

SYLLABUS

Perception Research Methods

Psychology 325, Fall 2018
Lecture, TR 3:40–5:00 PM, TLC 108
Lab, W 4:00–6:00 PM, TLC 108

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Tutor: TBA

Overview

Perception Research Methods investigates the underlying structure of the human perceptual system. Using psychophysical ($\Phi \rightarrow \Psi$, or better, $\Phi \rightleftharpoons \Psi$) and other behavioral techniques our goal is to better understand the functions of the human sensory & perceptual systems, as well as measure their performance.

Basics & Background

We all perceive, it is one of those things that is fundamental to our existence. We also act on our environment. It is this ‘perception & action cycle’ that more or less defines our existence. In this class, we’ll make an effort to learn about some of the central ideas involved in this exchange.

Perception is the gateway to our conscious selves. We have to get information ‘in’ so that we can perform actions, and therefore, get information ‘out’, otherwise we’re just blobs of inactive tissue (or silicon!). Think about the following — Are plants conscious? How about video cameras? How about a thermostat? Slime molds? Rocks!? They all react in response to their environment, so are they perceiving and acting? What about dogs? Fish? Chimps? *What makes you say ‘yes’ or ‘no’ in each case?*

You’re probably quite familiar with the so-called five senses. Of these, we seem to know the most about vision, followed closely by sound. But, there are some interesting perceptual areas that extend beyond the big five, such as music perception, speech perception, shape perception, object perception, aesthetic perception, and tons more. Each of these are arguably a sub—specialty of our basic five, but there are some folks working on perceptual problems that aren’t related to them, such as

our ability to sense gravity through various bodily mechanisms. Even better, some animals can perceive things we self-important humans cannot. Magnetic fields, electric fields, light of wavelengths way above of below what we humans call 'light' — all check.

Those of us in the classroom today have been pretty good at sensing and surviving in the world (so far, anyway...LOOK OUT BEHIND YOU, A LION!). When was the last time you ran out into the path of a moving car or stepped off of a cliff edge? What about the last time you heard a giant rhinoceros charging at you and you didn't get out of the way in time? Darwin says: "Move forward two spaces!" You'd think that makes us experts in perceiving. But as it turns out — our perception of the world isn't always entirely accurate! In fact, most of the time we aren't really doing a good job of perceiving the actual, fundamental physical characteristics of objects *at all* (like length, height, weight, color, &c) but we manage to survive none the less!

So, congratulations on surviving this far, good luck in the future — Let's figure out how we achieve this miraculous task of sensing and acting!

Objectives

Students who complete this class will have a broad understanding of sensory perception and processes writ large, and more specifically in the domains of psychology and neuroscience. Furthermore they will understand some of the research approaches used in contemporary perceptual science.

Specifically —

- The human sensory systems.
- Sensory systems in some other animals.
- Non-animal sensory systems.

And since this is a PS Methods II class this includes —

- Experimental processes in sensory psychology & neuroscience.
- Analysis techniques in sensory psychology & neuroscience.
- Writing in sensory psychology & neuroscience.

Assessment will be via —

- Three Examinations.
- Three to Five Laboratory projects.
- One Grant proposal.

Materials

Our book is *Sensation & Perception* by Wolfe et al., 5th ed., published by Oxford University Press (*nee* Sinauer) in 2018. It is required, the majority of information from lectures come from it. There will be handouts and other supplemental materials, distributed in class and electronically. The book is also available in ‘looseleaf’ and electronic versions, if you’d like to save paper, money, or even paper money.

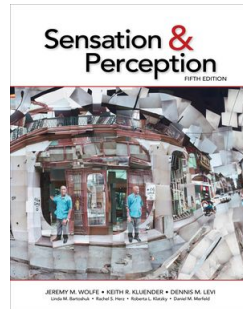


Figure 1: Your Book.

We’ll also be using the *PsychoPy* experimental package for labs. You can download the latest version at <https://psychopy.org>. It’s free!

For analysis and writing, you can use anything you’re already used to (R, SPSS, Mathematica, MATLAB, SAS) but if you’d like to try something new (and also open source and free) give *JASP* a try at <https://jasp-stats.org>.

Schedule

Roughly- we’ll go at it like this —

PART 1: Vision

Anatomy, physiology, early vision, shape, space, color motion.

PART 2: Sound

Anatomy, physiology, hearing, music, speech.

PART 3: Touch

Anatomy, physiology, active and passive touch.

PART 4: Chemical Senses

Anatomy, physiology, smell, taste.

Assessment and Grading

LABS: ($N = 3$ to 5) — 30%

EXAMS: ($N = 3$) — 50%

GRANT PROPOSAL: ($N = 1$) — 15%

‘PRESENCE’: ($N = 1$) — 5%

EXAMS

Exams will take a variety of forms, including, but not limited to: multiple guess, essay, and short answer. If you are going to miss one, let me know. I reserve the right to deal with re-taking, re-scheduling, &c., at my discretion.

Material for the exams could *literally* come from anywhere! But, it is most *likely* to come from material covered in class. This material is, mostly, based on information from the book & other readings.

Exams will take place during weeks 5,10 & 15 (Finals week).

LABS / HOMEWORK

We will use *PsychoPy* and a few other experimental tools to create psychophysical experiments and to analyze psychophysical data. These should be useful and inform your work on the final grant proposal.

GRANT PROPOSAL

The final project is an in-depth examination of some aspect of human perceptions in the form of a grant proposal. ‘Hopefully’ it will be about some aspect of human perception you are particularly interested in. You will receive more detail on the specifics of this project as the semester wears on. But in short — A written proposal for the project is due roughly in Week 7, it should be a 1/2 page statement of your objective and plan. We’ll spend a little bit of lab to run through them with each other and critique them. Final write-ups are due Week 12, along with a *five minute, five slide* ‘pitch’ that you’ll present to the class.

PARTICIPATION & PRESENCE

Participation can take many forms. Feel free to do so as you feel comfortable, but do participate.

Resources

Sinauer has a 'site' for the last edition of the book — <http://sites.sinauer.com/wolfe4e/>. It's still about 99% relevant, so a good resource.

I think there is now an on-line student supplement available on the Oxford site. It's not required but if you want to give it a go, please let me know how it works. I believe it may cost cash money.

We have a Microsoft Teams collaborative area (as an alternative to BlackBoard this semester). You should have received an email invitation to the notebook already. If not, let me know.

Skidmore Emeritus Professor and all-around good-guy Hugh Foley has an *excellent* website that he still maintains here —

<http://www.skidmore.edu/~hfoley/perception.htm>

Office Hours & Appointments

I schedule my office hours using Outlook. There is a link with step-by-step directions on my web page. Basically, go to <https://outlook.office.com> select the calendar and make an appointment.

Details

Honor Code: The Skidmore Honor Code is the main governing policy of this class. Learn it. Know it. Live it.

See <http://www.skidmore.edu/advising/integrity/index.php> for details.

Attendance: Show up. Miss more than 3 classes and I *reserve the right* to fail you. Miss the first day and I *reserve the right* to drop you from the class and admit someone on the wait-list. To be excused from an exam, except for sudden extreme illness, you must arrange with me at least 24 hours before the exam is scheduled. Anyone missing an exam who has not been excused will receive a o. Make-up exams must be scheduled within the week following the exam.

Lateness: Work presented late and *without prior notice* will receive a o.

Extra Credit: There is no such thing as 'extra credit.'

Plagiarism: *Any* act of plagiarism will result in a failing grade for the course and whatever procedures / processes I am obligated to undertake on behalf of the department & college. I take this pretty seriously. If you're not sure if something is plagiarism, **ask**.

ADA: Services and accommodations are available to students covered under the Americans with Disabilities Act. If you have any visual, perceptual, or physical challenges that might result in the need for some form of accommodation I am more than willing to help you help yourself. Contact me and/or Student Academic Services at http://www.skidmore.edu/academic_services for assistance.

Slack: All that harsh stuff being said — generous swaths of slack shall be cut to those who exhibit respect for the learning process and the class in general. Please don't abuse this tolerance.

Changes: This document subject to random changes via *vis major* or at my discretion.

In this class, you could be exposed, at any moment, *and without warning of its imminence* to: ideas, comments, imagery, sounds, feelings, readings, equations, graphs, data, people, and other things that you may find: shocking, offensive, absurd, annoying, racist, sexist, homophobic, discriminatory, or generally obnoxious.

This is called 'education.'

— AFTER J RAUCH