

## **Psychology 21: Sensation and Perception**

### **Course syllabus**

Fall Term, 2011; M-W-F 11:15-12:20; **BO3**, Moore Hall  
X-hour: Tuesday, 1:00-1:50

Instructor: Professor Howard C. Hughes  
Phone: 646-2775  
Email: [Howard.C.Hughes@Dartmouth.edu](mailto:Howard.C.Hughes@Dartmouth.edu)

Office: 351 Moore Hall  
Office Hours: Wednesday & Friday 2:30-3:30 or by appointment

Graduate Teaching Assistant: Carolyn M. Parkinson  
Email: [Carolyn.M.Parkinson@Dartmouth.edu](mailto:Carolyn.M.Parkinson@Dartmouth.edu)

**Course description:** All knowledge comes to us via our senses. Their function is to create an accurate internal representation or model of the external world. Our senses are remarkably accurate in processing stimulus energy gathered from different receptor organs and generating representations of the corresponding objects and events these stimuli represent. This course considers how our sensory systems process environmental energy and how they produce such accurate representations of the world around us. The process *begins* with specialized sensory receptors such as those found in the eyes, ears or skin, but for the most part it *occurs* in the central nervous system. How good are our senses and what are their limitations? How do we see in color, and what does it mean to be 'color blind'? In what ways are vision, hearing and touch similar? How does our sensory experience differ from that of other animals? These are some of the questions we will consider. The unifying theme emphasizes that our understanding of human perception comes through the application of objective scientific methods to the study of our subjective sensory experience.

**Course prerequisites:** Psychology 1 or 6 or my permission (which you can get if you are not a Psychology major). The most important prerequisite is a desire to learn and a willingness to work hard. The rest we can do together.

**Course structure:** This is a lecture course, which means that for the most part, I will talk and you will listen. However, there will be plenty of time to ask questions and discuss things that you find particularly interesting. I welcome your questions, observations and class discussions. I find *I* learn something from *you* every time I teach this course! The lectures will supplement and expand upon material covered in *Sensation & Perception, 2<sup>nd</sup> edition* by J. Wolfe *et al.* (McGraw-Hill). You should purchase the text as soon as possible (Wheelock Bookstore or through the internet). Your grade will be based on 3 equally-weighted exams (33.3% each). The first exam will occur at the end of the 3<sup>rd</sup> week of the term, the second occurs at the end of the 7<sup>th</sup> week, and the final will occur during our scheduled final exam period. None of the exams is

specifically cumulative, although later topics build on or relate to topics covered earlier in the term. I would like to have us all agree to take the exams during the evening instead of during class time, and we will see if this is possible during the first class. If we can all agree to having evening exams, you will have unlimited time and at least 2 evenings to choose from.

### **A few reminders...**

**Disabilities Statement:** If you have a documented disability needing academic adjustments or accommodations please speak to me by the end of the second week of the term. All discussions will remain confidential, although I may consult with the Student Disabilities Coordinator may to verify the documentation of the disability.

**Students Religious Observances:** Some students may wish to take part in religious observances that occur during this academic term. If you have a religious observance that conflicts with your participation in the course, please meet with me before the end of the second week of the term to discuss appropriate accommodations.

**The Academic Honor Principle:** It is a violation of the Dartmouth Honor Code to receive from or give to another person (a) any academic assistance during an exam, or (b) any information about the actual contents of an exam (this includes removing an exam from the testing situation or studying from an exam or copy of an exam that has been removed from the testing situation or from the department).

### **Weekly Listing of Topics**

#### **Week 1**

Wed. Sept. 21: Introductions & the Experiment of Hecht, Schlaer & Pirenne (1942)  
Fri. Sept. 23: Fundamentals of Sensory Physiology

Reading assignment: Chapter 1

#### **Week 2**

Mon. Sept. 26: Light, Optics & the Eye II  
Tues. Sept. 27: Catch-up time  
Wed. Sept. 28: The Retina  
Fri. Sept. 29: The Visual Brain

Reading assignment: Chapter 2

#### **Week 3**

Mon. Oct. 3: Spatial Vision I  
Tues. Oct. 4: Recitation & Review (optional)  
Wed. Oct. 5: Spatial Vision II  
Fri. Oct. 7: Form & Object perception

Reading assignment: Chapter 3 & 4

#### Week 4

- **Monday evening, Oct. 10 or Tuesday evening, Oct. 11: EXAM 1 – Covers lecture material up to and including Form and Object Perception and Chapters 1-4**

Mon. Oct. 10:	Review Session (Attendance Optional)
Wed. Oct. 12:	Color Vision I
Fri. Oct. 14:	Color Vision II

Reading assignment: Chapter 5

#### Week 5

Mon. Oct. 17:	Depth Perception I
Tues. Oct. 18	Review Exam 1
Wed. Oct. 19:	Depth Perception II
Fri. Oct. 21:	Motion Perception

Reading assignment: Chapters 6 & 7

#### Week 6

Mon. Oct. 24:	Attention and Eye Movements
Tues. Oct. 25:	Review Session (Attendance Optional)
Wed. Oct. 26:	Auditory System I: Physics of sound & Anatomy of the ear
Fri. Oct. 28:	Auditory System II: Basilar membrane & The Auditory Nervous System

Reading assignment: Chapters 8 & 9

#### Week 7

- **Tuesday, Nov. 1 or Wednesday, Nov. 2 – EXAM 2 Covers lecture material from Color Vision I up to and including The Auditory Nervous System PLUS Text Chapters 5-9**

Mon. Oct. 31:	Psychoacoustics I: Frequency analysis
Tues. Nov. 1:	Review Session (Attendance Optional)
Wed. Nov. 2:	NO CLASS
Fri. Nov. 4:	Psychoacoustics II: Pitch perception

Reading assignment: Chapter 10

### Week 8

Mon. Nov. 7:	Psychoacoustics III: Sound localization
Tues., Nov. 8:	Review Exam 2
Wed. Nov. 9:	The Sense of Touch I
Fri. Nov. 11:	The Sense of Touch II

Reading assignment: Chapters 11 & 12

### Week 9

Mon. Nov. 14:	The Sense of Touch II
Wed. Nov. 16:	The Perception of Pain
Fri. Nov. 18:	The Vestibular System

Reading assignment: Chapters 15

### Week 10

Mon. Nov 21:	Perceptual Disorders
Tues. Nov. 22:	NO CLASS
Wed. Nov. 23:	Thanksgiving Break
Fri. Nov. 25:	Thanksgiving Break

Reading assignment: Chapters 13 & 14

### Week 11

Mon. Nov 28:	Conscious Sensory Experience
Tues. Nov. 29:	NO CLASS
Wed. Nov. 30:	Review Session

Reading assignment: Chapters 13 & 14

- **Saturday, Dec. 3, 3:00 PM: FINAL EXAM** – covers Lecture material from **Psychoacoustics I (Frequency Analysis) to Conscious Sensory Experience** – Text chapters 10-15