

## BISC-230xg, **Biology of the Brain**

Fall Semester 2016

**Course Description:** This is a GE course (D, Life Sciences) designed for non-science majors and is not available for major credit. Topics to be considered include the structure and function of the brain of humans and other animals including the role of the brain plays in regulating a range of behaviors.

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**Blackboard:**  
<https://blackboard.usc.edu>

**Textbooks:**  
(MM): *The Mind's Machine* by Watson and Breedlove.  
Publisher: Sinauer. ISBN: 9780878939336.  
(SP): *Sensation and Perception* by Wolfe et. al.  
Publisher: Sinauer ISBN: 9781605352114

**Lectures:** TTW 3:30-4:50 PM, ZHS 252

PowerPoint slides of the lectures will be posted to Blackboard in advance of each class meeting. The contents of these slides will be drawn largely from the textbook readings but may also contain information from other sources. A successful learning strategy is to read over the lecture notes before class so that class time can be efficiently spent learning the material in greater depth.

**Grading (there is no "extra credit" so please, don't ask):**

Lecture Exam 1 (Tuesday, September 20)	100 points
Lecture Exam 2 (Thursday, October 13)	100 points
Lecture Exam 3 (Thursday, November 10)	100 points
Final Exam (Tuesday, December 13; 2-4PM)	100 points
Laboratory (see lab schedule below for point breakdown)	100 points
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Total	500 points

**Lecture Exams:**

There will be four in-class exams that will consist of a mix of short-answer, multiple choice, true/false, fill-in-the-blank and matching type questions. Exams will cover information given in lectures only; laboratory performance will be covered separately in the labs (see below). The final exam will cover material since the third exam and will also have a cumulative portion covering the entire course. If you arrive late for an exam; and another student has already finished their exam and left the exam room you will not be permitted to take the exam and will receive a score of zero for that exam.

**Pass/No Pass Policy:**

Students taking this course with the Pass/No Pass option must have a final score equivalent to "C minus" or better to receive a "Pass." "No Pass" will be assigned for final scores less than the equivalent of a "C minus."

**Re-Grading of Exams:**

If you wish to have one or more exam questions re-graded you must submit a *written* request within one week of when your exam was returned to you. The entire answer will be re-graded, not just the part you think deserves more credit. Your score may go up or down as a result of a re-grade.

**Missed Exams:**

No make-up exams will be given. Students who are unable to take an exam at the scheduled time must give written notification as soon as possible, preferably in advance. Students who miss an exam, assignment, quiz, etc. for a legitimate reason (*e.g.* a medical issue) must provide written documentation of said reason within seven days of the exam or assignment due date. Documentation must be sent to Dr. Moore. If documentation is not received within seven days the score for the missed assignment will be a zero. Upon receipt of valid documentation, the score for the missing assignment will be prorated. In other words, the score for the missed assignment will be the average of the score for the other like assignments. (For example, if exam 2 is missed, that score will become the average of exams 1, 3, and 4).

**Final Grade Determination:**

Grades will be assigned on a curve, based on the total number of points earned in the course. After each exam a curve will be given by the instructors to indicate roughly what letter grade corresponds to students' current number of points. Specifically, you will be provided with the current course average and a provisional letter grade scale. Please remember that the course mean provided on Blackboard is provisional as it is based on the number of points possible at that point in the course. Only the total number of points earned by the end of the semester will determine course grades.

**Lecture Schedule:**

Topics will be covered in the general order given below. Because this is a General Education course, it allows some flexibility. If a topic garners more interest, we may dwell on it longer than others of less interest.

Lecture #	Date	Topic	Reading
1	Tu 8/23	Introduction to and overview of the course	
2	Th 8/25	How did we get here? (Evolution of the brain)	MM: Chapter 1
3	Tu 8/31	What's up there between our ears? (Structure and organization of the nervous system)	MM: Chapter 2 SP: Chapter 1
4	Th 9/1	What exactly is that three pounds of flesh and how did it get that way? (Cells and development of the nervous system)	MM: Chapter 2 SP: Chapter 1
5	Tu 9/6	The brain is cordless and rechargeable (Electrical properties of neurons)	MM: Chapter 3 SP: Chapter 1
6	Th 9/8	Neurons signal faster than you can drive (Neurophysiology)	MM: Chapter 3; SP: Chapter 1
7	Tu 9/13	Neurons have their own language (Synaptic transmission)	MM: Chapter 4
	Tu 9/15	Review for Exam 1	
	Tu 9/20	<b>EXAM 1 (covers lectures 1-7)</b>	
8	Th 9/22	How did that feel? (The somatosensory system)	MM: Chapter 5 SP: Chapter 13
9	Th 9/27	Say what? (Sound and hearing)	MM: Chapter 5 SP: Chapter 9,10
10	Tu 9/29	Why rollercoasters are so much fun (The vestibular system)	MM: Chapter 5 SP: Chapter 12
11	Th 10/4	What <i>is</i> that smell? (Olfactory system)	MM: Chapter 5 SP: Chapter 14
12	Tu 10/6	That sure is yummy! (Gustatory system)	MM: Chapter 5 SP: Chapter 15
	Th 10/11	Review for Exam 2	
	Tu 10/13	<b>EXAM 2 (covers lectures 8-12)</b>	
13	Th 10/20	The eyes have it (The visual system)	MM: Chapter 7 SP: Chapter 2,3
14	Tu 10/25	Can you see that? (it's right in front of you) (The retina and visual processing)	MM: Chapter 7 SP: Chapter 5
15	Th 10/27	Is that what I think I see? (Perception of objects)	MM: Chapter 4
16	Tu 11/1	Two eyes are better than one (Binocular vision)	MM: Chapter 6

17	Th 11/3	Pay attention, this <i>will</i> be on the exam (The importance of attention)	MM: Chapter 14 SP: Chapter 7
18	Tu 11/3	Wait, wasn't that here just a second ago? (Scene and motion perception)	SP: Chapter 8
	Th 11/8	Review for Exam 3	
	Tu 11/10	<b>EXAM 3 (covers lectures 13-18)</b>	
19	Th 11/15	I learn but do I remember? (Learning and Memory I)	MM: Chapter 13
20	Tu 11/17	Oh, yeah, now I remember (Learning and Memory II)	MM: Chapter 13
21	Th 11/22	Wake me when it's over (Biological rhythms and sleep)	MM: Chapter 10
	Tu 11/24	Thanksgiving	
22	Tu 11/29	We have two brains (Language and the divided brain)	MM: Chapter 15
23	Th 12/1	TBA	
	Tu 12/13 2-4 pm	<b>FINAL EXAM (covers lectures 19-23 (and also lectures 1-18))</b>	

#### **Academic conduct, students with disabilities:**

Any student requesting academic accommodations based on a disability is required to register with the Office of Disability Services and Programs (DSP, STU 301, 213-740-0776) each semester. You must deliver an approved DSP letter to Dr. Moore early in the semester as possible. Please see SCampus (<http://www.usc.edu/dept/publications/SCAMPUS/>) for additional policies that are not covered here (i.e. academic integrity, proper conduct, etc.) but that do still apply.

#### **Laboratory portion of course:**

There is no lab manual. Lab exercises will be handed out prior to laboratory meetings. Grading of the lab portion will consist of eleven lab quizzes (7 points each) and performance on an oral presentation (23 points). See below for the schedule of these. Presentations will consist of a ten to fifteen minute oral report on a topic of students' choosing. Presentation topics must be related to neuroscience and must be approved by the instructor at least three weeks before the beginning of the three weeks of presentations (see below). The use of visual aids in the presentation is expected (e.g. PowerPoint slides). Grades will be assigned on the basis of organization, subject knowledge and the clarity of the presentation. A grading rubric for the presentation will be made available on Blackboard. Lab quizzes will be given in the first five minutes of lab (and only the first 5 minutes of lab). Note: those arriving later than five minutes after the beginning of lab will not be allowed to take the quiz and will earn a zero for that quiz. Lab quizzes will be based on the lab exercise or the presentations from the previous week.

<b>Week of...</b>	<b>Laboratory Exercise</b>	<b>Lab Quiz?</b>
Aug 22 <sup>nd</sup>	No Labs	No
Aug 29 <sup>th</sup>	Scientific Method 1	No
Sept 5 <sup>th</sup>	No Labs	No
Sept 12 <sup>th</sup>	Scientific Method 2	Yes
Sept 19 <sup>st</sup>	Membrane Transport	Yes
Sept 26 <sup>th</sup>	Nerve Impulses	Yes (Presentation topics need to be approved by this week)
Oct 3 <sup>rd</sup>	Muscle and Reaction Time	Yes
Oct 10 <sup>th</sup>	Sheep Brain Dissection	Yes
Oct 17 <sup>th</sup>	Presentations	Yes
Oct 24 <sup>th</sup>	Presentations	Yes
Oct 31 <sup>st</sup>	Presentations	Yes
Nov 7 <sup>th</sup>	Electroencephalograms	Yes
Nov 14 <sup>th</sup>	Galvanic Skin Response	Yes
Nov 21 <sup>st</sup>	No Labs - Thanksgiving	No
Nov 28 <sup>th</sup>	Senses	Yes

**The laboratory portion of the course totals 100 points as follows:**

<b>Number</b>	<b>Points</b>	<b>Exercise</b>	<b>Total Points</b>
11	7	Lab Quiz	77
1	23	Presentation	23