

### **Pedagogic Background**

#### ***Assumptions***

Psychology is the science of behavior, the science of “how and why organisms do what they do.” This course examines the initial stages of experience, the processes by which organisms gain information about their environment, and construct representations of it. In doing so, we will adopt the perspective of natural science, particularly that of the behavioral sciences, a perspective which assumes: natural laws govern behavior, behavior is entirely the result of genetic and environmental influences, and that there is no essential difference between mind and body. The behavioral sciences conduct experiments to test hypotheses and construct models of behavior.

#### ***Mastery of Material***

Mastery of material comes through reflection, reading, discussion, and discernment. This course focuses on a series of questions to which we will return time and time again:

- What is the nature of the physical stimulus?
- What are the mechanisms by which the physical stimulus is transformed into a neural code?
- How does the neural code represent salient aspects of the stimulus?
- How does the sensory representation interact with other psychological systems (cognitive, motivational, and emotional) to produce a perceptual representation?
- How do sensory and perceptual systems develop?

Answering these questions requires mastery of a body of material. As we explore them together, you will learn to think about behavior as an experimental psychologist.

#### ***Mastery of Communication***

The course also aims at developing your abilities to communicate effectively in a variety of formats and through a variety of media. College graduates report that their undergraduate education prepared them very well in many areas including the abilities to read effectively, to analyze material, to organize their thoughts, and to write well. They are generally less pleased with their preparation to speak before groups. This course aims to give you experience in this skill.

In addition, the newer information technologies make it possible for the typical student to move beyond communicating with the written word. I believe it is imperative that you improve your mastery of these media. Hence, the course makes extensive use of information technology. We will, together, explore these new vehicles of communication

#### **Class Structure**

This is not a traditional lecture course, although lectures have a prominent place in it. A variety of exercises, demonstrations, and other activities supplement the lectures.

The plan of the course is to devote class meeting to basic con-

cepts and detailed consideration of selected empirical findings. A rough outline of the topics is given in the calendar section of this syllabus; there may be some adjustment to this schedule as the semester progresses. We will devote some class meetings to demonstrations and to your presentations (see below).

You are to teach yourself the facts about sensory processes and perception, I am here to help you learn to think clearly, to think about behavior like an experimental psychologist, and to help you to learn to communicate effectively, and with style.

#### **Required Readings**

The suggested text is a standard undergraduate treatment:

Goldstein, E. B. *Sensation & perception* (8th ed). Pacific Grove, Ca.: Wadsworth, 2010.

The table of contents is as follows:

1. Introduction to Perception.
2. Introduction to the Physiology of Perception.
3. Introduction to Vision.
4. The Visual Cortex and Beyond.
5. Perceiving Objects and Scenes.
6. Visual Attention.
7. Taking Action.
8. Perceiving Motion.
9. Perceiving Color.
10. Perceiving Depth and Size,
11. Sound, the Auditory System, and Pitch Perception.
12. Sound Localization and the Auditory Scene.
13. Speech Perception.
14. The Cutaneous Senses.
15. The Chemical Senses.
16. Perceptual Development.

There is a web site for this text. The most useful components are the quizzes and web links.

For the Annotated Bibliography (see below) you may use earlier editions of this text, or a similar text by another author.

Sensory processes and perception are among the most intellectually demanding areas in all of psychology. A good deal of the research literature presumes a sound working knowledge of some basic physics, physiology, and mathematics such as linear systems analysis.

Since students often come to this course with highly varied preparation in these allied fields, those with substantial background may wish to tackle the materials at a more advanced level. They also may differ in the goals they hope to attain. I am prepared to work with these students to select an alternative readings.

#### **Annotated Bibliography**

You are to prepare a detailed annotated bibliography of the materials you read. If you read the Goldstein or other text, this should take the form of chapter summaries (each about 2-4

pages in length) which review the main concepts presented. If you choose to substitute other readings, please see me about the form of the bibliography.

This assignment is due in two parts: roughly half the material by the beginning of Spring Break, the remainder by the last day of classes. I am prepared to review the progress of your work at any time.

### **Final Project**

An final project, such as a research paper (ten to fifteen pages in length), on a topic of your choice, is due at the end of the Reading Period. The project may take other forms; again please see me if you wish to propose an alternative. Due on 14 May at 11:00 am.

### **Presentations**

Throughout the semester, several class meetings will be devoted to student presentations. These should review the main issues, results, and implications of a particular topic.

Presentations should last approximately ten minutes.

Each student will make two presentations. The schedule and assignments for these presentations will be established in late February.

Presentations must employ computer-mediated presentation techniques using software such as Microsoft PowerPoint. The necessary software is available on Psychology Department Computer Lab machines. We will devote part of a class meeting to making effective presentations.

### **Computer Lab**

The Psychology Department has a computer lab on the first floor of Severance. The machines have all the software necessary to complete the course. I urge each student to become familiar with the lab early in the semester.

### **Grades**

The work for the course will be weighted as follows:

Presentations	20%
Final Project	30%
Bibliography	50%

### **Document Preparation**

Because I believe that traditionally printed student work unnecessarily constrains communication, all documents for this course are to be submitted via Blackboard in electronic form

only.

### **Document Submission**

Electronic documents should be placed in the Assignments section for this course on Blackboard. To upload your file, click on "View/Complete Assignment", navigate to "Attach local file", and click "Browse". Find the file on your computer. Once you have located it, double-click or highlight and click "Open". The path to the file should appear. Click "Submit" to finish and upload the file.

Document names are to take this format:

[Name]\_[Assignment].[extension]

Where:

Name—your ObieID, generally your first initial plus the first seven characters of your last name (e.g. scarrier)

Assignment—the assignment name, i.e.,

bibliography\_1—first half of the annotated bibliography

Extension—the correct extension for the type of file, for example:

.doc for Microsoft Word files

Thus, the first Project should have a file name like:

scarrier\_bibliography\_1.doc

Please do not send these documents as an e-mail attachment, unless absolutely necessary.

### **Honor Code**

Oberlin's Honor Code applies to all work in this course. You must append the statement "I affirm that I have adhered to the Honor Code on this assignment" to all work, and submission of the assignment attests to its veracity.

### **Contacting Your Instructor**

My office is in the basement of Severance Hall (room 2), and I hold official office hours MW 1:30 to 3:00 pm. I can often be found at other times, and I encourage you to schedule (via e-mail) another time to meet with me.

E-mail is the most efficient way to contact me:

sam.carrier@oberlin.edu

I sometimes answer the telephone and infrequently check my voice-mail:

440-775-8170

## Calendar

### *February*

- 5 Introduction
- 7 Visual Encoding
- 12 no class
- 14 no class
- 19 Retinal Representation
- 21 Visual Processing
- 26 Psychophysical Methods
- 28 Physiological Methods

### *March*

- 5 Form
- 7 Objects
- 12 Visual Space
- 14 Color (also Presentation Design)
- 19 Visual Illusions and Puns
- 21 Student presentations

Spring Break

### *April*

- 2 Auditory Transduction
- 4 Auditory Encoding
- 9 Frequency Analysis
- 11 Timbre
- 16 Intensity Analysis and Hearing Disorders
- 18 Auditory Space
- 23 Architectural Acoustics
- 25 Cutaneous Senses
- 30 Taste

### *May*

- 2 Smell
- 7 Student Presentations
- 9 Review