PSY 233: Sensation and Perception

Spring 2018

11:50 a.m. – 1:10 p.m. Tuesdays and Thursdays in RKC 102

Instructor
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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: S&P)**. You can sign up for the course Moodle site at http://moodle2.bard.edu.

It is your responsibility to obtain a copy of:

Hull, J. M. (2013). Touching the Rock: An Experience of Blindness. SPCL Press: London.
Note: There are several editions of this book. Any edition you can get is fine.

This is the only reading not available on the course moodle site. This book is available for purchase on Amazon and other booksellers.

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 blank 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 (25 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 8th. Late assignments will lose 2.5 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, March 29th you and your partner will present and explain a visual illusion of your choosing. Presentations should be a maximum of 5 minutes and you need to have your illusion approved by me by Tuesday, March 27th at 5:00 p.m. Failure to have your illusion approved by that deadline will result in a deduction of 7.5 points from the group 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, find a non-human animal that is able to perceive a type of stimulus that humans cannot. In 2-3 double-spaced pages, 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 be 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 Thursday, March 15th. Late assignments will lose 3 points per day.

Writing Assignment #2: Communicating Sensation and Perception to The Public (50 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 2-4- double spaced pages, identify ONE of the empirical findings cited in the non-empirical 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 Tuesday, May 8th. Late assignments will lose 5 points per day.

Class Participation (20 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.

Extra Credit Opportunities
Over the course of the semester there will be four psychology-sponsored colloquia. These occur on Thursdays at 4:45 p.m. See the psychology program website (http://psychology.bard.edu/) for dates. You can earn a maximum of **4 points** towards your final grade through attending ONE of these talks. To receive credit, attend a talk and submit one question you would have for the speaker to me via email at thutcheo@bard.edu within 48 hours after the talk. If you have a conflict with this time, but would still like to receive extra credit, please speak with me early in the semester.

IMPORTANT DATES

Thursday, Feb. 8th: Graphing Assignment Due
Tuesday, Feb 27th: Exam 1
Thursday, March 15th: Writing Assignment #1 Due
Tuesday, March 27th: Group Presentation Topics Due
Thursday, March 29th: Group Presentations
Tuesday, April 10th: Exam 2
Tuesday, May 8th: Writing Assignment #2 Due
Thursday, May 17th: Final Exam

GRADING BREAKDOWN

POINT ALLOCATION	
Exam 1	100
Exam 2	100
Exam 3	100
Graphing Assignment	25
Group Presentation	25
Writing Assignment #1	30
Writing Assignment #2	50
Class Participation	20
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

FINAL GRADE = ((Total Points Earned + 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 2018

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

TUESDAY, JAN. 30th: INTRODUCTION TO SENSATION AND PERCEPTION

THURSDAY, FEB. 1ST: NEURONS AND PSYCHOPHYSICS

To read for class:

1. Heron, W. (1957). The Pathology of Boredeom. *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

TUESDAY, FEB. 6TH: SIGNAL DETECTION THEORY

To read for class:

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

THURSDAY, FEB. 8TH: 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.

Graphing Assignment Due

TUESDAY, FEB. 13TH: THE EYE II

To read for class:

1. National Society to Prevent Blindness. (2008). *Vision Problems in the U.S.* Retrieved from: http://www.preventblindness.org.

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, FEB 15TH: VISION IN THE BRAIN I

To read for class:

1. Wurtz, R. H. (2009). Recounting the impact of Hubel and Wiesel. *Journal of Physiology, 587*, 2817-2823.

TUESDAY, FEB. 20TH: 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. Goodale, M. A., Milner, A. D., Jakobson, L. S., & Carey, D. P. (1991). A neurological dissociation between perceiving objects and grasping them. *Nature, 349*, 154-156.

THURSDAY, FEB. 22ND: BLINDNESS

To read for class:

1. Hull, J. M. (2013). Touching the Rock. SPCK Press: London.

TUESDAY, FEB. 27th: EXAM 1

THURSDAY, MAR. 1ST: 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, MAR. 6TH: SEEING IN THREE-DIMENSIONS

To read for class:

1. Levine, M. W. & Shefner, J. M. (1991). *Sensation and Perception (pp. 297-323).* Wadsworth Publishing: Belmont, CA.

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

THURSDAY, MAR. 8TH: 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. Chowan, S. (2013, September). Living with face blindness. *The Atlantic*. Retrieved from: http://www.theatlantic.com/health.

TUESDAY, MAR. 13TH: 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. Jiang, Y., Costello, P., Fang, F., Huang, M., & He, S. (2006). A gender- and sexual orientation dependent spatial attentional effect of invisible images. *PNAS, 103*, 17048 17052.

THURSDAY, MAR. 15TH: ATTENTION AND PERCEPTION II

To read for class:

1. Williams, M.A., Morris, A. P., McGlone, F., Abbott, D. F., & Mattingley, J. B. (2004). Amygdala Responses to Fearful and Happy Facial Expressions Under Conditions of Binocular Suppression. *The Journal of Neuroscience, 24*, 2898-2904.

Writing Assignment #1 Due

TUESDAY, MAR. 20TH AND THURSDAY, MAR, 22ND: SPRING BREAK

TUESDAY, MAR. 27TH: MOTION PERCEPTION

To read for class:

1. Zihl, J. & Heywood, C. A. (2015). The contribution of LM to the neuroscience of movement vision. *Frontiers in Integrative Neuroscience, 9*.

THURSDAY, MAR. 29TH: GROUP PRESENTATIONS

TUESDAY, APR. 3RD: 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, APR. 5TH: 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, APR. 10TH: EXAM 2

THURSDAY, APR. 12TH: MUSIC AND SPEECH PERCEPTION

To read for class:

1. Levitin, D. J. (2006). *This is your brain on music (pp. 169-192)*. New York: Penguin Press.

TUESDAY, APR. 17TH: 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, APR. 19TH: OLFACTION

To read for class:

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

TUESDAY, APR. 24TH: 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.

THURSDAY, APR. 26TH: 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.

TUESDAY, MAY 1ST: ADVISING DAYS, NO CLASS

THURSDAY, MAY 3RD: CULTURAL DIFFERENCES IN SENSATION AND PERCEPTION

To read for class:

1. Miyamoto, Y. Nisbett, R. E., & Masuda, T. (2006). Culture and the Physical Environment. *Psychological Science, 17*, 113-119.

2. Luhrmann, T. M. (2014, September). Can't place that smell? You must be American. *The New York Times.* Retrieved from http://www.nytimes.com.

TUESDAY, MAY 8TH: RECAP

Writing Assignment #2 Due

THURSDAY, MAY 10TH AND TUESDAY, MAY 15TH: BOARD WEEK, NO CLASS

THURSDAY, MAY 17TH: FINAL EXAM