Perception, PSYC BC 1108x, BC1110x
Lecture: M & W 11:00am – 12:15pm
Laboratory: W 1:00 - 4:00 or Th 9:00 - 12:00
Office Hours: M 2:00-4:00

Instructor: Jennifer S. Pardo
Office: 415 O Milbank Hall
Phone: 212 854 8601
jsp2003@columbia.edu

Have you ever speculated about the people who see the glass half empty, while others (like us) see it half full? Or, have you tried to guess what Fido thinks of Mozart, or of the way you play guitar? Or, whether blue-eyed people see the same colors that brown-eyed people do? Or, how the migrating sea turtles find their way back to Florida, or Panama, or Brazil year after year (and you can just about find your way to Rivington and Ludlow)?

This may come as a surprise, but these musings are about perception. It may also surprise you to learn that there is a long tradition of pondering these questions—not these exact questions, actually, but questions that have the same theme. There is a briefer scientific tradition that concerns us immediately, of direct experimental investigation of the psychology of perception. These studies traverse plenty of disciplines, among them optics and acoustics, chemistry, sensory physiology, neuropsychology, linguistics and philosophy, artificial intelligence, ecology and evolution, ethology, cognitive psychology, and gastronomy. This variety of scientific knowledge has been fundamental to perceptual psychologists precisely because the goal of such studies is to explain the causal processes, beginning with real objects and events, through the senses and the nervous system, which culminate in *the apprehension of the world by the mind:* Perception.

Course Admission

Lecture Only: The class list for BC1110x will be set at the first class meeting on September 6, and a student must be present at that time to secure a place in the course. No student will be admitted to the course after September 6.

Laboratory Sections: A provisional class list for each section of BC1108x was generated by the Psychology Departmental Lottery Procedure completed on April 10, 2006. A student whose name appears on the list must be present at the first class meeting on September 6 to secure a place in the course. Any places which become available due to absence, lateness, or for any other reason will be reassigned at this meeting—students on the waiting list who are present will receive first priority, followed by students who are present and wish to enroll. The first meetings of the laboratory sections will take place on September 13 & 14. A student who fails to attend the first lab meeting will forfeit a place in the lab section. An elaboration of the laboratory attendance policy appears below.

Course Requirements

Textbook: Schiffman, H. R. (2001). *Sensation & Perception: An Integrated Approach, 5th Edition*. New York: John Wiley & Sons. Copies of the textbook are available for purchase at the Columbia Bookstore, and additional copies are available on reserve in the Barnard Library.

Additional Readings: In addition to the textbook, there are numerous required articles assigned on the course schedule, which are listed below. These items are available as pdf files.

Exams: There will be 3 non-cumulative exams, each worth 100 points. Two of the exams will take place during class time, on October 4 and November 8, and the last exam will take place during finals week, December 15-21, to be determined by the Registrar. Each exam will consist of a mix of question types, including multiple choice, matching, and true/false. Because the exams cover both reading and lecture materials, attendance at all class meetings is strongly recommended.

Research Project: Those students registered for BC1110x (Lecture only) are required to write a brief research paper (no more than 5 pages), which will be worth 20 points. The details of the assignment will be distributed on November 1, and the paper is due in class on December 4.

Laboratory Assignments: In the first meeting of laboratory sections, September 13 & 14, those students registered for BC1108x will receive a laboratory manual detailing the laboratory assignments. Completion of the laboratory exercises and assignments will be worth a total of 150 points. These assignments include brief weekly reports, culminating in a joint project and full laboratory report at the end of the semester. Attendance at the first meeting of a laboratory section is required to secure a place in the course, and attendance is mandatory at all other lab meetings. Because the laboratory meeting assignments are based on an experiment conducted during lab, a student must be present in order to complete the assignment—a student who misses a lab meeting or arrives late will receive a grade of 0 for that lab meeting's assignment. Any student who is absent from more than two lab meetings will be required to withdraw from the laboratory section of the course.

Grades: Completion of all three exams is required to receive a passing grade in the course. The final grade will be a function of the total number of points a student has accumulated in relation to the scores of the other members of that student's section (i.e., members of BC1110x will be graded in comparison to each other, and members of BC1108x will be graded as a separate group). Those students in BC1110 (Lecture only) can accumulate a total of 320 points, and those students in BC1108 (Laboratory) can accumulate a total of 450 points.

PLEASE NOTE: *There will be no make-up exams or lab sections under any circumstances.* A student who requires accommodation for a specific disability must notify the Office for Disability Services and the instructor as soon as possible.

Additional Readings

1. Alper, J. (1991) Antinoise creates sounds of silence. *Science*, 252, 508-509.
2. Arlettaz, R., Jones, G., & Racey, P. A. (2001). Effects of acoustic clutter on prey detection by bats. *Nature*, 414, 742-745.
3. Beck, J. (1975). The perception of surface color. *Scientific American*, 233 (2), 62-75.
4. Békésy, G., von (1957). The ear. *Scientific American*, 197 (2), 66-78.
5. DeCampli, W. M. (1986). The limits of manned space flight. *The Sciences*, 26 (5), 47-52.
6. Doty, R. L., Green, P A., Ram, C., & Yankell, S. L. (1982). Communication of gender from human breath odors: Relationship to perceived intensity and pleasantness. *Hormones and Human Behavior*, 16, 13-22.
7. Ehrsson, H. H., Spence, C., & Passingham, R. E. (2004). That's my hand! Activity in premotor cortex reflects feeling of ownership of a limb. *Science*, 305, 875-877.
8. Gauger, D., & Sapiejewski, R. (1987). Voyager pilots avoid hearing loss on historic flight. *Sound and Vibration*, X, 10-12.
9. Gibson, J. J. (1962). Observations on active touch. *Psychological Review*, 69, 477-491.

10. Johansson, G. (1975). Visual motion perception. *Scientific American*, 232 (6), 76-88.
11. Kaitz, M. (1992). Recognition of familiar individuals by touch. *Physiology & Behavior*, 52, 565-567.
12. Kendrick, K. M., & Baldwin, B. A. (1987). Cells in the temporal cortex of conscious sheep can respond preferentially to the sight of faces. *Science*, 236, 448-450.
13. Kourtzi, Z., & Kanwisher, N. (2001). Representation of perceived object shape by the human lateral occipital complex. *Science*, 293, 1506-1509.
14. Labows, J. N., Jr. (1980). What the nose knows. *The Sciences*, 20, 11-13.
15. Lipkin, R. (1995). Tracking an undersea scent: A robot mimics the lobster's keen sense of smell. *Science News*, 147, 78-79.
16. Ohmes, R. L., Marshall, R. T., & Heymann, H. (1999). Sensory and physical properties of ice creams containing milk fat or fat replacers. *Journal of Dairy Science*, 81, 1222-1228.
17. Pons, T. M., Garraghty, P. E., Ommaya, A. K., Kaas, J. M., Taub, E., & Mishkin, M. (1991). Massive cortical reorganization after sensory deafferentation in adult macaques. *Science*, 252, 1857-1860.
18. Quiroga, R. Q., Reddy, L., Kreiman, G., Koch, C., & Fried, I. (2005). Invariant visual representation by single neurons in the human brain. *Nature*, 435, 1102- 1107.
19. Roueché, B. (1982). Impression: Essentially normal. In *The Medical Detectives* (pp. 111-131). New York: Washington Square Press.
20. Roueché, B. (1977). All I could do was stand in the woods. In *The Medical Detectives* (pp. 273-289). New York: Washington Square Press.
21. Russell, M. J. (1976). Human olfactory communication. *Nature*, 260, 520-522.
22. Saldanha, E. L., & Corso, J. F. (1964). Timbre cues and the identification of musical instruments. *Journal of the Acoustic Society of America*, 36, 2021-2026.
23. Schlaggar, B. L., & O'Leary, D. D. M. (1991). Potential of visual cortex to develop an array of functional units unique to somatosensory cortex. *Science*, 252, 1556-1560.
24. Wurtz, R. H., Goldberg, M. E., & Robinson, D. L. (1982). Brain mechanisms of visual attention. *Scientific American*, 246 (6), 124-135.

Perception, Fall 2006 Course Schedule

Dates	Lecture Topic	Reading Assignment
9/6	Admission & Introduction to Perception *No Lab*	Ch 1
9/11 & 13	Theories, Physiology, & Psychophysics *Lab I: Introduction & Experimental Methods*	Chs 1 & 2
9/18 & 20	The Visual System *Lab II: Visual Thresholds; Method*	Chs 3 & 4
9/25 & 27	Color, Form, & Pattern *Lab III: Frequency Discrimination; Results*	Chs 5 & 6; Beck; Johansson
10/2	Figures & Motion	Chs 7 & 8; Kendrick & Baldwin; Wurtz et al.
10/4	**FIRST EXAMINATION** *Lab IV: Aesthesiometry; Discussion*	
10/9 & 11	Visual Space, Objects, & Illusions *Lab V: Haptic Perception; Introduction & Method*	Chs 9 & 10; Kourtzi & Kanwisher; Quiroga
10/16 & 18	The Auditory System *Lab VI: Vowel Discrimination; Results*	Ch 12; Alper; Gauger
10/23 & 25	Sound, Hearing, & Auditory Analysis *Lab VII: Perimetry; Introduction*	Ch 13; Békésy; Saldanha & Corso
10/30 & 11/1	Auditory Space & Acoustic Objects *Lab VIII: Perceptual Plasticity; Abstract & Discussion*	Ch 14; Arlettaz
11/8	**SECOND EXAMINATION** *Lab IX: Palatability & Gustatory Adaptation*	
11/13 & 15	The Vestibular System *Lab X: Perceptual Defense (Planning); Complete Report*	Ch 15; DeCampli; Roueché I
11/20 & 22	Touch & Pain *No Lab, Thanksgiving Holiday*	Ch 16; Gibson; Kaitz; Pons et al.; Schlaggar & O'Leary
11/27 & 29	Taste & Flavor *Lab XI: Perceptual Defense (Testing)*	Ch 17; Ohmes et al.; Roueché II
	12/4 Lecture-only Research Reports Due	
12/4 & 6	Smell *Lab XII: Perceptual Defense (Discussion of Results)*	Ch 18; Doty et al.; Labows; Russell
12/11	Finale ***Final Laboratory Report Due 12/11***	Lipkin; Ehrsson
12/15-12/21	**THIRD EXAMINATION**	