

MCB 61: BRAIN, MIND, AND BEHAVIOR
Department of Molecular and Cell Biology
University of California, Berkeley
Winter-Spring Semester 2013

The human brain is the most complex structure in the known universe. The study of its structure and function and how it figures into our actions and experience is among the most exciting arenas of modern science. This class will begin with molecules and cells, build up to brains and nervous systems, encompass neural signaling, sensory perception, memory, language, and emotion, and culminate with the great mystery of how brain processes relate to mental experience, that is, how the mind is related to the brain. This is a comprehensive introduction to the exciting subject of contemporary neuroscience, open to all interested students.

Two Lectures and one Discussion Section meeting each week.

Lecture times: Tuesday and Thursday at 9:40 - 11:00 am - Wheeler Auditorium

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

Required reading:

- MCB 61 Course Reader - at Copy Central, 2576 Bancroft Way
- *The Double Helix* by James Watson (1968)
- all other required readings will be posted on the course bSpace site

Graduate student instructors (GSIs) and their e-mail addresses:

Daniel Liu	<daliu87@berkeley.edu>
David Arroyo	<david.arroyo@berkeley.edu>
Francine Foo	<francinegsi@gmail.com>
Levi Gadye	<levithegsi@gmail.com>
Oscar Vazquez	<oscar.vazquez@berkeley.edu>
Tyler Lee	<tylerlee@berkeley.edu>
Vanessa Carels	<vcarels@berkeley.edu>

The GSIs are here to help you get the most from this class. You are encouraged to get to know and talk with your GSI. Your GSI will see you in weekly Discussion Section and will also be available to meet with you during weekly office hours. Don't be shy!

Discussion Sections:

101	Mon	9-10	2030 VLSB	Levi
102	Mon	10-11	2038 VLSB	Levi
103	Mon	10-11	2032 VLSB	Daniel
104	Mon	1-2	2030 VLSB	David
105	Mon	1-2	2062 VLSB	Francine
106	Mon	3-4	2066 VLSB	David
107	Mon	3-4	2038 VLSB	Vanessa
108	Tue	1-2	2066 VLSB	Oscar
109	Tue	2-3	2032 VLSB	Oscar
111	Wed	10-11	2032 VLSB	Tyler
112	Wed	11-12	2030 VLSB	Vanessa
113	Wed	1-2	2032 VLSB	Francine
114	Wed	3-4	2030 VLSB	Tyler
116	Thu	1-2	2038 VLSB	Oscar
117	Thu	2-3	2062 VLSB	Daniel
118	Thu	3-4	2062 VLSB	Daniel
120	Fri	10-11	2032 VLSB	David
121	Fri	11-12	2032 VLSB	Vanessa
122	Fri	12-1	2038 VLSB	Francine
123	Fri	1-2	125 Li Ka Shing	Tyler

Prerequisites: A passion to learn! There are no University course prerequisites for MCB 61. Both non-science and science majors are encouraged to enroll.

Attendance: We ask that you attend all lectures and discussion sections, unless special circumstances interfere with your doing so. While the factual content in the course may be learnable by reading and obtaining notes from the lectures, we believe there are very important elements of the material that are best, if not exclusively, communicated or transmitted through in-person contact. Basically, there is more to learning than memorizing facts, even if memorizing facts is part of what needs to be done in order to fully grasp the subject. Your homework assignments will be turned in to your GSI during discussion section. All assignments must be turned in as paper copy. E-mailed assignments will not be accepted. There will also be exercises and debates in discussion section that contribute to your course grade. We may monitor attendance in the lectures and discussion sections by giving unannounced quizzes.

Grading: Your grade in the class is based on exam performance (85-90% of your grade) and discussion section assignments (10-15% of your grade). Exams consist of two midterms and a final. The final exam will be longer and cover the entire semester, and will be worth more than a midterm exam (although less than both midterm exams together). The discussion-section assignment portion of your grade comes from written homework assignments and participation in oral-group debates. For one of the debates you will be graded on your participation as part of a debate team; for the other two debates you will be graded on participation in the class discussion. The exact % contributions of the various exams, quizzes, and assignments will be determined at the end of the semester. We do not indicate the exact % contributions of the

grade components at the beginning of the semester because we wish to discourage the running computation of points and accompanying preoccupation with how well one is doing in the class. We do not wish to hear questions of the form: "How well do I need to do on the final exam in order to get an 'A' in the class?" Our answer to such questions will always be: Do as well as you can on all exams and assignments! The goal is to enjoy learning the material and the assignments hopefully assist with this learning.

Although the homework and debate assignments are worth only 10-15% of your grade, it will not be possible to receive higher than a "C-" grade in the class without turning in all of the written homework assignments and participating on an oral-debate team. If you are taking the course P/NP, you must turn in all of the homework and participate in the debate in order to pass the class. The homework and debate assignments are required in this way because we believe them to be an important component of the learning in this class.

Exams: Exams will consist of multiple choice and short answer questions. Each midterm exam covers the preceding portion of the course and draws from material in lectures, discussion sections, 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 Exam I is on **Tuesday March 5** at 9:40 am in Wheeler Auditorium
 - this exam will cover course material from the Lectures of Jan 22 through Feb 28 and corresponding material from Discussion Sections and Reader (probably chapters 1-9)
 - this exam will also cover material from *The Double Helix* (you are responsible for the main text of the book, written by James Watson)
- Midterm Exam II is on **Tuesday April 23** at 9:40 am in Wheeler Auditorium
 - this exam will cover course material from the Lectures of March 7 through April 18 and corresponding material from Discussion Sections and Reader (probably chapters 10-17)
- Final Exam is on **Wednesday May 15** at 11:30 am (Exam Group 10)
 - this exam is comprehensive and covers material from the entire semester
- we cannot change the days and times for these exams; mark your calendars now
- 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 the professor**), 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:

- homework assignment 1 relates to an article that you find from the news media
 - due in discussion section the week of **February 4-8**
- homework assignment 2 is drawn from your reading of *The Double Helix*

- due in discussion section the week of **February 11-15**
- homework assignment 3 is on writing questions appropriate for an exam in MCB 61
 - due in discussion section the week of **April 8-12**
- homework assignment 4 is haiku poetry composition about brain, mind, and behavior
 - due in discussion section the week of **April 29 to May 3**
- detailed instructions for the homework will be provided in class
- homework assignments are to be turned in to your GSI as paper copy, **not e-mailed**
- Assignments turned in up to one week after the due date will receive at most half-credit. Assignments turned in 1-2 weeks after the due date will receive zero points but will be credited as being turned in. Assignments received more than 2 weeks late may not be accepted. Note that this can have substantial impact on your course grade, since, as stated above, you need to receive credit for all four of the homework assignments in order to receive better than a C- grade (for a letter grade) or a passing grade (for a P/NP grade) in the class. Thus, be sure to complete your homework on time. This is not an arbitrary rule, but is done to encourage completion of the homework in the way in which we believe it to be most useful.
- Homework assignments are meant to be interesting, informative, and enjoyable!

Debates:

- there will be three debates conducted in discussion section, with one-third of the class directly involved each of the debates
- the first debate will be during the week **February 18-22**, the second will be during the week **March 11-15**, and the third will be during the week of **April 1-5**
- debate topics and instructions will be provided in class
- we do our best to choose topics that will make for very interesting debates, where strong arguments can be made for both sides of the issue
- if ideas occur to you that would be interesting to consider as a debate topic, please let us know; we may actually be able to use your suggested topic this semester!

Grade Philosophy: 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. 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 percentage of students earning an "A" or a "B" in this class has generally been between 60 and 70%. Thus, the majority of 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.

Do not make the mistake of not keeping up with the material and then trying to negotiate a last-minute deal to improve your grade. Over the years I have received many desperate e-mails asking, sometimes begging, to do extra-credit assignments, write papers, volunteer in a laboratory, etc. in order to improve one's grade. Usually these requests are received at the end of semester, sometimes even after grades have been posted. A selection of representative examples is posted on the course website as "Emails to Avoid Writing." Please take a few minutes to read them. I recommend that you not get yourself into the position of needing to make such requests. I no longer respond to e-mails of this nature (see section below on e-mail). Note that we do not offer extra credit or make other arrangements to boost grades. If you want a good grade, you must learn the course material in a timely manner. It is as simple as that.

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. The debate assignment, in particular, is meant to be a collaborative enterprise. 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 on a quiz or exam in this course 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 the quizzes and 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
 - Astronomical Applications Department of the US Naval Observatory

Best wishes for a very enjoyable semester together!