

Cognitive Neuroscience
PSYCH 2060
Fall 2018
Lecture T/TH 2:50-4:15
Kanbar 107

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Course website: <https://blackboard.bowdoin.edu/>

Course Description and Learning Goals

Cognitive neuroscience is the scientific study of how people think. Cognitive neuroscientists seek to understand the neurocognitive processes that underlie human abilities in domains such as perception, attention, memory, emotion, language, executive function, and decision-making.

The goal of this class is to give you an introduction to cognitive neuroscience. By the end of this course, you should be able to think critically about cognitive neuroscience questions, theories, and experiments. Cognitive neuroscience is a wide-reaching field of study with connections to other disciplines including: cognitive science, cognitive psychology, clinical psychology, neuroscience, and neurology. This course will help you to understand how it is relevant to the overall field of psychology, neuroscience, and other fields.

Course Materials

The course will be interactive with both lectures and discussion.

The reading and internet demonstrations accompanying each lecture and discussion will come from the following required textbook.

Dale Purves, Roberto Cabeza, Scott A. Huettel, Kevin S. LaBar, Michael L. Platt, and Marty G. Woldorff, Principles of Cognitive Neuroscience, 2nd edition (2012)

The book is available on eCampus, on Amazon, and at Barnes and Noble's web site. Additional study material from the textbook can be found at the companion site (available at <https://cogneuro2e.sinauer.com>).

Additional readings will come from primary research articles. Readings will be made available on the course website (<https://blackboard.bowdoin.edu/>).

Blackboard. The class Blackboard website will be used to post class lecture notes, review questions for the exams, helpful additional notes, and any other relevant materials. You should also check this site frequently, though I will always announce important additions to Blackboard in class. There will be a Questions section on Blackboard to ask and answer questions raised during the course. Please post questions there first before emailing me. Responses will count toward your class participation grade. Eventually, your grades will also be posted here.

Email. I will use email to communicate with the class, and email is the best way to contact me. I recommend that you check your email frequently. I will use the class roster email list that is automatically generated by through Blackboard, so be sure to check your official email address. Failure to check email is not a legitimate excuse for missing assignments etc. I will not answer content questions via email. If you have a question, please raise it during class, on the Blackboard Questions section, or come see me during my office hours.

Course Requirements and Grading

There will be six basic course requirements:

(1) Discussion of Papers: 10% of grade

For each topic students will lead the discussion of the assigned paper. The students should be prepared to not only summarize the paper, including what was done and what the conclusions were, but also to raise points of discussion to bring in other students in the class.

(2) Midterm Exams: 50% of grade

Two midterm exams will be given during the course of the semester (dates specified on the schedule). Each test will consist of multiple-choice questions and short written answers. The content will include all topics covered during that portion of the class. The exams will include materials from lectures, the text, and primary research articles, but the lecture content will be emphasized more heavily. No make-up exams will be given.

(3) Final Exam: 30% of grade

The final examination will take place on **Sunday, December 20, from 9:00 a.m. - 12:00 p.m.** The content is comprehensive and covers all the topics and materials covered during the semester (including materials from both lectures, the text, and primary research articles). The format will be multiple choice and short written answers.

(4) Class Participation/Effort: 10% of grade

Regularly asking and answering meaningful questions in (a) class or (b) office hours. All students are required to do the assigned readings each week and contribute actively to the class discussion. Your preparation, participation, and cooperation as a group is essential for this format to work. Note that participation involves both your willingness to generate comments/questions *and* your ability to listen to what others have to say. Class participation credit will also be given for responses to questions raised on the Blackboard Questions section.

(5) Cognitive Neuroscience in the Media: Extra Credit

Students can earn extra credit by posting the best story each week from the media related to cognitive neuroscience. Good sources are Scientific American Mind (available at <http://www.sciam.com/sciammind/>) and the New York Times Science section (available at <http://www.nytimes.com/pages/science/index.html> for example see http://www.nytimes.com/2008/09/05/science/05brain.html?_r=1&hp). A short description (one

paragraph) and the source must be provided. The choice of best story will be completely subjective.

This credit will be used to influence borderline grades.

Grading Scheme

The following formula will be used to compute your total class score:

$$\begin{aligned} \text{Total Score} = & \text{Discussion of Papers} \times 10\% \\ & + \text{Mean of 2 Exam Scores} \times 50\% \\ & + \text{Final Exam Score} \times 30\% \\ & + \text{Class participation} \times 10\% \end{aligned}$$

Final grades will be assigned according to the following standard scale:

<u>Grade</u>	<u>Total Score</u>
A	93.0+
A-	90.0-92.9
B+	87.0-89.9
B	83.0-86.9
B-	80.0-82.9
C+	77.0-79.9
C	73.0-76.9
C-	70.0-72.9
D+	67.0-69.9
D	63.0-66.9
D-	60.0-62.9
F	59.9 or below

Miscellaneous Information

Policies for Missed Exams. If you miss an exam, you will be given a zero for that exam. **Make-up exams will not be given.** I recommend that you plan to take all the exams, and only miss them when emergencies arise. No late assignments will be accepted unless given prior consent. If you absolutely have to miss more exams or turn in an assignment late because you are on a Bowdoin sports team (or other Bowdoin-sponsored activity) or have conflicting religious obligations, inform me by the end of September. If you notify the instructor in advance and an appropriate document is turned in, it is possible for me to make appropriate accommodations.

Campus policy regarding religious observances requires that faculty make every effort to reasonably and fairly deal with all students who, because of religious obligations, have conflicts with scheduled exams, assignments or required attendance. See full details at <http://www.bowdoin.edu/academic-affairs/curriculum-teaching/religious-holiday-policy.shtml>.

Honor Code. You are responsible for reading, understanding and following the Bowdoin

Academic Honor Code as printed in your Student Handbook
(<http://www.bowdoin.edu/studentaffairs/student-handbook/college-policies/>).

Accommodations. Students seeking accommodations based on disabilities must provide documentation to the Office of Accommodations for Students with Disabilities. Students are encouraged to discuss any special needs or accommodations with me at the beginning of the semester or as soon as you become aware of your needs. Additional information regarding the accommodations process for students with disabilities can be found at: <http://www.bowdoin.edu/studentaffairs/accommodations/apply-for-accommodations.shtml>.

Lecture Schedule

Date	Topic	Reading	Assignment
30 August	Introduction		
4 September	History/Neurophysiology and Neuroanatomy	Chapter 1 and Appendix	
6 September	Methods	Chapter 2	
11 September	Methods	Chapter 2	
13 September	Methods	Chapter 2	
18 September	Sensation and Perception	Chapter 3	
20 September	Sensation and Perception	Read Kreiman, Koch, & Fried (2000)	Article 1 assignment
25 September	Review		
27 September	Exam #1		
2 October	Attention	Chapter 6	
4 October	Attention	Read Hopfinger, Buonocore, & Mangun (2000)	Article 2 assignment
9 October	FALL BREAK		
11 October	Memory	Chapter 8	
16 October	Declarative Memory	Chapter 9	
18 October	Declarative Memory	Chapter 9	
23 October	Emotion	Chapter 10	
25 October	Emotion	Read Ochsner et al. (2004)	Article 3 assignment
30 October	Review		

1 November	Exam #2		
6 November	Language	Chapter 12	
8 November	Language	Read Kutas & Hillyard (1980)	Article 4 assignment
13 November	Executive Function	Chapter 13	
15 November	Executive Function	Chapter 13	
20 November	<i>My Love Affair with the Brain</i>		
22 November	THANKSGIVING BREAK		
27 November	Decision Making	Chapter 14	
29 November	Decision Making	Read Bechara, Demasio, Demasio, & Anderson (1994)	Article 5 assignment
4 December	Review		
6 December	Review for Final		

15 December Final (Saturday) 1:30 p.m. - 4:30 p.m.

Caveat. Any information on this syllabus is subject to change at any time. Although I will try to minimize changes as much as possible, I may need to make some necessary adjustments on the readings, exam dates and content, assignments, grading policies, office hours, etc., during the semester. Any changes will be announced in class and/or emailed.