

Lab in Cognitive Neuroscience

Department of Psychology

New York University

Class meets: T & R 10:00-11:50, Meyer, room 159

Professor: David Poeppel**Office:** Room 281, 6 Washington Place**Email:** david.poeppel@nyu.edu**Lab Website:** <http://psych.nyu.edu/clash/poeppellab.html>

V89.0300.SP10

Spring 2010

4 Points

Section 009

Phone: 212-992.7489**Office Hours:** By appointment**TA:** Doug Bemis**Email:** doug.bemis@nyu.edu

Course goals: The goal is to learn about how the major techniques used in cognitive neuroscience work – where do the pictures (now ubiquitous in the media) come from? What do they mean? Are they useful? The principal approaches to cognitive neuroscience will be discussed from a *practical* point of view. The core component of the class will be hands-on: we will design, execute, and analyze an electrophysiological experiment using MEG. At the end of the term, students will be able to read the primary literature like savage critics - and be equipped to design, execute, run, analyze, and write up for publication a cognitive neuroscience experiment. It will be intense and fun.

Materials: Luck, Steven J. (2005). An Introduction to the Event-Related Potential Technique. The MIT Press. Additional readings will be made available online or in class.

Requirements: Grades will be based on practical, hands-on lab work (60% of grade), in-class presentations of the research literature (20% of grade), and a paper (20% of grade). It is essential that students participate actively in every aspect of the experimental research that will be executed in the context of this class, including reading the background literature and the textbook, learning how to set up and run an experiment, as well as analyzing and writing up the results.

Week	Date	Day	Topic/Activity (Handout # in parentheses) [Reading adjustments in square brackets]	Reading	Assignment
1	1/19 1/21	T R	Introduction to Cognitive Neuroscience Introduction to Imaging Techniques	(none) Luck Ch.1	1. PubMed, Google Scholar 2. Identify 4 journals
2	1/26 1/28	T R	The Origin of the Signal Lab Set-up: MEG and EEG	Luck Ch.1 Luck Ch.8	
3	2/2 2/4	T R	Design of Electrophysiological Experiments	Luck Ch.2	
4	2/9 2/11	T R	Principles of Electrophysiological Recording	Luck Ch.3	
5	2/16 2/18	T R	Data Processing: Averaging & Artifacts	Luck Ch.4	
6	2/23 2/25	T R	Filtering	Luck Ch.5	
7	3/2 3/4	T R	Data Visualization & Analysis	Luck Ch.6	
8	3/9 3/11	T R	Source Localization	Luck Ch.7	
9	3/23 3/25	T R	Haemodynamic Imaging: fMRI	(handout)	
10	3/30 4/1	T R	Haemodynamic Imaging: fMRI	(handout)	
11	4/6 4/8	T R	Neuropsychological Patient Data: Deficit Lesion	(handout)	
12	4/13 4/15	T R	Computational Modeling in Cognitive Neuroscience	Humphreys et al. (in Ed. C. Senior)	Churchland & Sejnowski
13	4/20 4/22	T R	Scientific writing seminar	(handout)	
14	4/27 4/29	T R	Presentation of Experimental Results	(none)	

Final Paper Due: Monday, May 3rd, 2010.**The schedule is subject to change. Please check out all announcements & class changes on the class Blackboard site.**