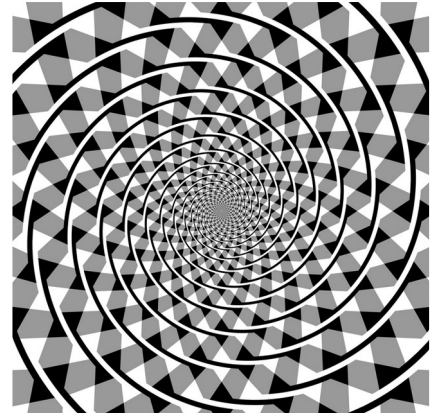


The external world seems immediately available to our senses. Unlike other “higher” cognitive functions like memorizing or problem solving, the act of perceiving does not seem to require any effort. Yet the feat achieved by the perceptual system becomes immediately clear when one tries to build an artificial system that can perceive. Today, we can build a computer to defeat chess grandmasters and jeopardy champions, yet no computer system can outperform a human child on any general vision task. Why is it so?

Through this course, we will gain some appreciation of the enormous task of perception and the underlying processes that realize it. The central question we investigate is the following: how do our senses transform the external world into information that our brains/minds can understand and reliably interpret?

Sensation and Perception is an area of scientific inquiry that spans psychology, biology, physics, and computer science. We will examine the perceptual process at a number of different levels, from single neurons, to neural systems, to behavior and subjective experience. You will have the opportunity to find answers to many questions about yourself and the world around you. Most of all, you will have the opportunity to gain practical knowledge about perception that can enrich your everyday life.



Basic info.:

Time: Monday & Wednesday 12:40-2:00 pm (*online synchronous*)
Place: <https://msu.zoom.us/j/97780192329> (One-time registration required)
Textbook: Sensation and Perception, S. Yantis, Worth Publisher, 2nd Edition

Instructor: Taosheng Liu
Email: tsliu@msu.edu
Office: <https://msu.zoom.us/j/7786539856>
Office hours: By appt (please send me an email to arrange)

Evaluation criteria:

Exams (20% for each exam)	60%
Lab report	20%
Final paper	20%

Exams:

There will be three in-class exams. Each exam will be composed of three parts: 1) multiple choices; 2) definitions; 3) short answers.

Grade scale:

Letter grade: 4.0 3.5 3.0 2.5 2.0 1.5 1.0 0
 Raw percentage: 100-----90-----85-----80-----75-----70-----65-----60

*The upper bound is exclusive and the lower bound is inclusive (e.g., 3.0=80.00%-84.99%)

In addition to exams, there will be a number of short (~10 min) quizzes in selected class sessions. These quizzes do not count toward your grade but serve as an exercise for test preparation. They do not appear on the schedule so it will be of your interest to attend class.

Writing requirements:

You are to write two papers for this class. The first paper is an empirical paper based on an experiment you will run (separate handouts will be available). For the second paper, you need to do a literature review concerning a topic of your choice and propose an experiment to test a new hypothesis (more details in a separate handout).

Class schedule (tentative schedule, subject to change)

Date	Topic	Reading
Jan 20	Introduction	Chap 1
Jan 25 & 27	Physiology and Psychophysics	Chap 1, Appendix
Feb 1 & 3	Eye and Retina	Chap 2
Feb 8	Lateral inhibition and lightness	Chap 2
Feb 10	Lab: simultaneous contrast	Lab handout
Feb 15 & 17	Visual cortex	Chap 3
Feb 22	Exam 1	
	Object recognition	
Feb 24 & Mar 1	Lab report initial draft due Feb 24th (optional)	Chap 4
Mar 8 & 10	Color	Chap 5
	Depth	
Mar 15 & 17	Lab report final due Mar 15th	Chap 6
Mar 22 & 24	Motion	Chap 7
Mar 29	Attention	Chap 9
Mar 31	Exam 2	
	Sound and auditory system	
Apr 5	Paper topic due Apr 5	Chap 10
Apr 7 & Apr 12	Sound localization and auditory scene	Chap 11
	Speech and music	Chap 12
Apr 14 & 19	Paper outline due Apr 14 (optional)	
Apr 21	Body and chemical senses	Chap 13, 14
Apr 26	Exam 3	
Apr 28	Final paper due	

*All due time is at 11:59pm on the due date.

Course Policies:

Make-up Exams and extended due dates: Make-up exams and extended due dates can be granted under special circumstances. This can include, for example, 1) a documented medical emergency, 2) a schedule conflict that you know about in advance such as a religious holiday or sports travel, or 3) other life challenges such as accidents/emergencies etc. In all cases, please inform me ASAP and provide documentation. In case of a schedule conflict, you must inform me at least a week in advance of exam day. Do not assume I have gotten your email unless I have responded to you.

Academic Honesty: The Psychology Department adheres to the policies on academic honesty as specified in General Student Regulations 1.0, *Protection of Scholarship and Grades*; the all-University Policy on *Integrity of Scholarship and Grades*; and Ordinance 17.00, Examinations. (See [Spartan Code of Honor Academic Pledge](#) and/or the MSU Web site: splife.studentlife.msu.edu). Therefore, unless authorized by your instructor, you are expected to complete all course assignments, including homework, lab work, quizzes, tests and exams, without assistance from any source. You are expected to develop original work for this course; therefore, you may not submit course work you completed for another course to satisfy the requirements for this course. Contact your instructor if you are unsure about the appropriateness of your course work. (See also <https://www.msu.edu/~ombud/academic-integrity/index.html>).

Accommodations for Students with Disabilities: Michigan State University is committed to providing equal opportunity for participation in all programs, services and activities. Requests for accommodations by persons with disabilities may be made by contacting the Resource Center for Persons with Disabilities at 517-884-RCPD or on the web at rcpd.msu.edu. Once your eligibility for an accommodation has been determined, you will be issued a Verified Individual Services Accommodation ("VISA") form. Please present this form to me at the start of the term and/or two weeks prior to the accommodation date (test, project, etc.). Requests received without sufficient lead time may not be honored.

If you require testing accommodations (additional time, less disruptive room, etc.) you must contact me and present your VISA at least two weeks before the exam date to schedule an alternative exam. Typically, I will schedule for you to take the exam during a special exam session offered by the Psychology Department. Those exams occur in small group settings and are offered every Tuesday at 4:00pm and Thursday at 3:00pm in Giltner 346. If you are unable to make either of those times, or that option does not meet your VISA accommodations, you may be able to schedule to take your exam at the RCPD office. In either case, the exam must be scheduled well in advance, so you need to adhere to the two-week prior notification requirement.