Psy 438

Sensation and Perception

0.1 Course Information

Perception (PSY 438) Spring 2011	
Instructor	Andrew McCollough
Location	208 Deady
Time	MW 12-1:20
Contact	awm@uoregon.edu
Office Hours	Monday 1:30 -2:30
Course Website	blackboard.uoregon.edu

0.2 Description

This course examines the subjective perceptual universe of the human brain as derived from our physical senses. We will develop the theory and practice of perceptual research, examine the limits and bounds of human perception, and explore the physical substrate of the mental sensorium. Throughout the course we will contrast objective stimulus with subjective percept to provide perspective on the enactive and embodied nature of the perceptual world.

0.3 Philosophy

Science is the hypothesis driven, empirical and collaborative pursuit of knowledge about how the world works. Science is a skill that requires active participation, not simply scholarship. This class will be conducted in such a way as to as closely as possible model the theory and praxis of empirical research. This includes discussion, debate, hypothesis, critical and mathematical analysis, experiment, review, critique, and presentation. In this class we will explore each of these areas in a series of exercises designed to develop these skills. Activities, tests, readings, exist for the sole purpose of developing skills relevant to the discipline pursued. Since skill only improves with practice, and knowledge increases with recall, activities in the class will be based on the principle of frequent recall and spaced repetition.

0.4 Required Text

Sensation and Perception, 8th Edition by E.B. Goldstein is required. This is a comprehensive text for the course.

0.5 Course Format

The material in this course will be presented through a combination of assigned reading from the text, class lectures, in-class discussion, demonstrations, in-class and online activities, lectures and multi-media, and homework. Collaborative groups will be formed for the purposes of online discussion and projects.

0.6 Grading

Final grades are based on consistent performance through the term. As such, the final grade will include the scores for the exams, blogs, presentations, and other activities. Letter grades will be determined as follows: A (90-100% of total possible points), B (80-89%), C (70-79%), D (60- 69%), F (0-60%). However, the instructor reserves the right to relax this criterion, depending on the actual distribution of grades.

Grading Basis

Individual Assessment

Reading Questions

(100 points) One question covering the reading will be due by 9 am the day of the class. These questions are due for every reading assignment, even on test days. Note, this is a question that YOU have about the reading, not a question that I will assign. This could be a question about something that you do not fully understand or something that you would like to explore more in depth. Questions will be discussed in class.

Clicker Questions

(100 points) During lecture there will occasionally be clicker questions, requiring an immediate response from the class. The questions will be worth a total of 100 pts. There may or may not be a clicker question on any given day, including test days.

In-Class Exams

Exams: (100 points each) There will be five bi-weekly open-book exams. The exams will be multiple-choice and cover the material from the previous lectures and readings. Hence, the exams are cumulative. Only the 4 highest exam scores will count toward your final grade. No make-up exams will be given under any circumstances. If you know in advance that you cannot take any of the exams on the scheduled dates (see the course schedule below), do not take this course. These exams will be short and take exactly 1/2 the class period. There will be lecture on the day of the exam, following the exams, as well as clicker questions.

Peer Review

200 points A critical aspect of real science in the current paradigm is the concept of peer review. This is a system whereby empirical research is reviewed by others in the field to determine whether the research meets an acceptable threshold of quality. In this class the written presentation of your groups' empirical research will be anonymized and reviewed

by at least 3 others in the class for writing quality, content, and methods. A more detailed rubric will be posted.

Individual and Group Assessment

Blog

(100 points) There are two components to this score; a team component and an individual component. The team will be responsible for a minimum of 3 posts per week on the blog; there is no maximum. Blog posts should be interesting, useful and fun (two out of three, at least). Meeting this requirement and will ensure full points for the group score, 100 points. The list of possible blog topics include the chapters in Goldstein, as well as: Cross-Modal Interactions, Synesthesia, Illusions, Magic, Virtual or Augmented Reality, or any other topic which meets my approval. You and your randomly assigned group members will decide the blog topic during the first week of class. At the end of the term you will revise and submit your best 2-3 blog posts for a grade, utilizing the comments on your posts to help improve your writing. This final essay will be the basis for your individual grade and will be worth 100 points. The grading rubric will be the formal writing rubric used throughout this class. Finally, individual points will be awarded for meeting the minimal 1 comment/week criterion.

Empirical Project

(900 points) The essential goal of this course is to facilitate the long-term retention of the material for this course, the empirical science of human perception and how that science applies in everyday life. As such, it is imperative to create experiences which encourage deep engagement with the material. In pursuit of these ends, you and your teammates will be required to develop, research, write and present a project exploring a concept in perception. This is an opportunity to truly create in this class. The project will consist of three parts; a written project report detailing the scientific background, the motivation, design and implementation of your project, an in-class presentation of the project, and an individual peer review of other group's projects.

The written report will be in the format of a literature review. You will need to identify the field of interest, current state of the field, and how those perceptual concepts apply to your project.

The Presentation This is a 20 minute, in-class demonstration of your project.

Peer Review This will be your individual (not group) comments and critique on the written project of another group. This is your opportunity to give feedback and receive feedback on writing and content. This is anonymous, so don't pull any punches. You are helping them to improve their final grade.

Presentation: 200 In-class lecture on the group results. Write-up: 500 Peer-Review: 200

Possible General Areas for Project Ideas:

- Design and build a game of perception, using perceptual concepts to inform the game design, game play, etc. Use the knowledge gained from your study of perception to design and build a playable game. Examples: SET, Jungle Speed, Mousey-Mousey, Jenga, BLINK (fast card game), Double Solitare, Blokus
- Redesign a user interface of some sort. Car dashboard, Blackboard website, mobile phone.
- Redesign an everyday object. Can opener, coffee machine, traffic crossing button, map, etc.

- Create a visual, auditory, haptic or other illusion, a "Perception Hack"
- Create an empirical psychophysics experiment and run it on your classmates. Please see instructor for IRB Guidlines.

The design of the project must be evidenced-based; that is, based on the available scientific literature in perception.

Grading

The written report and individual peer review will be graded according to the rubric available on the course website. The presentation will be assessed according to the rubric on the course website. The project will be assessed according to the rubric on the website. The project will be assessed according to how well the design reflects the principles of human perception studied in the course. This includes the appropriateness of the rationale presented in the written report. Ask yourself if the project is interesting, useful, fun, and evidence-based.

Grading Summary

Grading Summary Chart		
Component	Type	Points
MC Exams	Individual	600
Clicker Questions	Individual	100
Reading Questions	Individual	100
Blog Participation	Individual	100
Peer Review	Individual	200
Class Presentation	Group	200
Journal Article	Group	500
Blog	Group	200
Other	Individual/Group	200
Total		2200

Extra Credit

At the discretion of the instructor extra credit points may be awarded based on contests or prizes during the course. Stay tuned for further information.

0.7 Students with Disabilities:

Students with Disabilities: If you have a documented disability and anticipate needing accommodations in this course, please make arrangements to meet with the instructor as soon as possible.

0.8 Students for whom English is a Second Language:

English is a Second Language: If you are a non-native English speaker and you anticipate trouble in this course due to language difficulties, please see the instructor as soon as possible to make special arrangements.

0.9 Academic Honesty

Academic Honesty: See the UO web site regarding academic honesty at: http://darkwing.uoregon.edu/∼conduct

0.10 Plagiarism

Plagiarism will be dealt with according to University of Oregon policy.

0.11 Due Dates

Deadlines for assignments are noted in the class outline, in their specific section in this syllabus, or will be given online at the course website. Assignments will not be accepted after the due date. There will be no exceptions.

0.12 Tentative Course Schedule

Tentative Course Schedule (updated 3/20/10)

- Week 1
  - Lecture: Syllabus, Introduction Ch. 1, Physiology of Perception Ch. 2: Intro to Vision Appendix: Signal Detection Theory
- Week 2
  - Neurons and Perception Ch. 3
- Week 3
  - **Exam 1**: Ch. 1,2,3 and Signal Detection Theory
  - Lecture: Ch 4: Visual cortex etc. Ch. 5 :Objects & Scenes
- Week 4
  - Ch. 6 Visual Attention
- Week 5
  - **Exam 2**: All chapters so far
  - Ch. 7: Action, Ch.8 Motion Perception
- Week 6
  - Ch. 9 Color Perception, Ch. 10 Depth & size

- Week 7
  - **Exam 3**:
  - Ch. 11 Sound, Ch. 12 Auditory Scene
- Week 8
  - Ch. 13 Speech
- Week 9
  - **Exam 4**
  - Draft of paper due for Peer Review
  - Ch. 14 Cutaneous Senses Ch. 15 Chemical Senses
- Week 10
  - **Exam 5**
  - **Talks**
  - Peer Reviews Due
- Final Article Due: Wednesday June 8th, noon.