COURSE OUTLINE

PSYCHOLOGY 367(001): Sensory Systems
Term 1, 2011W

Instructor: **Dr. Debbie Giaschi** *office:* Kenny 3531 *phone:* 875-2345x7807
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Teaching Assistants:

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Textbook: *Sensation & Perception, 2nd edition* (2009) by J. Wolfe, K. Kluender, D. Levi et al.
(1 copy on 2-hour reserve [Psyc 368] in Koerner Library; electronic versions available through Bookstore or www.sinauer.com/ebooks/wolfe2e; 1st edition [2006] is not suitable)

Website: www.giaschilab.ca/psyc367/psyc367main.html (You will find the course syllabus, instructional objectives, lecture outlines, lecture slides and grades at this site)

Lectures: Tuesdays & Thursdays 11:00 am - 12:20 pm, CIRS 1250

Office Hours:
Dr. Giaschi – Tuesday, 1:00 - 2:00 pm
Marcus – Tuesday, 3:00 – 4:00 pm
Kim – Thursday, 12:30 - 1:30 pm
Kieran – Thursday, 4:00 - 5:00 pm

*We are also easily reached by e-mail at **psyc367ubc@gmail.com**. We will check this account daily so please send all questions about course content, assignments and exams here.*

Readings and Lectures: Regular attendance at lectures is expected. You are responsible for reading the material in the textbook BEFORE the lecture in the order in which it appears on the schedule. Some of the material covered in class is not in the textbook, and some of the material in the textbook will not be covered in class. When it comes to the exams, you are responsible for ALL material covered in class and ALL material in the textbook including figures, definitions and summaries.

Instructional Objectives: Statements indicating what you should get out of each lecture and the readings will be included in the outline for each lecture (available on our course website). These objectives are to guide your studying and to make it unnecessary for you to ask us what you need to know for the exams. Many students choose to treat each objective as an exam question and attempt to answer it. We recommend this method of studying, but we do not have a list of correct answers.

Grades

Midterm Exam	35%
Final Exam	45%
Research Projects	20% (see pages 4-6)
total	100%

In order to reduce grade inflation and maintain equity across multiple course sections, all psychology courses are required to comply with departmental norms regarding grade distributions. According to departmental norms, the mean grade in a 300-level class is 70 for a good class, 68 for an average class, and 66 for a weak class, with a standard deviation of 13. **Scaling** is likely to be used in order to comply with these norms; grades may be scaled up or down as necessary by the professor or department.

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Exams: Each of the exams will consist of multiple choice and short answer questions. The exams are not cumulative. Each exam will cover only material that you have not been tested on previously. Exams will not be returned to students, although they may be viewed during the TAs' office hours. Grades will be posted on the course website as soon as they are available. Correct answers will be reviewed in class.

***Missed Exams*:** Students will **not** ordinarily be excused for work-, travel-, family emergency-, childcare-, or sports-related activities. However, students should not write exams when they are seriously unwell. If a medical emergency arises, you must contact Dr. Giaschi **BEFORE** the exam (**604-875-2345x7807**), and obtain a Statement of Illness form from a physician indicating that you were unable to attend school on the day of the exam. A make-up exam will be scheduled when you are well again. If you show up after an exam and inform us that you were sick, you will not receive credit. If you write an exam and then blame poor performance on illness, your grade will not be changed. Supplemental exams to improve your grade are not offered in the Department of Psychology.

Human subject pool (HSP) participation: To learn more about psychology and earn up to 3 bonus points toward your course grade, you may participate in research projects between September 6 and December 2. The projects are posted at *hsp.psych.ubc.ca/*. Please register in this online system by the end of September. You can earn your first ½ point by completing a pretesting survey that will make you eligible for a wider variety of studies. In a given term, you may earn no more than 1 point for online studies (not including pretesting). As an alternative to participating in studies, you may read and summarize a research article; each written summary counts as 1 hour of participation. More information can be found at *www.psych.ubc.ca/resguide.psy*. Be sure to check your recorded bonus points for this course at the end of the term at *websec1.psych.ubc.ca/hsp/lookup/index.psy*. These points will be added to your final course grade, after any scaling that may be required.

Accommodations: Please let Dr. Giaschi know as soon as possible if you will be seeking accommodation through the Disability Resource Centre or if you have religious obligations that will conflict with this course in any way. Students who plan to be absent for varsity athletics, family obligations or similar commitments cannot assume they will be accommodated and should discuss their commitments with Dr. Giaschi before the withdrawal date (September 20).

Psychology Department's Position on Academic Misconduct: The UBC Calendar defines cheating as "*dishonest or attempted dishonest conduct at tests or examinations, in which use is made of books, notes, diagrams or other aids excluded by the examiner. It includes communicating with others, copying from the work of others and purposely exposing information to other students who are taking the test or exam*." Plagiarism is "*the presentation or submission of the work of another person, without citation or credits, as the student's own work*".

Cheating, plagiarism and other forms of academic misconduct are very serious concerns of the University, and the Department of Psychology has taken steps to alleviate them. First, the Department has implemented software that can reliably detect cheating on multiple-choice exams by analyzing the patterns of students' responses. In addition, the Department subscribes to *TurnItIn*--a service designed to detect and deter plagiarism. All materials (research proposals/reports) that students submit for grading will be scanned and compared to content located on the Internet or in TurnItIn's own proprietary databases. The results of these comparisons are compiled into customized "Originality Reports" containing several, sensitive measures of plagiarism; instructors receive copies of these reports for every student in their class. In all cases of suspected academic misconduct, the parties involved will be pursued to the fullest extent dictated by the guidelines of the University. Strong evidence of cheating or plagiarism may result in zero credit for the work in question. According to the University Act (section 61), the President of UBC has the right to impose harsher penalties including (but not limited to) a failing grade for the course, suspension from the University, cancellation of scholarships, or a notation added to a student's transcript. All work in this course, unless otherwise specified, is to be original work done independently by individuals.

For details on pertinent University policies and procedures, please the Academic Regulations section of the UBC Calendar (*students.ubc.ca/calendar*).

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Lecture Schedule and Assigned Readings 2010W

Date		Topic	Reading
Sept	6	Imagine UBC Day (no class)	
	8	Introduction	Chpt 1 (p. 3-10)
	13	Psychophysics-classical methods	Chpt 1 (p. 10-14)
	15	Psychophysics-modern improvements	Chpt 1 (p. 14-18); *Cornsweet*
	20	Biology of perception; Physics of light ***internet experiment due***	Chpt 1 (p. 18-27); Chpt 2 (p. 29-30)
	22	Eye and optics ***sign up for proposal/group topic***	Chpt 2 (p. 30-36)
	27	Retina	Chpt 2 (p. 36-49)
	29	Visual acuity ***individual proposal due***	Chpt 3 (p. 51-58)
Oct	4	Visual pathways	Chpt 3 (p. 58-66)
	6	Visual cortex	Chpt 3 (p. 66-77)
	11	**Midterm exam**	**(Chpts 1-3)**
	13	Physics of Sound; Ear	Chpt 9 (p. 219-228)
	18	***Plan group experiment; group proposal due***	
	20	Inner ear	Chpt 9 (p. 229-237)
	25	***Conduct group experiment***	
	27	***Group analysis & slide making***	
Nov	1	Auditory pathways & cortex ***group slides due***	Chpt 9 (p. 237-240)
	3	Loudness and pitch	Chpt 9 (p. 240-244)
	8	Hearing loss; Sound localization	Chpt 9 (p. 244-247); Chpt 10 (p. 249-260)
	10	Somatosensory system; Touch	Chpt 12 (p. 299-309; 313-316)
	15	Temperature and pain	Chpt 12 (p. 309-313); *Basbaum*
	17	Olfactory system	Chpt 13 (p. 331-338)
	22	Smell	Chpt 13 (p. 338-358)
	24	Gustatory system	Chpt 14 (p. 361-368)
	29	Taste	Chpt 14 (p. 368-383)
Dec	1	Vestibular system ***individual research report due***	Chpt 15 (p. 385-400)
	TBA	***** Final Exam (2 hours)*****	**(Chpts 9**, **10**[249-260], **12**[299-316], **13-14, 15**[385-400])

The *Cornsweet (1962)* and *Basbaum & Julius (2006)* articles can be downloaded from the course website (*www.giaschilab.ca/psyc367/psyc367main.html*)

Chpts 4-8, 11 and pages 261-273, 317-329, 401-415 will be covered in Psyc 368

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Guidelines for Research Projects

After the lectures on psychophysical methods for measuring perception, you will demonstrate your knowledge in a multi-part research project.

1. conduct a psychophysics experiment on the internet:*

This will be done outside of class time: results due **Tuesday, September 20** at the beginning of class.

Each student will conduct a line-length discrimination experiment on themself. The purpose of this exercise is for you to learn how a typical *discrimination* experiment is done with the 3 different classical psychophysical methods. Go to *www.yorku.ca/psycho/en/introduction.asp*.

a. Start with the **Method of Constant Stimuli:** read the Overview and the Operating Instructions, choose Experiment & Data Analysis (wait for the table of experimental variables to appear) and set the number of trials to **150**, choose 'Begin Experiment'. If you experience problems, click on 'HELP' at the bottom of the left menu panel. At the end of the experiment choose 'Yes' for an explanation of your data (if you choose 'No' the data will be lost), choose 'View Experiment Summary', write down your JND, save the data, print the text file (.txt) of saved data. If your JND is 0, something went wrong and you should repeat the experiment.

b. Repeat these steps for the **Method of Limits** (**10** trials/series).

c. Repeat these steps for the **Method of Adjustment** (**25** trials).

d. Hand in the 3 printed sets of data with the JND recorded on each set. **Be sure to include your name and student #.** *Experiments will be marked on completeness (be sure to do all 3 experiments with the correct number of trials and the JND recorded for each method).*

2. choose a research group:

This will be done in class on **Thursday, September 22.**

Students will assign themselves to groups (6 students/ group) according to the general topics listed below. The purpose of signing up is to give you a topic on which to write your proposal, so be sure to write it down once you sign up. This is also the group you will work with for the experiments.

Group sign-up sheets will be passed around during class, OR if you already have a group of 6 students, please send a list of names, student numbers, e-mail addresses and your top 3 choices for topics to Dr. Giaschi by 10 pm on September 21.

Topics: *visual detection, visual discrimination, auditory detection, auditory discrimination, touch detection, touch discrimination, temperature detection, temperature discrimination, odour detection, odour discrimination, taste detection, taste discrimination*

3. propose an experiment (write it down):**

This is a written proposal due **Thursday, September 29** at the beginning of class.

Each student will choose a specific aspect of perception to study within their assigned group topic (e.g. sour taste detection, visual contrast discrimination, auditory pitch detection, lemon odour discrimination). The purpose of this exercise is to practice designing a psychophysical experiment. You will receive feedback from the TAs.

Choose a psychophysical method (constant stimuli, adjustment, limits, staircase). Choose a paradigm (yes-no, forced-choice [**many people confuse these**]). Describe your research question or objective, and predict the threshold value (with units) you will obtain based on a published result. Describe the stimuli you will use, the procedure for stimulus presentation, and the calculations/graphs required to determine threshold based on the method you have chosen (these 3 elements comprise 70% of the mark for this assignment).

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Guidelines for Research Projects continued

3. propose an experiment (continued):

This is just a proposal, so you do not need to collect or analyze any data. There is no specific format to follow, but be sure to include all 7 elements described above plus the full reference citation for your prediction (authors, year, title, journal, volume, pages).

Be sure to include your name, student # and group #. *Marks will be deducted for: not writing on the topic you signed up for, duplicating experiments demonstrated in class, confusing detection and discrimination methods.*

4. plan a group experiment:***

This will be done during class on **Thursday, October 18.**

Each group will design a single experiment to be carried out in class on October 25. You may choose one of the individual proposals from your group members (which will be returned to you with feedback for use during this class), or you may design a new experiment on your topic (your choice of experiment should be guided by the ease of finding a predicted threshold value). All aspects of the experiment, including the stimuli to be used and how each group member will contribute, must be established during class and outlined in a group proposal to Dr. Giaschi. The group proposal is due at the end of class either by e-mail or hand-written hard copy.

Describe your research question or objective, and name your psychophysical method and paradigm. Describe the stimuli you will use, the procedure for stimulus presentation, and the calculations/graphs required to determine threshold based on the method you have chosen. There is no specific format to follow. **The proposal should include a full description of what you plan to do (in enough detail for the reader to do the experiment) and a list of each student's duties for the project (which will also be graded, so be thorough).** *You will be contacted by e-mail before October 25 if we anticipate any problems with your design.*

5. conduct a group experiment:***

This will be done during class on **Tuesday, October 25.**

Please bring all materials required for your experiment to class. You will have the entire class time to collect your data (using your group members as subjects). You should attempt to collect data from all 6 members of your group. If you run into problems, a minimum of 3 usable datasets is required. If you finish early, you may analyze your data as well. Data analysis involves determining psychophysical detection or discrimination thresholds (depending on your topic) for each subject, then averaging the thresholds for your group. No further statistical analyses should be done. *A list of each group member's duties for the experiment must be signed and handed in at the end of the class.*

6. ***analyze your data and prepare slides:******

This will be done during class on **Thursday, October 27.**

Each group will spend the entire class analyzing their data and preparing 2 slides to tell the class about their project. The first slide should explain what you did (research question, prediction, method, stimulus, procedure, subject's task) and the second slide should explain what you found (sample data, individual results, group results, discussion of research question and prediction). Assume your audience knows how to use each psychophysical method. Focus instead on the details of your experiment that the rest of the class does not know about. Be creative.

Dr. Giaschi will incorporate your slides into November lectures. Slides are due by e-mail on **Tuesday, November 1**. *A group grade will be assigned based on creativity and the inclusion of all elements listed above.*

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Guidelines for Research Projects continued

7. *prepare a research report:***

This is a written report, due **Thursday, December 1** at the beginning of class.

Each student must hand in their own, unique report based on the group data. The purpose of this is to demonstrate a thorough understanding of psychophysical methods for obtaining sensory thresholds. We are not interested in APA format, inferential statistics or a detailed background/literature review.

Each individual report should include the following sections: *Introduction* (research question or objective [detection or discrimination?], sensory modality and specific aspect of perception studied, predicted threshold value based on published result; *15%*); *Method and Procedure* (detailed description of: stimuli and equipment, subjects, procedure and task; *25%*); *Discussion* (answer to research question, comparison of obtained to predicted result, problems encountered [if any], design improvements, future directions; *30%*). *The individual report must be no longer than 5 double-spaced pages (not including your title page and reference).* **Be sure to include your name, student # and group # on the title page.**

In addition, each group should hand in one *Results* section (table of raw data with trial order preserved for each subject [be sure to indicate stimulus value and response on each trial], graph for each subject showing psychometric function [method of constant stimuli only], description of how thresholds were determined from the raw data [include equations and calculations], thresholds for individual subjects, average threshold for all subjects; *30%*).

Calculation of Grades

individual proposal	**5%***
group proposal	**2.5%**
individual research report	**10%**
group class slides	**2.5%**
total	**20% of final grade**

* *The individual proposal grade will be reduced by 10% for students with incomplete internet experiments and by 20% for students who fail to hand in their internet results.* You may have difficulty finding a suitable reference for your predicted result if you restrict your search to Google/Yahoo/MSN or even Google Scholar. You will have more success with the indexes and databases available through the Library's website at *www.library.ubc.ca*.

** *A penalty of 10% per day will be applied to late assignments. Assignments received more than 1 week after the due date will not be marked. Students may be asked to provide an electronic version of their assignment to be submitted to TurnItIn to check for plagiarism.*

*** *Each student is expected to attend the group planning, experiment and analysis/slide making classes. Students who do not contribute to or miss a particular component will lose 2.5% of their final grade unless they have a documented medical excuse. Students will be asked to rate the contributions of their group members after the individual reports have been handed in. Grades may be adjusted for students whose group indicates that their contribution was minimal.*

Students should retain a copy of all submitted assignments because we will need to keep the marked assignments.