

Psychology 481
Cognitive Neuroscience
Spring 2006

Course Goal: To develop an appreciation for what we know about the neural bases of human cognition (content), how we acquire this knowledge (methodology), and how to evaluate it (critical thinking). The course will emphasize three themes:

1. Developing an understanding of the neural bases of the cognitive system cannot proceed without detailed understanding of theories and models of cognition;
2. In-depth understanding of the methods of cognitive neuroscience is essential if we are to discriminate between good experiments and poor experiments;
3. Effective communication skills are critical to the scientific endeavor.

Method: This course is designed as a supplementary module to Psychology 414, Cognitive Psychology, that will explore in depth the cognitive neuroscience of the themes that we are addressing in 414. Each week will be organized around to the discussion of the reading assigned for that week. **BE CERTAIN TO READ THE MATERIAL BEFORE COMING TO CLASS.**

Instructor: Brad Postle, 515 Psychology, 262-4330, postle@wisc.edu.
Office hour: by appointment

With the exception of time-sensitive emergencies, email is the most effective and preferred way for you to contact me.

Credits: One can enroll for 1 credit or 2. The requirement for the 1 credit option is simply to read the assignments and participate in in-class discussions. The 2 credit option has the additional requirement of two writing assignments.

Assignments: Twice during the semester, at the half-way point and at the end, you'll hand in a brief review paper on a topic (your choice) related to one of the themes already covered in class; please discuss your topic with me before getting started on it. The first paper will be returned to you with comments on it and a provisional grade. You will have the opportunity to revise it based on my comments and resubmit it, in which case the final grade for this paper will be based on the revision. The second assignment will have two deadlines associated with it, an *initial* deadline, if you'd like the chance to revise and resubmit (as you did with the first paper), and a *final* deadline, by which the to-be-graded paper (whether a revision or an initial submission) must be handed in.

Readings: Required Textbook: Gazzaniga, Ivry, and Mangun (2002) Cognitive Neuroscience: The Biology of the Mind (2nd ed.). W.W. Norton & Co., Inc, New York, NY.

Grading: Grades will be based on participation in class discussion (1 & 2 credit students), and on the papers (2 credit students only).

Date	Topic	Reading
------	-------	---------

Section I: Perception and Attention

January 19	The Brain	Chpts. 1 & 3
January 26	Perception: Vision	Chpts. 5 & 6
February 2	Attention	Chpt. 7
February 9*	Methods: fMRI	Chpt. 4, pp. 106-147

**class meets in Postle lab: Psychology 165*

Section II: Representation and Memory

February 16	Mental Codes: Introduction; Imagery	Chpt. 4, pp. 96-105
February 23 ^{pi}	Short-term and Working Memory <i>pi</i> Initial draft of first paper due	Chpt. 8, pp. 301-313; & Chpt. 12, pp. 499-519
March 2	Long-term Declarative Memory	Chpt. 8, pp. 313-325, 332-434, 345-350
March 9	Nondeclarative Memory	326-332, 343-345
March 23 ^{pf}	Motor Control <i>pf</i> Final draft of first paper due	Chpt. 11
March 30*	Methods: fMRI, PET, EEG, TMS	review Chpt. 4

** field trip(!) to W.M. Keck Laboratory for Functional Brain Imaging and Behavior*

Section III: Issues and Methods in Cognitive Neuroscience, High-Level Cognition, Language

April 6	Cerebral Lateralization and Specialization	Chpt. 10
April 13	No Class – Annual Meeting of the Cognitive Neuroscience Society	
April 20 ^{pi}	Executive Functions and Frontal Lobes <i>pi</i> Initial draft of second paper due	Chpt. 12, pp.520-536
April 27	Language and the Brain	Chpt. 9
May 4 ^{pf}	Consciousness(!)(?) <i>pf</i> Final draft of second paper due	Chpt. 16

Where to take complaints about a Teaching Assistant or Course Instructor:

Occasionally a student may have a complaint about a T.A. or course instructor. If that happens, you should feel free to discuss the matter directly with the T.A. or instructor. If the complaint is about the T.A. and you do not feel comfortable discussing it with him/her, you should discuss it with the course instructor. If you do not feel the instructor has resolved the matter to your satisfaction, then you should speak to the Psychology Undergraduate Advisor, Ms. Arlene Davenport (room 428 Psychology) or the Department Chair, Professor Charles Snowdon (room 238 Psychology). You should also speak to either of these individuals if the complaint is about the instructor and you do not feel comfortable discussing it directly with him/her.

If you believe the T.A. or course instructor has discriminated against you because of your religion, race, gender, sexual orientation, or ethnic background, you also may take your complaint to the Affirmative Action Office (room 175 Bascom Hall). If your complaint has to do with sexual harassment, you may also take your complaint to Ms. Arlene Davenport, the Psychology Department sexual harassment contact person.

If your T.A. is not a native English speaker and you have difficulty understanding his or her speech, ask the T.A. to repeat sentences that you do not understand. If you have serious or prolonged difficulty understanding, discuss the problem with the course instructor. But remember that this is a multicultural institution and that the diversity of T.A.s can add substantially to your education. Some patience with unfamiliar accents may reward you with a better understanding of the world.