taking MCB 165, the more you will get from this class.

**Grading:** Your grade in the class is based on exam performance (approximately 80% of your grade) and a research paper and associated homework (approximately 20%).

**Although the homework contributes only about 20% of your grade, turning in an acceptable research paper and the associated homework is required to pass the course. That is, not turning in an acceptable research paper and all of the associated homework will result in a failing grade, irrespective of how well you do on the exams. If you are taking the course P/NP, you must turn in an acceptable paper and associated homework in order to receive a passing grade. The research paper assignments are required in this way because we believe them to be an extremely important component of the learning in this class.**

Your letter grade in the course will be determined according to absolute standards of performance, which hopefully relate to your acquisition of knowledge and understanding of the material. You will not be competing against fellow students in the sense that we do not force letter grades to conform to a predetermined distribution. If everyone does extremely well, everyone could receive an "A" grade in the class. If everyone does poorly (highly unlikely), then everyone could get a low grade. Rather than devoting energy to worrying about where grade cut-offs are, if you are truly interested in this subject and in getting the most from this class, we urge you to study seriously from the beginning, do the readings, and truly make an effort to learn the material. You will be rewarded with deep knowledge and understanding of some really fascinating topics. Good grades will be a natural side effect.

In past years, the majority of students taking this class have earned "A" or a "B" grades. Thus, most students do well in this class. However, in order to do well in the class, you do have to learn a bunch of stuff. It is also easy to get a "C" or even lower grade in the class, if you don't put in sufficient effort.

**Exams:** Exams will consist of a combination of different types of questions: multiple-choice, short-answer, and essay. Each midterm exam covers the preceding portion of the course and draws from materials in the lectures and readings. The final exam is comprehensive and covers material from the entire semester. Study guides will be provided and review sessions will be conducted prior to each of the exams. There will be no surprises or trick questions. Our desire is for you to learn the material and do well on the exams.

- midterm exams will take place in 2060 VLSB at 5:10 pm, the usual class time and place
- mark your calendars now; the days and times of these exams will not be changed
- Midterm Exam I is on **Thursday February 28** at 5:10 pm
  - this exam will cover course material from lectures Jan 22 through Feb 26 and corresponding reading material posted on bSpace
  - this exam will also cover material from *The Double Helix* (the entire text written by James Watson)
- Midterm Exam II is on **Tuesday April 16** at 5:10 pm
  - lecture and corresponding reading material, March 5 through April 11
- Final Exam is on **Friday May 17** at 11:30 am (Exam group 18)
  - lecture and reading material for the entire semester

- there will be no make-up exams
  - if you miss an exam, you will receive zero points for that exam
  - if you miss a midterm exam with a credible excuse (e.g., significant medical problem documented with verifiable documentation, **submitted in person to course instructor**), then your final exam will count proportionally more in determining your course grade
  - if you miss the final exam with a credible excuse, you will receive an incomplete (I) grade for the course (provided you have passing status in the class prior to the exam, otherwise grade = F); it may be necessary to wait until the next time the class is given to resolve the incomplete grade

**Homework:**

- detailed guidelines for the research paper will be posted on bSpace
- read and follow them carefully
- the research paper will be due sometime in mid-April; the exact date will be provided shortly
- detailed instructions for the associated homework will be provided shortly
- these homework assignments will involve locating and describing reference material that you are using in researching your paper and anonymous reviewing of one another's papers - useful and enjoyable projects!
- **The quality of your research paper is likely to be greatly enhanced by working on it slowly over time, rather than frantically producing something at the last minute.**

**Collaboration and Independence:** Reviewing lecture and reading materials and studying for exams can be enjoyable and enriching things to do with fellow students. We recommend this. However, unless otherwise instructed, homework assignments are to be completed independently and materials submitted as homework should be the result of one's own independent work.

**Cheating:** A good lifetime strategy is always to act in such a way that no one would ever imagine that you would even consider cheating. Anyone caught cheating in this class will receive a failing grade in the course and will also be reported to the University Center for Student Conduct. In order to guarantee that you are not suspected of cheating, please keep your eyes on your own materials and do not converse with others during exams.

**Plagiarism:** You must be original in composing the writing assignments in this class. To copy text or ideas from another source without appropriate reference is plagiarism and will result in a failing grade for your assignment and usually further disciplinary action. For additional information on plagiarism and how to avoid it, see, for example:  
<http://www.lib.berkeley.edu/instruct/guides/citations.html#Plagiarism>  
<http://gsi.berkeley.edu/teachingguide/misconduct/prevent-plag.html>

**Academic Integrity and Ethics:** Cheating on exams and plagiarism are two common examples of dishonest, unethical behavior. Honesty and integrity are of great importance in all facets of life. They help to build a sense of self-confidence, and are key to building trust within relationships, whether personal or professional. There is no tolerance for

dishonesty in the academic world, for it undermines what we are dedicated to doing - furthering knowledge for the benefit of humanity.

We hope that your experience as a student at UC Berkeley is fueled by passion for learning and replete with fulfilling activities. And we also appreciate that being a student can be stressful. There may be times when there is temptation to engage in some kind of cheating in order to improve a grade or otherwise advance your career. This could be as blatant as having someone else sit for you in an exam, or turning in a written assignment that has been copied from another source. And it could be as subtle as glancing at a fellow student's exam when you are unsure of an answer to a question and are looking for some confirmation. One might do any of these things and potentially not get caught. However, if you cheat, no matter how much you may have learned in this class, you have failed to learn perhaps the most important lesson of all.

**Communication and E-mails:** We like teaching this class! The material is fascinating and, we believe, useful and important stuff to know. I enjoy being available during office hours and after lectures to answer questions and further discuss the material. I greatly prefer in-person contact to email. Toward this end, I hold office hours three days a week and am generally available following lectures for brief questions and discussion. Questions of importance or ones that require detailed answers must be addressed in person. In most circumstances, I am unlikely to respond to e-mail questions. **Always make sure to see me in person about any important matter.** It will never be an acceptable excuse to say to me something like: "Well, I sent you an email and never heard back." **As stated: Always make sure to see me in person about any important matter.** E-mail is a wonderful tool and very convenient. However, it is not a substitute for direct personal contact, especially when such contact is easy, as it is with me.

- University holidays - no discussion sections or lectures on these days:
  - Monday, February 18: honor US presidents, may they continue to be up to the tasks at hand
  - March 25-29: Spring Break - take a well-deserved rest
- astronomical dates of importance, days of ancient ritual:
  - New Moons: January 11, February 9, March 11, April 10, May 9, June 8, July 7, August 6
  - Full Moons: January 26, February 25, March 27, April 25, May 24, June 23, July 22, August 20
  - Spring Equinox: March 20
  - Beltane: ~ May 1
  - Summer Solstice: June 20
- reference for lunar and solar information (an awesome website):
  - [www.usno.navy.mil/USNO/astronomical-applications](http://www.usno.navy.mil/USNO/astronomical-applications)
  - Astronomical Applications Department of the US Naval Observatory

Best wishes for a very enjoyable semester together!