MCB 64
Exploring the Brain: Introduction to Neuroscience

Fall 2013
100 LEWIS, T Th 2:00 – 3:00 pm

Instructor	Office	Office Hours	Email
Natalia Caporale	308 Barker Hall	Th 12:00-1:30pm	caporale.n@berkeley.edu

GSIs

Cameron Baker	TBD	Mon & Wed 3-4pm	CameronKBaker@berkeley.edu
Ryan Neely	TBD	Tu & Th 5:30-6:30pm	ryan_neely@berkeley.edu
Saira Zaidi	Free Speech	Mon 9-11 am	gsisaira@gmail.com

Discussion Sections

101 DIS	M 2-3 pm	209 Dwinelle	Cameron Baker
102 DIS	M 3-4 pm	209 Dwinelle	Ryan Neely
103 DIS	F 11-12 pm	130 Wheeler	Ryan Neely
104 DIS	F 12-1 pm	229 Dwinelle	Saira Zaidi
105 DIS	F 1-2 pm	125 Li Ka Shing	Saira Zaidi
106 DIS	M 1-2 pm	2070 VLSB	Cameron Baker

Course Intention: This is a lower, introductory course into the structure and function of the nervous system at the cellular and systems levels. Throughout the course, we will cover cellular physiology of neurons, the various sensory systems, motor systems and a few "higher" brain functions such as sleep, learning and memory. We will discuss how the brain manages to coordinate all these various functions, as well as examine examples of what happens when the brain "fails" at its job (illusions, diseases, etc).

There are no pre-reqs for this class, though a working knowledge of the principles of biology is assumed during lectures.

Important: ***MCB Students*** *will receive no credit for MCB 64 after taking 61, 104, 100A/Chemistry C130, 110, 130A, 136, 160, C160/Neuroscience C160, or Integrative Biology 132.*

Required Materials

Textbook: *Neuroscience: Exploring the Brain* 3rd Ed. Mark F. Bear, Barry W. Connors, Michael A. Paradiso. ISBN: 0781760038. This book is available at UC Bookstore; however, it can also be purchased from other sources. It is at least 3 years old, so you should be able to find used versions too.

Iclicker: We will be using the iclicker system in class. iclicker 1, iclicker 2 and iclicker + will work. Bring them to ALL classes.

Important Dates

Start of instruction	Thu Aug 29
Last day to drop or add the class	Fri Sep 27
Last day to change grade option	Fri Nov 1
Thanksgiving Break – No Classes	Thu Nov 28
Last day of classes	Fri Dec 6
R/R/R Week	Dec 09 -13
Final Exam	Tue Dec 17, 8:00-11:00 AM

Lecture and Powerpoints: Students are expected to download powerpoints for the lectures, print out the slides and review them prior to class. Slides are available on the bspace site.

Readings: Students are expected to read the materials before coming class.

Bspace: You should be enrolled in the MCB 64 iLearn web site, which can be found at bspace.berkeley.edu **Electronic copies of all course materials except the textbook are available from the bspace site.**.

Discussion Sections: Each student must be enrolled in a discussion section. *Discussion sections are compulsory and attendance will be taken*. In them the GSIs will help you review topics covered in lecture and address your questions. We have limited space in this class, so if you would like to switch to a different discussion section, you will need to find someone in that section willing to switch to yours. **You can't switch sections without GSI approval!**

Clickers: We will use clickers throughout the class (worth 5% of your final grade). Clicker questions will not be given each class but very often, so you are responsible for bringing your clicker to all lectures. There will be ~3-6 questions per session. **Clicker scores will be given for participation.** Full credit will correspond to 75% participation.

Quizzes: Short, multiple choice quizzes will be given online every week. These brief quizzes will allow you to assess your understanding of the material thus far and also help us to know where students are struggling and which topics might need more attention/time. The lowest 2 quizzes will be dropped (this is in place in part to account for cases of forgetting to do the quiz or not having internet, etc).
Quizzes will be due on Mondays at 11:55pm.

To keep in mind about quizzes: Bspace sometimes runs into trouble. If you run into problems with your quiz, you should contact your GSI with a copy of your answers before the quiz deadline. So keep track of them as you do the quiz. If you don't do this, we can't guarantee a score in the quiz!! **If you miss the quiz for any reason, you will receive a 0.**

Online Assignments The class will have 3 online assignments where you will explore other aspects of neuroscience in society For example, one assignment will ask you to search for a newspaper article on neuroscience, summarize it and discuss its relevance in today's world. You will be graded on following the instructions and your efforts, and the logic of your arguments, not on providing the "right answer". ***Check BSPACE for deadlines!!***

Exams: All exams are closed book. They test your learning from lectures, discussion and readings. The two midterm exams will be given during lecture periods and are non-cumulative. The final exam will be given during finals week. Exams will be a combination of multiple choice, labeling and short answer questions. Exams will use **scantrons that we will provide**.

The final will contain some material from the entire course (30%) but will be heavily weighted on the material following the second midterm (70%).

> *Policy on make-up exams: **Make up exams will be ORAL and will be conducted on a date agreed between the student and the instructor, no later than a week after the original exam date**. If you miss a mid-term exam and provide **a legitimate written excuse**, the scores from the other mid-term and the final exam will be averaged and used to determine your grade for the class. Examples of legitimate excuses: police accident report, doctor's note explicitly saying you were bedridden, etc.*

Grades: Grades are based on clicker participation, top quizzes (lowest 2 quizzes are discarded), two midterm exams and a final.

Quizzes:	7 %
Clicker Questions:	5 %
Section:	3 %
Online Written Assignments (3):	3 %
Midterms (2):	48%
Final Exam:	34%

Your letter grade in the course will be determined according to **absolute standards of performance**. You will not be in competition with your classmates for the grades nor will the class be curved to a predetermined distribution. It would be wonderful if everyone would get an A in the class. However, note that letter grades are based upon the points that you EARN (not based upon needs or wants).

Grades are usually assigned following the guidelines below:

A (some form of an A)	100-90%
B (some form of a B)	89-80%
C (some form of a C)	79-70%
D (some form of a D)	69-60%
F	59-00% or lower

Nevertheless, in the event that some examinations have been unusually difficult, the cut offs for letter grades may be lowered (but only by a few percentage points, and only if deemed necessary).

We strongly recommend that you focus on learning and enjoying the material! If you are enjoying the class and excited about the materials we are discussing, the good grades will follow!

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 problem sets, 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.

Attendance: Signing in for another student to make it appear that they are attending class is considered cheating.

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 problem set 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.

False Grade Change: Forging or altering a grade change form is also a gravely serious offense. The Registrar's Office is wise to this; they carefully check signatures and send copies of all grade change requests to the faculty member.

Consequences: A person cheating on a problem set 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, we urge you to discretely tell us about it. We will maintain your anonymity.

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Class Schedule (subject to change)

Date	Day	Lec #	Topic	Reading
Aug 29	Th	1	Introduction to the Class Introduction to the Nervous System	Ch 1
Sep 3	Tu	2	General Organization of the Nervous System	Ch 1, Ch 7 (168-174; 192-199)
5	Th	3	Cellular Elements of the Nervous System	Ch 2 (24-27; 41-48)
10	Tu	4	Resting Membrane Potential (Frank Werblin)	Ch 3 (all)
12	Th	5	The Action Potential (Frank Werblin)	Ch 4 (76-93)
17	Tu	6	Action Potential Propagation (Frank Werblin)	Ch 4 (93-98)
19	Th	7	Mechanisms of Synaptic Transmission	Ch 5 (101-124; 126-131)
24	Tu	8	Neurotransmitter types and Receptors	Ch 6 (146-152; 154-164)
22	Th	9	*Fallout – Review*	
Oct 1	Tu		***Midterm I***	
3	Th	10	Introduction to Sensory Systems	Lecture
8	Tu	11	Somatosensory System	Ch 12
10	Th	12	Chemical Senses	Ch 8 (252-271)
15	Tu	13	The Eye (John Flannery)	Ch 9
17	Th	14	Ocular Diseases and Treatments (J Flannery)	
22	Tu	15	Higher Visual processing	Ch 10
24	Th	16	Auditory System	Ch 11
29	Tu	17	Plasticity in the Brain	Lecture
31	Th	18	*Fallout – Review*	
Nov 5	Tu		***Midterm II***	
7	Th	19	Local Control of Movement	Ch 13
12	Tu	20	Central Control of Movements	Ch 14
14	Th	21	Basal Ganglia and Cerebellum	Ch 14
19	Tu	22	Integrating Movement and BMI	
21	Th	23	Memory Systems	Ch 24
26	Tu	24	Vertebrate Learning and Memory	Ch 25
28	Th		***Thanksgiving***	
Dec 3	Tu	25	TBD	
5	Th	26	*Fallout and Review*	
Mon 9 - Fri 13			***RRR Week***	

Final Exam on Dec 17 – 8:00 - 11:00 am (70% new material, 30% old)