

Psychology 460: Psychobiology

Fall 2013

Morehouse College

Professor: Daniel Hummer, Ph.D. **Location:** Dansby 207
Office: Nabrit-Mapp-McBay, Rm 307 **Time:** MWF (12:00-12:50p)
Email: dhummer@morehouse.edu **Office Hours:** M (1-5:00p), F (1-2:00p)
Phone: (404) 614-8568

**** Email is the best/preferred way to reach me.**

Course Description: Biological psychologists are interested in the reciprocal relationship between brain and behavior. This 3-credit course is intended for students who have already had an introductory course in psychology and is designed to provide broad exposure to the field of biological psychology. Topics include behavioral evolution, neural function, neuroanatomy, sensation and perception, motivation, and memory. Although biology courses are not a prerequisite for this course, basic familiarity with biological concepts will be helpful and is recommended.

Learning Objectives: The goal of this course is to enable students to:

- Obtain an introductory understanding of the ultimate causes (i.e., evolutionary adaptations) for a variety of complex behaviors
- Explain the proximate causes (i.e., physiological and/or environmental) of complex behavior at a variety of levels (e.g., cellular, molecular, systems, etc.)
- Explain the structure and function of neurons and the principles of chemical synaptic transmission
- Explain the structure and function of major neuroanatomical structures and how they interact to produce a variety of behaviors
- Critically evaluate and accurately interpret neuroscience research results

Reading: The text for this course is *An Introduction to Brain and Behavior, 3rd Edition* by Kolb, Bryan & Whishaw, Ian Q. The text is packaged together with a study guide and is available for purchase at the campus bookstore. Alternatively, you may purchase the following options directly from Worth Publishers

(www.worthpublishers.com):

- Hard-copy book + study guide (ISBN-13: 978-1-4292-4724-5) = \$167.95
- Hard-copy book (ISBN-13: 978-1-4292-6036-7) = \$148.95
- Loose Leaf book (ISBN-13: 978-1-4641-1679-7) = \$105.95

Whatever your decision, it is your responsibility to have access to the required text when the semester begins. The text and study guide will be on reserve under my name at the library. Additional readings will be announced and posted in Dropbox.

Grading: Semester grades will be based solely on the result of 4 exams (100 points each, total = 400 points), 5 highest in-class quizzes (10 points each, total = 50 points), and routine assignments (50 points total).

Final grades will be determined as follows:

A+ = 488 to 500	B+ = 433 to 447	C+ = 383 to 397	D+ = 333 to 347	F < 298
A = 468 to 487	B = 413 to 432	C = 363 to 382	D = 313 to 332	
A- = 448 to 467	B- = 398 to 412	C- = 348 to 362	D- = 298 to 312	

Exams: Four 100-point exams will be given during the semester. Exams contain 40-50 multiple-choice and short-answer questions and will contribute collectively to 80% of your course grade. Makeup exams are at my discretion and will only be granted in cases of legitimate excused absences (see **Absences**). Make-up exams will be comprised entirely of essay questions.

Quizzes: You will have the opportunity to complete 6-7 in-class quizzes, from which only your highest 5 scores will contribute to your semester grade. **There will be no opportunity to make up missed quizzes under any circumstance. Students that are not in class when the quiz begins will not be allowed to take the quiz.** Quizzes will primarily cover material discussed in class and together will contribute to 10% of your grade.

Extra credit:

1. Students may complete on-line quizzes at the Worth Publishers Student Center for **An Introduction to Brain and Behavior, 3rd Edition by Kolb, Bryan & Whishaw, Ian Q.** to earn a maximum of 5 extra credit percentage points per exam:
 - a. To receive credit for completing a quiz you must complete the quiz **prior** to the due date (i.e., class period) for the required reading.
 - b. Complete the online registration at: http://bcs.worthpublishers.com/kolbintro3e/default.asp#t_520457. Opt to have your quiz results stored to the instructor's scorecard.
 - c. You may complete one online quiz of your choosing per assigned chapter for extra credit; only the first quiz taken will apply toward extra credit.
 - d. Average quiz performance will be multiplied by 5 points to determine how many extra credit percentage points you will receive towards each exam (e.g., 80% quiz average x 5 points = 4 extra credit percentage points applied towards Exam 1).

2. Atlanta is a hotbed of neuroscience research (e.g., Emory, Georgia State, Georgia Tech, Center for Behavioral Neuroscience, etc.). The critical mass of research institutions provides a wonderful opportunity to hear top researchers in the field present their work to colleagues and audiences in metro Atlanta. I encourage you to attend as many of these seminars as possible. You can receive up to 13 points extra credit when you turn in a 2-page summary of a seminar of your choosing (double-spaced, APA format – see Dropbox) **within 1 week of your attendance (25 points maximum/semester). Extra credit will**

not be accepted after the last day of class. I will pass along announcements that I receive for seminars being offered in the area. You will find many such seminars at the following links.

- See *Brains and Behavior Distinguished Lecture Series (GSU)* at http://neuroscience.gsu.edu/lecture_series.html
- See *Frontiers in Neuroscience Seminar Series (Emory)* at <http://www.emory.edu/NEUROSCIENCE/Events/Frontiers.php>
- See *list of neuroscience events happening in Atlanta* at <http://acsfn.org/>

Accessing Dropbox: It is crucial and expected that you regularly access the Dropbox folder for this class. Information will be given to you in class about how to get connected to our class' Dropbox folder.

Absences: You are responsible for the content of each class period. If you must miss class, I strongly suggest that you speak with a classmate or visit me during office hours to determine what you missed. Additionally you should **submit a written justification from the dean of students to me within one week of your absence.**

Cheating and Plagiarism: Cheating is inconsistent with the mission and spirit of Morehouse College. "Cheating includes any attempt to defraud, deceive, or mislead the instructor in arriving at [an accurate assessment of student achievement]. Plagiarism is a form of cheating that involves presenting as one's own ideas the ideas or work of another. Copying the work of someone else, using notes or books when forbidden, giving unauthorized help to another student, or using a student's own previously graded work constitutes plagiarism" (Retrieved August 19, 2012, from <http://www.gpc.edu/esl/cheating-plagiarism>). **Students that cheat will receive an "F" for the semester and be reported to both the department chair and dean of student services.**

Disabilities: Morehouse College is committed to equal opportunity in education for all students, including those with documented disabilities. Students with disabilities or those who suspect they have a disability must register with the Office of Disability Services ("ODS") in order to receive accommodations. **Students currently registered with the ODS are required to present their Disability Services Accommodation Letter to faculty immediately upon receiving the accommodation.** If you have any questions, contact the Office of Disability Services, 104 Sale Hall Annex, Morehouse College, 830 Westview Dr. S.W., Atlanta, GA 30314, (404) 215-2636.

Letters of Recommendations: Quality letters of recommendation are essential to successful admission to graduate school and application for employment. It is important that you keep this in mind as you take classes: if you fail to arrive on time, exhibit improper conduct, never participate in class, or remain invisible with the exception of test scores, professors will not agree to write a strong letter of recommendation on your behalf. Letters of recommendation are written for students of outstanding ability and involvement, or students with average grades who demonstrate an exemplary work ethic and dedication to learning.

Syllabus: A syllabus is not a contract between instructor and student, but rather a guide to course procedures. The instructor reserves the right to amend the syllabus when conflicts, emergencies or circumstances dictate.

Semester Schedule

Week	Date	Topic	Reading	Notes	
1	August	21	Introduction	Syllabus	
		23	Behavioral Evolution	Ch1	
2	26	Neuroanatomy			Ch2
	28				
		30			
3	September	2	-- NO CLASS (Labor Day) --		
		4	Neuroanatomy (cont.)	Ch2	
		6			
4	September	9	Neurons and Glia	Ch3	
		11			
		13	Behavioral Genetics	Mansuy & Mohanna (2011)	
		16			
5	September	18	EXAM 1		
		20	Neurons and Information	Ch4	
		23			
6	September	25	Synaptic Transmission	Ch5 (pp133-157)	
		27			
		30			
7	October	2	Research Methods	Ch6	
		4			
		7			
Midterm Week	October	9	EXAM 2		
		11	TBA		
		14	Development and Plasticity	Ch7	
9	October	16			
				18	
10	October	21	Drugs and Addiction	Ch8 (pp237-269)	
		23			
		25			
11	October	28	Hormones and Sexual Differentiation	Ch8 (pp270-278)	
		30			
		1			
12	November	4	Exam 3		
		6	TBA		
		8	Motivation and Emotion	Ch12	
		11			
13	November	13	Learning and Memory	Ch5 (pp157-168) and Ch14	
		15			
		18			
14	November	20	Sleep and Circadian Rhythms	Ch13	Last day to withdraw is Friday, 11/22
		22			
		25			
15	November	27	Psychopathology	Ch16	
		29	-- NO CLASS (Turkey. Mmmm...) --		
16	December	2	Psychopathology (cont.)	Ch16	
		4			
Finals Week	December	9-13	Exam 4 (TBA)		