

PSY 233: Sensation and Perception Spring 2019

1:30 p.m. – 2:50 p.m. Tuesdays and Thursdays in Hegeman 102

Instructor

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Office hours: Monday 1:30 p.m. – 2:30 p.m., Thursday 3:00 p.m. – 4:00 p.m., or by appointment

COURSE DESCRIPTION

As we read a line of text our eyes make a series of short, rapid movements (saccades) followed by brief pauses (fixations). Yet, we experience reading as a continuous flow of information. Reading reflects a fundamental question for the study of sensation and perception: how does our brain construct a stable representation of the world when provided with ever changing sensory information? This course will begin to address this, and related questions, by studying the anatomy and physiology of sensory structures that receive stimulus information, with a particularly emphasis on the visual and auditory systems. Next, we will move to the mental processes that turn this raw sensory information into our perception of the world. Finally, we will discuss how the same sensory information can lead to very different perceptions across individuals and cultures.

REQUIRED READING MATERIAL

All reading assignments are listed on the schedule at the end of this syllabus. You should bring readings to class on the assigned day. With one exception, all readings are available on the course's Moodle site (**enrollment key:** SensationAndPerception). You can sign up for the course Moodle site at <http://moodle.bard.edu>.

COMPONENTS OF THE COURSE GRADE

Exams (300 points)

For this class, there will be 3 exams. Exam dates are firm but the material covered may vary slightly from the syllabus depending on how the course progresses. Any deviations from the syllabus will be made clear prior to each exam. Exams will contain fill in the blanks and short answer questions encompassing material covered in class and the assigned readings. Exams will be worth 100 points each. The third exam will be cumulative but the majority of the material (~75%) will be from topics presented after the second exam. Students are expected to take all exams on the schedule dates. In an extreme circumstance, the student should contact me at least 24 hours prior to the exam and I will decide on what will be done. Make up exams will only be scheduled with a written excuse from the Dean of Students or medical professional.

Graphing Assignment (20 points).

A focus of cluster C psychology courses is the presentation and interpretation of graphs. While we will be interpreting graphs throughout this course, this assignment will provide you with some basics about creating graphs in Excel. This assignment is available on the course Moodle site and will be due at the start of class on Thursday, February 21st. Late assignments will lose 2 points per day.

Group Presentation (25 points).

During the first two weeks of the semester, you will be paired up with a partner. During class on Thursday, April 4th you and your partner will present and explain a visual illusion of your choosing. Presentations should be a maximum of 10 minutes and you need to have your illusion approved by me by Tuesday, April 2nd at 5:00 p.m. Failure to have your illusion approved by that deadline will result in a deduction of 7.5 points from your group's grade. Students who do not present will receive a grade of 0.

Writing Assignment #1: Investigating the Senses of a Non-Human Animal (30 points).

As humans, we only perceive stimuli in the environment for which we have specialized sensory receptors. For this assignment, you will identify a non-human animal that is able to perceive a type of stimulus that humans cannot. In 2-3 pages double-spaced, you should include a description of the animal, a description of stimulus that it can perceive, the basic biological mechanisms by which this perception occurs, and what advantages are conferred to the animal by being able to detect this stimulus. Finally, you should consider what it would be like for humans to be able to perceive this type information in their daily lives. Additional details will be provided over the course of the semester. Writing assignment #1 will be due at the start of class on Tuesday, March 12th. Late assignments will lose 3 points per day.

Writing Assignment #2: Communicating Sensation and Perception to The Public (35 points)

Over the course of the semester we will read several non-empirical articles that are intended to communicate sensation and perception research to the general public. In this assignment, you will be assigned ONE of these articles. In 4 double spaced pages, your task will be to identify ONE of the empirical findings cited in the assigned article and evaluate the efficacy of their summary. In what ways is the summary correct? In what ways is the summary of the research misleading? Provide a summary of the article for the public. Additional details will be provided over the course of the semester. Writing assignment #2 will be due at the start of class on Thursday, May 2nd. Late assignments will lose 5 points per day.

Class Participation and In-Class Assignments (40 points)

You should come to class each day prepared to discuss the readings and topics. Class participation consists of active contributions to interactive experiences, group work, and thoughtful speaking and listening. If you tend to be uncomfortable speaking up in classes, please speak to me early in the semester to discuss ways to help you succeed. In addition to your performance in the classroom, frequent absences will have a negative impact on your class participation grade. There will also be several graded in-class assignments that will be completed over the course of the semester. There are no make-ups for in-class assignments.

GRADING BREAKDOWN***POINT ALLOCATION***

Exam 1	100
Exam 2	100
Exam 3	100
Graphing Assignment	20
Group Presentation	25
Writing Assignment #1	30
Writing Assignment #2	35
<u>Class Participation</u>	<u>40</u>
Total Points	450

GRADING SCALE

A = 100.0000% – 93.0000%
A- = 92.9999% – 90.0000%
B+ = 89.999% – 87.0000%
B = 86.9999% – 83.0000%
B- = 82.9999% – 80.0000%
C+ = 79.9999% – 77.0000%
C = 76.9999% – 73.0000%
C- = 72.9999% – 70.0000%
D = 69.9999% – 60.0000%
F = 59.9999% or less

$$\text{FINAL GRADE} = ((\text{Total Points Earned} + \text{Extra Credit})/450) * 100$$

STUDENTS WITH DISABILITIES

Students with a documented disability who need reasonable academic accommodations should contact me as soon as possible to discuss your needs. I can only accommodate your needs if you allow me sufficient time to prepare. Informing me of a need on the day of an exam or on the date an assignment is due is NOT sufficient. As stated in the college handbook, "Students who claim physical, learning, or psychological disabilities should register with the Disability Support Coordinator at the start of the semester or as soon as the diagnosis is made." Additional information can be found on the Bard College Learning Commons website (<http://inside.bard.edu/learningcommons/>).

ACADEMIC INTEGRITY

All students are assumed to have read the Bard College Handbook and are familiar with the school's policies regarding Plagiarism and Academic Dishonesty. Violations of these policies are taken extremely seriously and one violation will result in a failing grade for the course and a referral to the Dean of Students for further action. Specific violations include (but are not limited to):

- Use or provision of prohibited assistance during quizzes or exams
- Sharing of writing assignments
- Plagiarism (which includes **both** the use of **words** and **ideas** without attribution)

Sensation and Perception Schedule – Spring 2019

All readings, assignments, and lecture topics dates are subject to change. Exam dates are final.

Tuesday, January 29th: Introduction to Sensation and Perception

Thursday, January 31st: NO CLASS

Tuesday, February 5th: Neurons and Psychophysics

To read for class:

1. Heron, W. (1957). The Pathology of Boredom. *Scientific American*, 196, 52-56.
2. Fan, S. (2014, April). Floating away: the science of sensory deprivation therapy. *Discover Magazine*. Retrieved from: www.discovermagazine.com

Thursday, February 7th: Signal Detection Theory

To read for class:

1. Yantis, S. (2014). *Sensation and Perception* (pp. 32-40). New York: Worth Publishers.

Tuesday, February 12th and Thursday, February 14th: NO CLASS

Tuesday, February 19th: The Eye I

To read for class:

1. Gregory, R. L. (1997). *Eye and Brain: The psychology of seeing* (pp 34-60). Princeton, New Jersey: Princeton University Press.
2. Nordby, K. (1990). Vision in a complete achromat: A personal account. In R. F. Hess, L. T., Sharpe, & K. Nordby (eds.), *Night Vision: Basic, Clinical, and Applied Aspects*. Cambridge University Press: Cambridge.

Thursday, February 21st: Vision in the Brain I

To watch for class:

1. Torsten Wiesel (Rockefeller University): Exploring the Visual Brain (link to video on course moodle site).

Graphing Assignment Due

Tuesday, February 26th: Vision in the Brain II

To read for class:

1. Geldart, S. Mondloch, C. J., Mauer, D., de Schonen, S., & Brent, H. P. (2002). The effect of early visual deprivation on the development of face processing. *Developmental Science*, 5, 490-501.
2. Mishkin, M., Ungerleider, L. G., & Macko, K. A. (1983). Object vision and spatial vision: two cortical pathways.

Thursday, February 28th: Individual and cultural differences in vision

To read for class:

1. Hull, J. M. (2013). The wind and the sea. In *Touching the Rock: An experience of blindness*. SPCK Press: London. (pp. 82-107).
2. Chua, H. F., Boland, J. E., & Nisbett, R. E. (2005). Cultural variation in eye movements during scene perception. *PNAS*, 102, 12629-12633.

Tuesday, March 5th: Exam 1**Thursday, March 7th: Color Vision**

To read for class:

1. Wolfe, J., M., Kluender, K. R., & Levi, D. M. (2017). *Sensation and Perception* (pp. 136-171). Oxford University Press: Oxford.

Tuesday, March 12th: Seeing in Three Dimensions

To read for class:

1. Sacks, O. (2006, June). Stereo Sue: Why two eyes are better than one. *The New Yorker*, 82(18), 64-70.

Writing Assignment #1 Due**Thursday, March 14th: Recognition**

To read for class:

1. Quiroga, R. W., Reddy, L., Kreiman, G., Koch, C., & Fried, I. (2005). Invariant visual representation by single neurons in the human brain. *Nature*, 435, 1102-1107.
2. Stephan, B. C. M., & Caine, D. (2009). Aberrant pattern of scanning in prosopagnosia reflects impaired face processing.

Tuesday, March 19th and Thursday, March 21st: NO CLASS, Spring Break**Tuesday, March 26th: Attention and Perception I**

To read for class:

1. Moran, J. & Desimone, R. (1984). Selective attention gates visual processing in the extrastriate cortex. *Science*, 229, 782-784.
2. Tong, F., Nakayama, K., Vaughan, J. T., & Kanwisher, K. (1998). Binocular rivalry and visual awareness in human extrastriate cortex. *Neuron*, 21, 753-759.

Thursday, March 28th: Attention and Perception II

To read for class:

1. Drews, F. A., Pasupathi, M., & Strayer, D. L. (2008). Passenger and cell phone conversations in simulated driving. *Journal of Experimental Psychology: Applied*, 14, 392-400.

Tuesday, April 2nd: Motion Perception

To read for class:

1. Gregory, R. L. (1997). *Eye and Brain: The psychology of seeing* (pp 98-120). Princeton, New Jersey: Princeton University Press.

Thursday, April 4th: Group Presentations**Tuesday, April 9th: The Ear**

To read for class:

1. Yantis, S. (2014). *Sensation and Perception* (pp 297-307). New York: Worth Publishers.
2. Hofman, P. M., Van Riswick, J. G. A., & Van Opstal, A. J. (1998). Relearning sound localization with new ears. *Nature Neuroscience*, 1, 417-421.

Thursday, April 11th: Hearing and the Brain

To read for class:

1. Yantis, S. (2014). *Sensation and Perception* (pp 307-320). New York: Worth Publishers.
2. Ringo, A. (2013, August). Understanding Deafness: Not everyone wants to be "fixed". *The Atlantic*. Retrieved from: <http://www.theatlantic.com/health>.

Tuesday, April 16th: Exam 2**Thursday, April 18th: Music and Speech Perception**

1. Mas-Herrero, E., Zatorre, R. J., Rodriguez-Fornells, A., & Marco-Pallaré, J. (2014). Dissociation between musical and monetary responses in specific musical anhedonia. *Current Biology*, 24, 1-6.

To watch for class:

1. The Linguistic Genius of Babies, presented by Patricia Kuhl (link on moodle site).

Tuesday, April 23rd: Touch

To read for class:

1. Field, T. M., Schanberg, S. M., Scafidi, F., Bauer, C. R., Vega-Lahr, N.,...& Kuhn, C. M. (1986). Tactile/Kinesthetic Stimulation Effects on Preterm Neonates. *Pediatrics* 77, 655-658.
2. Konnikova, M. (March, 2015). *The Power of Touch*. The New Yorker. Retrieved from: <http://www.newyorker.com/science>.

Thursday, April 25th: Olfaction

To read for class:

1. Herz, R. (2007). *The Scent of Desire* (pp. 1-29). New York: Harper Collins.

Tuesday, April 30th: NO CLASS, Advising Days**Thursday, May 2nd: Taste**

To read for class:

1. Wolfe, Kluender, & Levi (2017). *Sensation and Perception* (pp. 508-528). Oxford University Press: Oxford.

To listen to for class:

1. Fresh Air Podcast with Grant Achatz: The Chef Who Lost His Sense of Taste.

Writing Assignment #2 Due.

Tuesday, May 7th: Sensory Substitutions

To read for class:

1. Twilley, N. (2017, May). Sight Unseen: Seeing with your tongue and other surprises of sensory substitution technology. *The New Yorker*, 93(35), 30-35.

To watch for class:

1. Excerpt of Brainport Demonstration at the Chicago Lighthouse.

Thursday, May 9th and Tuesday, May 14th: No CLASS, Board Week

Thursday, May 17TH: FINAL EXAM