PSYC/NEUR 244

Cognitive Neuroscience

Fall 2012

Instructor	E. Darcy Burgund Office: 330 Olin-Rice Science Center Phone: 651-696-6022 Email: dburgund@macalester.edu Office Hours: Wednesday, 2:30 – 4:00 pm, or by appointment
Lecture	352 Olin-Rice Science Center; Monday, Wednesday, Friday, 1:10 – 2:10 pm
Lab	354 Olin-Rice Science Center; Thursday, 1:20 – 2:50 pm
Website	http://www.macalester.edu/~dburgund/244_12/244.html
Readings	Gazzaniga, M. S., Ivry, R. B., & Mangun, G. R. (2009). <i>Cognitive neuroscience: The biology of the mind (3rd)</i> . New York: W. W. Norton & Company, Inc.
	Empirical works published in cognitive neuroscience, neuroscience, and psychology journals.

Course Description

Cognitive neuroscience is a relatively recent discipline that combines cognitive science and cognitive psychology with biology and neuroscience to investigate how the brain enables the myriad of complex functions we know as the mind. This course will explore basic concepts and contemporary topics in the field with a particular focus on the methods used in cognitive neuroscience research. Through lecture and lab sessions, students will learn to read and interpret primary source material, design and implement cognitive neuroscience studies, and present research in verbal and written forms. Overall, students will gain an appreciation for the amazing intricacy of the brain-mind relationship, as well as a sense of how this relationship may be understood eventually using cognitive neuroscience techniques.

Grading

Grades will be derived from scores on the tests and assignments listed in the schedule. An overview of each assessment is provided below; further detail about each will be given in class.

JCN Blitzes (3 @ 5% each)

JCN is the acronym for *Journal of Cognitive Neuroscience*, the only journal exclusively dedicated to publishing top cognitive neuroscience research. On "JCN blitz" days, students will submit a written description of an experimental report published in a recent (\geq 2006) issue of JCN and briefly describe the experimental report aloud to a group of their peers. The purpose of JCN blitzes is to give students practice reading and summarizing empirical works in cognitive neuroscience. In addition, blitzes give students a chance to explore topics within the field that they find particularly interesting and to share their findings with their peers. Students who would like to "blitz" on an article published in a journal other than JCN must first receive permission from the instructor.

Tests (3 @ 20% each)

Three non-cumulative tests will be given during designated class periods (see schedule below). Tests will consist of a variety of question types, including multiple-choice, fill-in-the-blank, short answer, and essay.

Papers (2 @ 10% each)

The first paper will report results from a divided visual-field (DVF) experiment that you will design and implement with 1 or 2 other students in class. The second paper will propose an experiment using one of the methodologies covered in class to investigate a novel question in cognitive neuroscience. Each paper will be written individually, will be 5 - 10 pages long (12 point font, double spaced, 1-inch margins), and will require online library research. Specific guidelines for each will be given in class.

Presentation (5%)

This presentation will describe the results from the DVF experiment you conducted with 1 or 2 other students in class (see above). Each pair/group of students will give a ~15-minute PowerPoint presentation on their project to the rest of the class.

Conference Report (Extra credit)

The Annual Meeting of the Psychonomic Society will be held in Minneapolis this year from November 15^{th} – 18^{th} , and students will receive extra credit (2% added to their final score for the course) for attending the conference on one (or multiple!) day(s) and writing a report on the experience. A link to information about the conference is posted on our course website under 'Assignments'. More details about the conference and the extra credit opportunity will be provided in class.

Course Policies

Assignments

Assignments are due via email at the beginning of class; those turned in after class will be considered one day late. Late assignments will be penalized 5% (e.g., 85% becomes 80%) for each day they are overdue. I am happy to discuss with you the contents of your individual assignments prior to their due dates, however I will not read drafts of assignments. As such, please do not ask me to read a draft of your assignment before you turn it in. Make-up tests will not be given except under extraordinary circumstances.

Incompletes

Macalester College strongly discourages assignment of incomplete grades, and no incompletes will be given except under dire circumstances and after consultation with the Dean of Academic Programs.

Academic Dishonesty

9/14/12

9/17/12

Academic dishonesty is a serious issue, and Macalester College has established guidelines for defining and reporting cases of cheating and plagiarism. These guidelines are stated in the Student Handbook, and you are expected to follow them. Cases of suspected academic dishonesty will be reported to the Dean of Academic Programs immediately.

Disability

Reasonable accommodations will be made for students with disabilities. If you have a documented disability that will impact your work in this class, please contact the Associate Dean of Students, Lisa Landreman (651-696-6220; llandrem@macalester.edu), to discuss your needs. Her office will contact me, and we will work together to arrange the appropriate accommodations.

9/5/12	Introduction	
9/6/12	History of Cognitive Neuroscience	Chapter 1
9/7/12	Neuroanatomy	
9/10/12	Neuroanatomy	
9/12/12	Neuroanatomy	
9/13/12	Reading JCN Articles	JCN Articles

Schedule and Reading Assignments

Neuroanatomy

Methods

Chapter 3

9/19/12	Methods	
9/20/12	JCN Blitz 1 (5%)	
9/21/12	Methods	Chapter 4
9/24/12	Hemispheric Specialization	
9/26/12	Hemispheric Specialization	
9/27/12	Implementing DVF Paradigm	
9/28/12	Hemispheric Specialization	Chapter 11
10/1/12	Test 1 (20%)	
10/3/12	Sensation and Perception	
10/4/12	JCN Blitz 2 (5%)	
10/5/12	Sensation and Perception	
10/8/12	Sensation and Perception	Chapter 5
10/10/12	Object Recognition	
10/11/12	DVF Discussion	
10/12/12	Object Recognition	
10/15/12	Object Recognition	
10/17/12	Object Recognition	Chapter 6
10/18/12	DVF Data Collection [HUM 304]	
10/19/12	DVF Data Collection [HUM 304]	
10/22/12	DVF Data Analysis [OLRI 354]	
10/23/12	Macalester pretends it's Thursday	
10/24/12	Test 2 (20%)	
10/25/12 – 10/28/12	Fall Break	
10/29/12	Learning and Memory	
10/31/12	Learning and Memory	
11/1/12	DVF Presentations (5%)	
11/2/12	DVF Paper Due (10%)	
11/5/12	Learning and Memory	
11/7/12	Learning and Memory	
11/8/12	"Memento"	
11/9/12	"Memento"	
11/12/12	Learning and Memory	
11/14/12	Learning and Memory	
11/15/12	No Class—Pre-Psychonomic Society Meeting	
11/16/12	No Class—Psychonomic Society Meeting	
11/19/12	Learning and Memory	
11/21/12	Learning and Memory	Chapter 8
11/22/12 – 11/25/12	Thanksgiving Break	
11/26/12	Emotion	Chapter 9
11/28/12	Language	
11/29/12	JCN Blitz 3 (5%)	
11/30/12	Language	Chapter 10
12/3/12	Attention and Consciousness	
12/5/12	Attention and Consciousness	
12/6/12	Proposal Meetings	
12/7/12	Attention and Consciousness	Chapter 12
12/10/12	Test 3 (20%)	
12/14/12	Research Proposal Due (10%)	