

Psychology 348, Section A: Sensation and Perception

Spring Semester, 2002

Mondays, 6:00 – 9:00. Maxey 209

Instructor: Wally Herbranson

Office: 325 Maxey

Telephone: 527-5217

Email: herbawt@whitman.edu

Office Hours: Monday, 3:00 – 4:00; Tuesday through Thursday, 11:00 – 12:00
And by appointment

Class web page: <http://people.whitman.edu/~herbawt/classes/348/psych348.html>

Course Materials

Available at the Bookstore:

Sacks, O (1995). *An anthropologist on Mars*. New York: Knopf.

Additional Readings:

Additional assigned and optional readings will be available on reserve at Penrose Library.

Banich, M. (1997). *Neuropsychology: The Neural Bases of Mental Function*. New York: Houghton Mifflin. (read p 446-456)

Behrmann, M. & Tipper, S.P. (1999). Attention accesses multiple reference frames: Evidence from visual neglect. *Journal of Experimental Psychology: Human Perception and Performance*, 25, 83-101.

Block, N.J. (1974). Why do mirrors reverse right/left but not up/down? *Journal of Philosophy*, 71(9), 259-277.

Bornstein, B., Sroka, H. & Munitz, H. (1969). Prosopagnosia with animal face agnosia. *Cortex*, 5(2), 164-169.

Carlson, N.R. (1998). *Physiology of Behavior* (6th Ed.). Boston: Allyn & Bacon. (read p 186-203)

Dennett, D.C. (1978). Two approaches to mental images. In *Brainstorms: Philosophical Essays on Mind and Psychology*. Montgometry VT: Bradford Books.

Deutsch, D. (1982). Organizational processes in music. In M. Clynes (Ed.) *Music, Mind, and Brain: The Neuropsychology of Music*. New York: Plenum Press.

Hardcastle, V.G. (1994). Psychology's binding problem and possible neurobiological solutions. *Journal of Consciousness Studies*, 1(1), 66-90.

Hart, J., Berndt, R.S., & Caramazza, A. (1985). Category-specific naming deficit following cerebral infarction. *Nature*, 316, 439-440.

Lepore, L. & Brown, R. (1997). Category and stereotype formation: Is prejudice inevitable? *Journal of Personality and Social Psychology*, 72, 275-287.

Marr, D. (1982). *Vision*. San Francisco: W.H. Freeman & Co. (Read Chapter 1)

Marshall, M.E. (1969). Gustav Fechner, Dr. Mises, and the comparative anatomy of angels. *Journal of the History of the Behavioral Sciences*. 5(1), 39-58.

Medin, D.L. (1989). Concepts and conceptual structure. *American Psychologist*, 44, 1469-1481.

Orbach, J. (1999). The development of musical scales. In *Sound and Music: For the Pleasure of the Brain*. New York: University Press of America

Pinel, J.P.J. (1997). *Biopsychology* (3rd Ed.). Boston: Allyn & Bacon. (read p. 150-162)

Pinker, S. (1997). The mind's eye. In *How the Mind Works*. New York: W.W. Norton & Co.

Rosenzweig, M.R., Breedlove, S.M., & Leiman, A.L. (2002). *Biological Psychology* (3rd Ed.). Sunderland, MA: Simauer Associates. (read p. 269-277)

Schwindler, S.S., Brammer, M.J., Williams, S.C.R., Murray, R.M., & McGuire, P.K. (2000). Mapping auditory hallucinations in schizophrenia using functional magnetic resonance imaging. *Archives of General Psychiatry*, 57, 1033-1038.

Siegel, R.K. (1977). Hallucinations. *Scientific American*, 237(4), 132-140.

Smullyan, R.M. (1981). An epistemological nightmare. In D.R. Hofstadter & D.C. Dennett (Eds.) *The Mind's I*. New York: Bantam Books. (Note: I like to imagine the epistemologist sounding like Wallace Shawn who portrayed Vizzini, the treacherous Sicilian in *The Princess Bride*)

Swets, J.A. (1988). Measuring the accuracy of diagnostic systems. *Science*, 240, 1285-1293.

Takeuchi, A.H. & Hulse, S.H. (1993). Absolute pitch. *Psychological Bulletin*, 113(2), 345-361.

Tanaka, J.W. & Farah, M.J. (1993). Parts and wholes in face recognition. *The Quarterly Journal of Experimental Psychology*, 46A, 225-245.

Thornhill, R. & Gangestad, S.W. (1999). The scent of symmetry: A human sex pheromone that signals fitness? *Evolution and Human Behavior*, 20(3), 175-201.

Course Overview

This class focuses on perception, one of the oldest subject areas in psychology. As such, it can tell us much, not just about perception itself, but about Psychology as a science and several of the fundamental issues in the behavioral sciences, such as the mind-body problem, nativism, empiricism, and the nature of mental life. Thus, I hope you gain something from the course that goes beyond the specifics of sensory processing. Most of the course material will directly apply to vision, though we will consider the other senses in some detail as well. It should be noted that this slight bias toward vision is simply a byproduct of the historical research trends in the field: simply put, there is more (and usually better) research done on vision than on the other sense). The senses all work more or less the same though, so you will probably notice that most of the material can be applied to the other senses with a little bit of effort (if we were rats, perhaps the course would center around olfaction instead!). The interesting and important exceptions to this rule will, of course, be covered during the semester.

Given the seminar format and timing of the class, (one 3 hour session per week), I've attempted to break class periods up into several different components, to keep things as lively as possible. The first portion of each class will usually be a chance to cover some of the factual material and clear up any confusions about readings or previous classes. Following that, I'm likely to share some demonstrations or examples that I think might be particularly thought provoking. The remainder of most classes will be discussion based, usually focusing on a particular reading or research summary. It is my hope that the latter half of the course will produce many lively and spirited discussions and (friendly) debates. Thus, as with any seminar, it is important that everybody read the assignments prior to class meetings.

Grading and Assignments

Yellow Submarine paper (~4pg.)	10%
Take-home Final Exam	20%
Perceptual Demo (or project with poster)	15%
(extra credit for "donating" project to the department)	
Visual disorder group presentation	10%

Discussion lead / summaries	15%
Occasional Homeworks / quizzes	15%
Participation	15%

Take-home final: The final exam will be a take-home exam to be completed during finals week. I will distribute the questions on the last day of class, and exams will be due Monday, May 13. The questions will be more broadly based, philosophical questions, drawing on major issues covered throughout the semester. As with any take-home exam, these should be typed and well constructed answers. Responses should be approximately 5 pages.

Paper #1: The first assignment will be a short paper (about 4-5 pages), focusing on a scene of your choice from the cinematic masterpiece, “Yellow Submarine”. We’ll set up a time to watch the film in class. You should choose a scene that you found to be especially striking from a perceptual framework. Describe the scene, and proceed to explain what made that scene visually interesting. In doing so, you should demonstrate your understanding of visual processing – for instance, depth cues, opponent colors, or movement, and show how they contribute to the psychedelic appearance of the film.

Perceptual Demonstration project: By the end of the semester, you will need to construct a project that demonstrates some principle of sensation / perception. Anything relating to perception, psychophysics or sensory processing is relevant, so you’ll have a great deal of freedom in choosing a demonstration. Some examples might be color “Mondrians”, a motion aftereffect simulator, or a scale model of an Ames room (and you’ll obviously come across more in the readings or in class). Any medium is fine – cardboard cutouts, sculpture, photography or even computer software. Everybody will demonstrate their project and its relevance in a short (10 minute) presentation during the last week of the semester.

Visual disorder group presentation: Early in the semester, you’ll be given the opportunity to demonstrate your understanding of the human visual apparatus by giving a short (10 minute) presentation on a visual disorder. These will be done in pairs, and there will be several options for topics distributed prior to the presentations. Presentations can take on any format, but you may want to include some kind of demonstration that shows how the physical anomaly produces the characteristic visual symptoms, as well as how the problem can be corrected (if it indeed can be).

Discussion topic / summaries: Throughout the semester, we will spend time discussing contemporary issues and current research in perception. In order to encourage sharing of multiple perspectives (and to prevent me from monopolizing the discussion) discussion of some assigned readings will be led by student volunteers. Usually, this will involve presenting a brief summary of the assigned reading and clarifying any confusion. Following this, discussants should bring up some interesting questions or extensions of the material intended to provoke thoughtful discussion. Note that the leader is not expected to have an answer to these – the best questions are often those that may not have an absolute answer. To facilitate class-wide participation on these days and prevent

discussion leaders from having to deal with unresponsive classmates, the remainder of the class should bring a short (about one page) written summary / response. These should outline the topic of the reading and including a thought / discussion question relevant to the discussion. I reserve the right to collect these and assign point values, should the need arise.

Occasional homeworks / quizzes: I will occasionally assign short homeworks designed to help difficult perceptual concepts come across. Most of these will not take a significant amount of time, and will be graded on a +, v, - scale. I'll probably also have occasional unannounced quizzes mostly because I'm mean, but also to make sure everybody stays on top of reading assignments. The questions will be trivially easy if you've read the day's assignment.

Participation: As this is a seminar, participation is integral to the success of the course. Therefore, 15% of your final grade will be based on regular contribution of meaningful and substantive discussion.

Grading Scale: Grades will be assigned based on the percentage of all possible points earned (see above for the relative contributions of each assignment). Below are the overall performance ranges that result in various letter grades.

A	93-100%	C	73-76%
A-	90-92%	C-	70-72%
B+	87-89%	D+	67-69%
B	83-86%	D	63-66%
B-	80-82%	D-	60-62%
C+	77-79%	F	Below 60%

Tentative Schedule of Topics and Assignments:

M, 1-14	Introduction; Major issues and themes in Sensation and Perception
M, 1-21	No Class. Spend some time thinking about Dr. King
M, 1-28	Psychophysics and signal detection Read: Marshall (1969); Swets (1988)
M, 2-4	Principles of sensory processing; Vision nuts and bolts Eyeball dissection Read: Pinel (1997); Marr (1982)
M, 2-11	Visual disorders / color vision Read: Sacks, The Colorblind Painter; Sacks, The Last Hippie
M, 2-18	President's Day. No class, but movie night this week (To be arranged)
M, 2-25	Vision and art / depth and illusions, movement Read: Pinker (1997); Sacks, Prodigies
M, 3-4	Audition Paper #1 (on movie) due Read: Carlson (1998) Takeuchi & Hulse (1993): _____
M, 3-25	Music perception Assignment: Bring your favorite piece of music on cd (less than 5 minutes, please) Read: Banich (1997); Deutsch (1982) Orbach (1999): _____
M, 4-1	Taste and Smell Read: Rosenzweig et al. (2002) Thornhill & Gangestad (1999): _____
M, 4-8	Seeing what's not there Read: Sacks, The landscape of his dreams Dennett (19xx): _____ Siegel (1977): _____
M, 4-15	Putting the right pieces together the right way Behrman & Tipper (1999): _____ Hardcastle (1994): _____ Block (1974): _____

M, 4-22 Groups and categories
Bornstein et al. (1969); Hart et al. (1985): _____
Lepore & Brown (1997): _____
Medin (1989): _____

M, 4-29 Learning to perceive
Read: Sacks, To see and not see
Tanaka & Farah (1993): _____
Smullyan (1981): _____

M, 5-6 Present projects; Finish up

Finals week: Take-home final.

Some not so commonly asked questions...

Q: I hate this! How do I withdraw?

A: Students may drop without record until February 22. If you plan to do this, please do so as quickly as possible so that others may register. After that, students may withdraw until April 5, and doing so will leave a nifty “W” on your transcript.

Q: Is attendance required?

A: No, but it is highly recommended. My official policy is that you are the one paying to go to class, so you may attend whenever you deem necessary. Keep in mind though, that this is primarily a discussion class, and you are responsible for any material covered in class. In addition, you’ll miss out on the participation portion of your grade. If you will be absent from class, it’s a good idea to borrow notes from somebody to ensure you don’t miss anything important.

Q: I think I’m going to have smallpox on several critical dates throughout the semester. Can I schedule makeup exams?

A: Notify me as soon as you realize there will be a serious conflict. Makeup exams can be arranged only for *legitimate* and *properly documented* excuses (i.e., serious illnesses, natural disasters and the like, with a corresponding doctor’s note, CNN footage, subpoena, etc.) Note: The season finale of Survivor is not a legitimate excuse. If it’s that important I’d be happy to tape it for you.

Q: Dude, I bombed that first exam... What can I do?

A: I don’t offer extra credit, but keep in mind that the remaining assignments should provide a good opportunity to correct a rough start. Aside from the final (20%) no single assignment counts for more than 15% of your grade.

Q: What were you talking about on Monday?

A: Please feel free to ask questions during lectures, and let me know if I’m moving too quickly or am not explaining something clearly - It’s difficult for me to know what you’re experiencing in class. I’m also glad to take some time at the beginning of class to clarify points from previous lectures or from the text.