

**Sensation and Perception
Psychology 304L, Fall 2009**

Lecture: GFS 201 (MW 10:00-11:50)

Lab: SAL 128 (W 12:00-12:50)

Instructor: Professor Bosco Tjan

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Office Hours: Mondays, noon-1:00PM or by appointment

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Office Hours: Wednesdays, 9-10AM or by appointment

Text: Wolfe, Kluender, Levi, et al. Sensation & Perception (2nd Ed.) Sinauer Associates

Online resources: <http://www.sinauer.com/wolfe2e>

Wytenbach. PsyCog: Explorations in Perception and Cognition (CD) Sinauer Associates
(bundled with the textbook)

Course Objective:

This course introduces you to the science of perception – the act of inferring reality through senses in real time. Perception is a basic component of cognition that underlies human behaviors. We will mainly cover the senses of sight, sound, and touch to show common themes in processing of sensory input and to explore how inputs from different senses are integrated to form a singular and coherent percept. We will draw on knowledge from experimental psychology, physics, biology, and computation. Having a college-level course in one or more of these subjects will help but is not required. The prerequisite for this course is Psyc 100, an analytic mind, and curiosity in science.

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 submitted through Bb by 23:59 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	100	(35 pts for preview, 15 pts for presentation, 50 pts for final writeup)
Lab reports and assignments	150	(15 pts for lab reports, 10 pts for assignments)
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 CD. In my lecture, I will assume that you have at least skimmed through the textbook to get a general idea of the subject matters that I may cover in class. My lectures intersect materials from the text, but I do not necessary 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 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 textbook. Studying the textbook will help you understand my lectures, attending my lectures will help you master the textbook (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://experimentrix.com/socal>. Sign up only for research related to brain and cognitive science (use the table of contents of the textbook and lab CD 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: Sensation and Perception is fundamentally a laboratory science. During a lab session, we will run selected experiments from the CD “PsyCog” on yourself. In some cases, you will combine your data with other students'. The experiments are chosen for the topics that I have just covered. You should study the material in the lab textbook to get an adequate understanding of the experiment and what it was designed to test before the lab session. A lab report should be turned in by 23:59 of the due day (usually a Monday) using Bb. No late report will be accepted. Your lab report should include four sections:

Introduction

In a single paragraph, briefly describe the purpose of the experiment.

Methods

Briefly describe how the experiment was conducted. Be concise, but make sure to describe the critical manipulations.

Results

Include the necessary graphs and a brief section of text to summarize the findings.

Discussion

- 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 assigned by the TA.
- 4) answer the “lecture” question that I may ask in class regarding the experiment.

The discussion section accounts for 50% 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.

The homework and lab reports together may total more than 150 points. I will stop adding after 150. Homework and lab reports weigh heavily in your final grade, and you should try not to miss any.

Project: You will design and conduct an experiment of your choice and report your findings. Good sources for topics are the suggested readings from your textbook.

For the project, you should work in a group of 4-5. The deliverables of the project are: 1) a project proposal, of less than 1500 words due on the same day as Midterm 2, 2) 15-minute in-class presentation, followed by Q&A, and 3) a final report of about 3000 words. The report is due the last day of class IN HARD COPY. Late projects will cost your group 10 points per day after the due day. If the report is late, you must submit it to Maria Nehlsen in SGM 501 and ask her to mark the date on your report. No other forms of late submission will be accepted.

Class participation: Class participation counts towards 10% of your grade. To participate intelligently and beneficially, you should read the textbook before a lecture and bring with you good

questions and insights. To encourage that you have read the chapter, or at least have thought about the subject matter, I may 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 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 near relatives before an exam. 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 coursework 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 Judicial Affairs & Community Standards website (<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. 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. You can also visit their website at http://sait.usc.edu/academicsupport/centerprograms/dsp/home_index.html. 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
8/24	Preface. Logistics. Philosophy. Gambling.	Ch. 1
8/26	Physics, Biology, and Psychology (Psychophysics)	
8/26	No lab	
8/31	Color	Ch. 5
9/2	Color	

Lab 9/2	Lab 1: Color opponency and aftereffect. A2.1a, report due 9/9	
9/7	Labor Day	
9/9	Retina and contrast	Ch. 2
Lab 9/9	Lab 2: Lightness and contrast. A3, report due 9/14	
9/14	Spatial vision	Ch. 3
9/16	Spatial vision	
Lab 9/16	Lab 3: Receptive fields. S&P 3	
9/21	Review	Chs. 1-3, 5
9/23	Midterm 1	
9/23	No Lab	
9/28	Object recognition	Ch. 4
9/30	Object recognition	
Lab 9/30	Lab 4: Viewpoint and inversion effects. S&P 4	
10/5	Depth and 3-D vision	Ch. 6
10/7	Depth and 3-D vision	
Lab 10/7	Lab 5: Binocular disparity. A4	
10/12	Motion	Ch. 7
10/14	Motion	
Lab 10/14	Lab 6: Motion aftereffect	
10/19	Review	Chs. 4, 6, 7
10/21	Midterm 2	
10/21	No lab; Project proposal due by midnight	
10/26	Attention, binding, and segmentation	Ch. 8
10/28	Attention, binding, and segmentation	
Lab 10/28	Lab 7: Visual search. D1	
11/2	Hearing	Ch. 9
11/4	Hearing in the environment	Ch. 10
Lab 11/4	Lab 8: Localization. B2	
11/9	Music	Ch. 11
11/11	Speech	
Lab 11/11	Lab 9: Pitch. B1	
11/16	Touch	Ch. 12
11/18	Touch	
11/18	No Lab (you may want to try the rubber hand illusion at home)	
11/23	The big picture	TBA
11/25	The big picture	
11/25	No Lab	
11/30	Project oral presentation	
12/2	Review; project final report due in class	1/3 Chs. 1-7, 2/3
12/14	Final exam: 8-10am @ GFS 201	Chs. 8-12