

**Cognitive Processes
Psychology 301CL, Spring 2013**

Lecture (with Lab): WPH 103 (TTh 2:00-3:50)

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Text: Goldstein. Cognitive Psychology: Connecting Mind, Research, and Everyday Experience (3rd Ed.)

Francis, Neath & 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. Theoretical and empirical results introduced in this class are the foundation for understanding human behaviors and performance.

The learning objectives of this course are for you to (1) understand and (2) apply the theoretical frameworks and research designs to investigate the human mind and behaviors.

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 lab reports must be submitted to Bb by the publicized deadline. NO EXCEPTIONS.
3. The preferred means of communication for all matters other than homework and lab report is through email to me and/or the TA.

Course requirements:

Homework and Lab reports	150	(10-20 pts each)
Project 1	50	(15 pts for presentation, 35 pts for final writeup)
Project 2	75	(20 pts for preview, 15 pts for presentation, 40 pts for final writeup)
Quizzes	100	
Two midterms	100	(50 pts each)
Final exam	75	(cumulative, 2/3 new material)
Research Participation (bonus)		(20 pts for 10 hours of participation)

Total (excluding bonus) 550

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 may 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.]

Computer: This is a CL (class-with-lab) course. You will need to bring a laptop to the class in order to run some of the experiments and look at the results as we discuss them in class. Please make sure that you can connect to the USC wireless network.

Readings: The primary reading materials are the textbook and the lab manual. **I expect that you have read the assigned chapter before class and are familiar with the terminologies.** This will allow us to explore deeper on selected topics in class. **To encourage you to read the text before hand, I will quiz you on the textbook materials BEFORE the relevant lectures. These quizzes constitute 18% of your grade.** The publisher of the textbook provide a very useful website for reviewing and testing your knowledge about the material in the text. You should get an account and use the website by following the instructions in your textbook, or create an account here: <http://www.cengagebrain.com/shop/index.html>

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 after each lecture) right after we have finished a unit to consolidate what you have just learned. **I will encourage you to do so by assigning as homework what I call “Reaction Paragraphs” at the end of each unit.** Because this is a survey course, you will be confronted with many unfamiliar concepts. Your job and mine is to comprehend and connect them into a single coherent body of knowledge.

Quizzes: I give short quizzes to test whether you have read the assigned textbook chapter(s) and understood the basics. These quizzes are due before the relevant lectures. You will take the quizzes on Bb. Most quizzes be graded instantly, and you will be provided with the correct answer (if there is one). These quizzes constitute as sizable proportion of your grade.

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 from the textbook. Deep understanding is required. About 40% of the questions will be from the textbook, 20% 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).

Class participation: It is important that you participate intelligently and beneficially in class. To do so, you should read the textbooks before a lecture and bring with you good questions and insights. Class participation is indirectly (and imperfectly) measured by your performance on homework and tests, because both have a bias towards what I cover in class.

Research Participation: You earn bonus points by serving as a subject in research conducted by Faculty members of the Department of Psychology. You do this by signing up for research sessions on <http://usc.sona-systems.com/>. Sign up only for studies related to cognitive psychology (consult the TA if you are not sure) 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: This is a CL (class-with-lab) course, in which the lab sessions are integrated with the lectures. We will run selected experiments from Coglab 2.0 with each of you as a subject. Your data will be combined with those of other students from the class for analysis. The experiments are chosen for the topics that are directly relevant to my lectures. We will run some of the experiments at the beginning or in the middle of my lecture. Others I will assign for you to do at home so that the data will be ready at the beginning the lecture. You should study the material in the lab textbook to get an adequate understanding of the experiment and what it was designed to test. For some (but not all) of the experiments you ran, I will assign you to write a lab report. A lab report should be turned in by the stated due date and time 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 by the assigned date and time. **No late assignments will be accepted.**

Reaction paragraphs: They are homework assignments. At the end of each unit, you will be asked to write a short note, one or two paragraphs in length, about your reaction regarding the unit just completed. Your reaction can be a quick summary of the material, comments about the subject area, or a critique of a particular theory or experiment. “I learned nothing from this chapter” is not an adequate reaction, but “I learned nothing from this chapter because the researchers studying X failed to ask the critical question, which I think should be Y” is.

Project 1: Pick a visual illusion or a magic trick. In between 1000 to 2000 words, explain the illusion in terms of either what is known about the human vision and attention mechanisms or what the perceptual system assumes about the world. Propose an experiment to critically test your theory. Please cite the relevant literature and 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.

Project 2: In between 1500 to 2500 words, writing a position paper on whether the use of hands-free mobile phone should be prohibited while driving. Your position should be based on empirical evidence and cognitive theories published in peer-reviewed journal. Regardless of your position, make a proposal on how to make mobile phones safer to use while driving. Your proposal should also be based on published evidence and try to be creative and innovative. 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.

Both projects are group projects. You should form groups with 4-6 members. There is an in-class presentation component to each project as well as a written report. At the end of the written report, there should be a section listing the contributions of each team member to the project.

Exceptions: Exceptions such as make-up exams, late report/homework/projects are rarely granted, and only for the extreme and unanticipated circumstances, serious and 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 close relatives before exams. Our exam dates are scheduled in advance, please advise your relatives to be careful around those days!

Academic Integrity: A score of zero will be assigned to 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/SJACS/>), 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 (http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html). 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). Their 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 Schedule

Date	Lectures & Labs	Reading
Week 1		Ch. 1
1/15	Preface. What are cognitive processes? Why do we care? How do we study them?	
1/17	The Mind: an information-processing perspective	
Week 2		Ch. 2
1/22	What is computation?	
1/24	The Brain: biological implementation of the mind	
Week 3		
1/29	Project group formulation, running CogLab, and Turing Machine clinic	
1/31	Searching the literature and a hunt for visual illusions	
Week 4		Ch. 3
2/5	Visual perception (1)	
2/7	Visual perception (2)	
Week 5		Ch. 4
2/12	Visual attention (1)	
2/14	Visual attention (2)	

Week 6		Ch. 10
2/19	Perception-based representations (1)	
2/21	Perception-based representations (2)	
Week 7		Chs. 1-4, 10
2/26	Midterm 1	
2/28	Project 1 Presentation	
Week 8		Ch. 8 & 9
3/5	Meaning-based representation (1)	
3/7	Meaning-based representation (2)	
Week 9		Ch. 5 & 6
3/12	Memory encoding (1)	
3/14	Memory encoding (2)	
Week 10		Ch. 7 & 8
3/26	Memory retrieval (1)	
3/28	Memory retrieval (2)	
Week 11		Chs. 5-9
4/2	Midterm 2	
4/4	Project 2 Preview Presentation	
Week 12		Ch. 12
4/2	Problem solving (1)	
4/4	Problem solving (2)	
Week 13		Ch. 13
4/16	Reasoning (1)	
4/18	Reasoning (2)	
Week 14		
4/23	Decision making (1)	
4/25	Decision making (2)	
Week 15		Ch. 1 of Marr (1982) Vision & reading material TBA
4/30	Theoretical frameworks: levels of analysis, Bayesian approach to cognition	
5/2	Project 2 Presentation	
Final exam 5/9, 2-4pm, comprehensive with 2/3 new material		