Cognitive Processes
Psychology 301L, Spring 2009
Lecture: Dornsife Conference Room (TTh 2:00-3:20) **Lab: SAL 128 (F 11:00-11:50)**

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Text: Goldstein. Cognitive Psychology, Connecting Mind, Research, and Everyday Experience
VanHorn. CogLab Online Manual (This is a combo set with the textbook.)

Course Objective:

This course introduces you to one of the most powerful and productive modern discipline for studying the human mind. From the perspective of computation and information processing, you will learn how the mind perceives, remembers, represents concepts, reasons, and makes decisions. Theoretic and empirical results introduced in this class are the foundation for understanding human behaviors and performance.

Communication:

1. Bb: A course website at blackboard.usc.edu will be used throughout the semester for dissemination of course materials such as announcements, homework assignments, lecture notes, grades, and additional readings. It is very important that you check the course website frequently.
2. All homework assignments and experiment reports must be in the Digital Drop Box on Bb by midnight on the due day. NO EXCEPTIONS.
3. Except for homework and experiment report submissions, the preferred means of communication for all other matters is through email to me and/or the TA.

Course requirements:

Class participation	50	
Two midterms	100	(50 pts each)
Final exam	100	(cumulative, 2/3 new material)
Final Project/Paper	100	(35 pts for preview, 15 pts for presentation, 50 pts for final writeup)
Lab reports and assignments	150	(10 pts each from the best 15)
Research Participation (bonus)		(20 pts for 10 hours of participation)
Total (excluding bonus)	500	

Grade distribution (% of 500 pts, after standardization):

90-100%	A
80-89%	B
70-79%	C

60-69% D
<60% F

[Standardization of raw scores: if the class mean is less than a B- before considering the bonus points, I will shift and scale the total score distribution such that the class mean is at B- This means that 1) if I have to make such an adjustment to improve the overall class grade, a little over half of the class will get a B- or better before adding any bonus points; 2) the bonus points can add up to more than 4% to your curved grade, which is equivalent to about half of a grade.]

Readings: The primary reading materials are the textbook and the lab book. In my lecture, I will assume that you have at least skimmed through the textbooks and are familiar with the terminologies. My lectures intersect materials from the text, but I do not repeat the text. I want to present you with both a coherent body of information as well as an in-depth understanding on a few important concepts and experiments, which may or may not be covered in the text. You will find my lecture informative, easy to follow, and any discrepancy between my lecture and the text intriguing and thought provoking *IF* you have read the textbooks before hand. It is also important to review the text and my lectures (all slides will be posted on Bb) right after we have finished a unit to consolidate what you have just learned. Because this is a survey course, you will be confronted with quite a few unfamiliar concepts. Your job and mine is to comprehend and connect them into a single coherent body of knowledge.

Exams: Midterms and the final consist of mostly multiple-choice questions. I will also include short essay questions when appropriate. Students often find my test hard. This is because I test for your understanding of the material and not your ability to recite the definitions or regurgitate a passage. Deep understanding is required. About 50% of the questions will be from the textbook, 10% from the labs, and 40% from my lectures. There is a synergy between my lectures and the textbooks. Studying the textbooks will help you understand my lectures, attending my lectures will help you master the textbooks (or even be able to anticipate the type of questions that I will ask in an exam). To study my lectures for the exams, you may want to take moderate amount of notes during class. The key there is not to record what I said (you will have the slides in Bb), but to jot down the important insights you gained during my lectures (this will help you remember what I said). There will be an in-class review session before the first midterm and the final.

Research Participation: You earn bonus points by serving as a subject in research conducted by Psychology Dept. Faculty. You do this by signing up for research sessions on http://experimetrix.com/socal. Sign up only for research related to cognitive psychology (use the table of contents of the text book as a guide or consult the TA or me) and for which you meet the eligibility requirements. There are only a limited number of experiments having this designation. Therefore, you should start participating as soon as possible, and not wait till the end of the semester when you need the bonus point.

To obtain any bonus points, you must submit a single-paragraph summary for two of the experiments you participated in. You should briefly describe the task and, MOST IMPORTANTLY, the research question the experiment was designed to address. Ask the experimenter AFTER the experiment if you are unclear about the purpose of the study.

Lab Reports: During a lab session, we will run selected experiments from the lab textbook "CogLab" on yourself and combine your data with other students. The experiments are chosen for the topics that I will cover the week after. You should study the material in the lab textbook to get an adequate understanding of the experiment and what it was designed to test. A lab report should be turned in by midnight of the due day (the next Friday) using the Digital Drop Box in Bb. No late report will be accepted. Your lab report should include two sections: Results and Discussion. In the Discussion, you should:

1) provide an interpretation of the results in the context of the theory the experiment was designed to test,
2) challenge this interpretation using aspects that the experiment did not address, and proposes a control experiment, and
3) answer all the Discussion Questions in the lab manual.
4) answer the "lecture" question that I may ask in class regarding the experiment.

The discussion section accounts for 70% of each report.

Homework: I will occasionally assign homework. These are often thought-provoking questions that I brought up in my lecture, or to prepare you for my next lecture. They are due midnight on the due date unless otherwise specified. No late assignments will be accepted.

There will be more than 15 homework and lab reports (we had 17 last time I taught the class). Only the 15 with the highest score count towards your grade. Homework and lab reports weigh heavily in your final grade, and you should not miss any.

Project: In between 1500 to 2500 words, writing a position paper on whether the use of mobile phone should be prohibited while driving. Your position should be based on empirical evidence and cognitive theories published in peer-reviewed journal. Please use APA citation style. Please include references to all the cited work at the end of the paper. The reference section does not count toward the word limit.

Class participation: Class participation counts towards 10% of your grade. To participate intelligently and beneficially, you should read the textbooks before a lecture and bring with you good questions and insights. To ensure that you have read the chapter, or at least have thought about the subject matter, I will assign an "icebreaker" question before starting a new module. You should hand in your answer in hard copy at the beginning of the next class. Your class participation grade will be based on your answers to these icebreaker questions.

Exceptions: Exceptions such as make-up exams, late report/homework/projects are rarely granted, and only for the extreme, unanticipated situations, serious documented illness, and non-reschedulable school-related events (e.g. a sport tournament). For non-reschedulable school-related events, you need to let me know at least two weeks before a midterm to arrange for a make-up exam. For unanticipated situations, you need to let me know as soon as possible. I have noticed in the past that there was often a surge of illness or death of near relatives before exams. Our exam dates are scheduled in advance, please advice your relatives to be careful!

Academic Integrity: A score of zero will be assigned on exams or papers exhibiting dishonest

behavior. Such behavior includes incorporating someone else's work in your paper without proper citation, displaying a test for others to see, looking at another student's test or answer sheet, or attempting to communicate with another student during the exam. In this class, the project gives you the chance to collaborate with your classmates. All other assignments are independent. Examples of gross dishonesty, which include using notes or answer sheets during an exam, having others take the exam for you, or plagiarism can result in an F for the course and a report to University Officials. If you have any confusion about issues of academic integrity, please consult your *SCampus*, the Student Conduct Web site (http://www.usc.edu/student-affairs/student-conduct/), me, or the TA.

Academic Accommodations: Any student requesting academic accommodations based on a disability is required to register with Disability Services and Programs (DSP) each semester. A letter of verification for approved accommodations can be obtained from DSP. Please be sure the letter is delivered to me (or to the TA) as early in the semester as possible. DSP is located in STU 301 and is open 8:30 a.m. – 5:00 p.m., Monday through Friday. The phone number for DSP is (213) 740-0776 (phone), (213) 749-6948 (TDD). They email address is ability@usc.edu. Accommodations for specific exams or other assignments need to be turned in a week prior to the due date.

Lecture Topics, Reading, and Experiments

Date	**Lectures & Labs**	**Reading**
1/13	Preface. What are cognitive processes? Why do we care? How do we study them?	Ch. 1
1/15	The Mind: an information-processing perspective	
Lab 1/16	Lab 1: Turing machine	Ch. 2
1/20	What is computation?	
1/22	The Brain: biological implementation of the mind	
Lab 1/23	Lab 2: Apparent Motion & Muller Lyer Illusion (due 1/30)	Ch. 3
1/27	Visual perception (1)	
1/29	Visual perception (2)	
Lab 1/30	Lab 3: Visual search & Attentional Blink (due 2/6)	Ch. 4
2/3	Visual attention (1)	
2/5	Visual attention (2)	
2/6	Review (in VKC 209)	
2/10	**Midterm #1 (Ch. 1-4, and labs)**	
2/12	Project round-table	
Lab 2/13	Lab 4: Mental rotation & Link Word (due 2/20)	Ch. 9
2/17	Perception-based representations (1)	
2/19	Perception-based representations (2)	
Lab 2/20	Lab 5: Prototype & Statistical Learning (due: 2/27)	Ch. 8
2/24	Meaning-based representation (1)	
2/26	Meaning-based representation (2)	
Lab 2/27	Lab 6: Brown-Person & Sternberg search (due: 3/6)	Ch. 5
3/3	Memory encoding (1)	

3/5	Memory encoding (2)	
Lab 3/6	Lab 7: Serial Position & Encoding specificity (due: 3/13)	Ch. 6 & 7
3/10	Memory retrieval (1)	
3/12	Memory retrieval (2)	
3/13	Project round-table (in VKC 209)	
	Spring Break	
3/24	Review	
3/26	**Midterm #2 (Ch. 4-9, readings, and labs)**	
3/27	No Lab	Ch. 11
3/31	Problem solving (1)	
4/2	Problem solving (2)	
Lab 4/3	Lab 8: Wason Selection & Typical reasoning (due: 4/10)	Ch. 12
4/7	Reasoning (1)	
4/9	Reasoning (2)	
Lab 4/10	Lab 9: Risky decision (4/17)	
4/14	Decision making (1)	
4/16	Decision making (2)	
4/17	No Lab	
4/21	Theoretical frameworks (1): levels of analysis	Ch. 1 of Marr (1983) Vision.
4/23	Theoretical frameworks (2): Bayesian approach to cognition	TBA
4/24	No Lab	
4/28	Project oral presentation	
4/30	Review; **project final report due in class**	
Final exam 5/7, 2-4pm, comprehensive		