

## Term Information

Effective Term Spring 2014

## General Information

Course Bulletin Listing/Subject Area Psychology  
Fiscal Unit/Academic Org Psychology - D0766  
College/Academic Group Arts and Sciences  
Level/Career Undergraduate  
Course Number/Catalog 3310H  
Course Title Sensation and Perception  
Transcript Abbreviation Sensatn & Percptn  
Course Description Examination of how observers perceive their environment through sensory information; with an emphasis on vision and audition.  
Semester Credit Hours/Units Fixed: 3

## Offering Information

Length Of Course 14 Week, 7 Week, 4 Week (May Session), 12 Week (May + Summer)  
Flexibly Scheduled Course Never  
Does any section of this course have a distance education component? No  
Grading Basis Letter Grade  
Repeatable No  
Course Components Lecture  
Grade Roster Component Lecture  
Credit Available by Exam No  
Admission Condition Course No  
Off Campus Never  
Campus of Offering Columbus, Lima, Mansfield, Marion, Newark

## Prerequisites and Exclusions

Prerequisites/Corequisites Prereq: Psych 1100 or 1100H  
Exclusions Not open to students with credit for 3310 (310)

## Cross-Listings

Cross-Listings

## Subject/CIP Code

Subject/CIP Code 42.0101  
Subsidy Level Baccalaureate Course  
Intended Rank Freshman, Sophomore

## Quarters to Semesters

**Quarters to Semesters**

New course

**Give a rationale statement explaining the purpose of the new course**

We already offer a non honors version of this course which enrolls 400-500 students per year. This will add to our honors offerings in the cognitive area in which we do not currently have any honors offerings.

**Sought concurrence from the following Fiscal Units or College**

## Requirement/Elective Designation

The course is an elective (for this or other units) or is a service course for other units

## Course Details

**Course goals or learning objectives/outcomes**

- On completion of this course, students will have gained an understanding about current research on sensory process and perception in humans and other species.
- On completion of this course, students will be familiar with the empirical and theoretical literature that focuses on these topics and will be able to communicate their knowledge in both written and oral form.

**Content Topic List**

- Basic methods
- The eye and visual system
- Spatial vision
- Color and lightness
- 3D vision
- Visual recognition
- Motion and events
- Perceptual control of action
- Attention
- The ear and auditory system
- Auditory perception
- Speech perception and production

## Attachments

- Psych 3310H syllabus.docx: Psych 3310H syllabus  
*(Syllabus. Owner: Paulsen, Alisa Marie)*
- Psych 3310 syllabus.docx: Psych 3310 syllabus  
*(Syllabus. Owner: Paulsen, Alisa Marie)*
- Proposal for Psychology 3310H.docx: Honors proposal  
*(Other Supporting Documentation. Owner: Paulsen, Alisa Marie)*

## Comments

**COURSE REQUEST**  
3310H - Status: PENDING

Last Updated: Vankeerbergen, Bernadette  
Chantal  
05/22/2013

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	Paulsen, Alisa Marie	04/12/2013 02:34 PM	Submitted for Approval
Approved	Nygren, Thomas Eugene	04/22/2013 11:35 AM	Unit Approval
Approved	Haddad, Deborah Moore	04/22/2013 02:06 PM	College Approval
Pending Approval	Nolen, Dawn Jenkins, Mary Ellen Bigler Vankeerbergen, Bernadette Chantal Hogle, Danielle Nicole Hanlin, Deborah Kay	04/22/2013 02:06 PM	ASCCAO Approval

# Syllabus for Psychology 3310

## Sensation and Perception

**Instructor:**

Prof. James Todd  
200L Lazenby Hall  
614-292-8661  
Todd.44@osu.edu

**Location:**

**Time:** Tues, Thur 11:10 – 12:30 PM  
**Credits:** 3  
**Office hours:** Thur 12:30 – 1:30

**Required materials**

Jeremy M. Wolfe, Sensation & Perception, 3rd edition, 2012.

**Course description**

The purpose of this course is to examine how observers perceive their environment through sensory information. The reading assignments and lectures will cover all of the major sensory systems including vision, audition, spatial orientation and touch.

**Evaluation**

Evaluation will be based on four multiple choice exams on material from both the textbook and the lectures. These exams will be graded on a curve, such that the median score will be assigned a grade of c+. The lowest score among the four exams will be weighted ½ as much as the others.

**Extra credit**

Students can obtain extra credit of 1/3 letter grade by writing a paper on a topic of interest in any area of perception. Papers must be 8-10 pages excluding figures, references and title page, and they must be submitted to Carmen. The deadline for submissions is 1:00 PM on Dec 5.

**Course web site**

Powerpoint files can be downloaded for each lecture on Carmen. **Warning:** Some of these power-point files are quite large so you should not try to open them on line.

**Academic Misconduct**

It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term academic misconduct includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct.

**Syllabus revisions**

The syllabus is subject to minor revisions. If you are not in attendance when revision announcements are made it is your responsibility to find out about them either from classmates or from the instructor.

**Students with Disabilities**

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>.

<b>Date</b>	<b>Topic</b>	<b>Reading Assignment</b>
Aug 23)	Introduction: Sensory processes and perception	
Aug 28)	Neurons and neural transmission	pp 17-29
Aug 30)	The analysis of waves	pp 15-16, 242-247
Sept 4)	The ear and the auditory system	pp 249-263
Sept 6, 11)	Auditory perception	pp 264-271
Sept 13)	The perception and production of speech	pp 309-327
Sept 18)	<b>Exam 1</b>	
Sept 20, 25)	Spatial orientation and touch	Chapter 12, 13
Sept 27)	The eye	Chapter 2
Oct 2)	The visual system	pp 61-74, 85-91
Oct 4)	Spatial vision	pp 55-60, 75-83
Oct 9)	Color vision	Chapter 5
Oct 11)	<b>Exam 2</b>	
Oct 16)	Grouping	pp 93-104
Oct 18, 23)	Attention	Chapter 7
Oct 25)	Motion perception	pp 221-231
Oct 30)	Event perception	pp 233-239
Nov 1)	Lightness perception	
Nov 6)	<b>Exam 3</b>	
Nov 8)	Biases in perception	
Nov 13,15)	Recognition	pp 91-92, 106-113
Nov 20, 27)	Perception of 3D structure	Chapter 6
Nov 29)	The visual control of action	pp 232-234
Dec 4)	Class cancelled	
Dec 12)	<b>Final Exam 10:30-11:19 AM</b>	

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**Location:**

**Time:** Tues, Thur 11:10 – 12:30 PM  
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**Required materials**

Steven Yantis. (2013). *Sensation and perception*. NY: Worth.

**Course description and learning objectives**

The purpose of this course is to examine how observers perceive their environment through sensory information, and it will focus primarily on vision and audition. On completion of this course, students will have gained an understanding about current research on sensory process and perception in humans and other species. Students will be familiar with the empirical and theoretical literature that focuses on these topics and will be able to communicate their knowledge in both written and oral form.

**Examinations**

There are three examinations in this course, two midterms, and a final. Each test includes five short essays, and covers material from lectures, text and readings. The final exam is not comprehensive.

**Article Summaries**

Students are encouraged to read all of the articles assigned in the syllabus, but you must read one each week in depth and write a brief summary of it. The summary should be one page or less, typed and double-spaced. The summary should give evidence that you have read the article. Do not just rewrite the abstract. Pay special attention to the results and discussion sections, and the overall conclusions from review articles. You are required to write 10 papers, one per module, out of the 12 course modules during the entire semester. Submit your summaries in the Carmen dropbox on the day we discuss the article.

**In-Class Presentation**

During the seventh week of the term students will turn in to me a brief description of a topic which they will present in class. The topic can be on any area related to sensory processes and perception, and does not have to come from material in the book or from class. I will use these statements to assign students with similar interests to the same group of 4-5 students, all of whom will give their presentation on the same day. We will spend the last two weeks of the term on class presentations.

**Term Paper**

The final assignment for this course is to write a 8-10 page term paper on some topic in the area of sensation and perception. You may write about the same topic as your presentation, but you are free to write about something else. The topic should be narrow enough that you can do a reasonably thorough job reviewing and evaluating the literature in the area. Do not just summarize articles, but attempt to bring some coherence to the literature. Integrate, evaluate, and review the material. I want to see evidence that you have digested and thought about the material. What do you see as the strengths and weaknesses of the work that has been done? What still needs to be done?

## **Grades**

Grades will be computed based on the following system:

Exams (3)	40%
Weekly Article Summaries (10)	20%
In-Class Presentation	10%
Term Paper	30%

## **Course web site**

Powerpoint files and assigned articles can be downloaded for each lecture on Carmen. **Warning:** Some of these power-point files are quite large so you should not try to open them on line.

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- | <b>Date</b>  | <b>Topic</b>                         |
|--|--------------------------------------|
| Aug 28, Sept 2)  | <b>Basic methods</b>                 |
| Yantis chapter 1,  |                                      |
| Parker, A.J & Newsome, W.T 'Sense and the single neuron: probing the physiology of perception', <i>Annual Review of Neuroscience</i> (1998) 21, 227-277.   |                                      |
| Sept 4, 9)   | <b>The eye and the visual system</b> |
| Yantis chapter 2 and 3,  |                                      |
| Grill-Spector, K and Malach, R. (2004) The human visual cortex. <i>Annual Reviews Neuroscience</i> . 27:649-677. 2004  |                                      |
| Schmidt, T., Chen, S. & Hattar, S. (2011) Intrinsically photosensitive retinal ganglion cells: many subtypes, diverse functions. <i>Trends in Neurosciences</i> , 34, 572-580  |                                      |
| Sept 11, 16)   | <b>Spatial vision</b>                |
| Yantis chapter 4, pp 117-136   |                                      |
| Blakemore, C. & Campbell, F. W. (1969) <i>Journal of Physiology, London</i> . 203, 237–260.  |                                      |
| <u>Pomerantz, J. R. &amp; Portillo, M. C. (2011). Grouping and emergent features in vision: Toward a theory of basic Gestalts. <i>Journal of Experimental Psychology: Human Perception and Performance</i>, 37 (5), 1331-1349.</u>                       |                                      |
| Sept 18, 23)   | <b>Color and lightness</b>           |
| Yantis chapter 5,  |                                      |
| Lindsey, D. T. & Brown, A. M (2002). Color naming and the phototoxic effects of sunlight on the eye. <i>Psychological Science</i> , 13,506-512.  |                                      |
| Adelson, E.H. (2000) Lightness Perception and Lightness Illusions. In <i>The New Cognitive Neurosciences</i> , 2nd ed., M. Gazzaniga, ed. Cambridge, MA: MIT Press, pp. 339-351.   |                                      |
| Sept 25)   | <b>Exam 1</b>                        |
| Sept 30, Oct 2)  | <b>3D vision</b>                     |
| Yantis chapter 6,  |                                      |
| Todd, J. T. (2004) The perception of 3D shape. <i>Trends in Cognitive Science</i> , 8, 115-121.  |                                      |
| Todd, J. T., Thaler, L., Dijkstra, T. M. H., Koenderink, J. J. & Kappers, A. M. L. (2007). The effects of viewing angle, camera angle and sign of surface curvature on the perception of 3D shape from texture. <i>Journal of Vision</i> , 7(12)9, 1-16. |                                      |
| Oct 7, 9)  | <b>Visual recognition</b>            |
| Yantis chapter 4, pp 137-151   |                                      |
| Biederman, I. (1995). Visual object recognition. In S. Kosslyn & D. N. Osherson, D. N. (Eds.). <i>An invitation to cognitive science</i> . (2nd ed.). Cambridge, Mass.: MIT Press. pp 121-165.   |                                      |
| Willats, J. (1997). <i>Art and representation : new principles in the analysis of pictures</i> . Princeton, N.J.: Princeton University Press. pp. 93-146.  |                                      |



Oct 14, 16)                   **Motion and events**

Yantis chapter 7, pp 225-245

Todd, J. T., Mark, L. S., Shaw, R. E., & Pittenger, J. B. (1980). The perception of human growth. *Scientific American*, 242, 132-144.

Johansson, G. (1975). Visual motion perception. *Scientific American*, 232 (6), pp. 76-88.

Oct 21)                       **Perceptual control of action**

Yantis chapter 7, pp 245-255,

Fink, P.W., Foo, P.S. & Warren, W. H. (2009) Catching fly balls in virtual reality: a critical test of the outfielder problem. *Journal of Vision*, 14;9(13):14.1-8.

Warren, W. H. and Hannon, D. J. 1990. Eye movements and optical flow. *J. Opt. Soc. Am. A* 7, 160-169.

Oct 23)                       **Exam 2**

Oct 27, 29)                   **Attention**

Yantis chapter 8

Franconeri, S. L., Alvarez, G. A. & Cavanagh, P. (2013) Flexible cognitive resources: competitive content maps for attention and memory. *Trends in Cognitive Sciences*, 3, 134-141.

Wolfe, J.M., Horowitz, T.S. (2004). What attributes guide the deployment of visual attention and how do they do it? *Nature Reviews Neuroscience*, 5, 1-7.

Nov 4, 6)                     **The ear and the auditory system**

Yantis chapter 9

Ashmore, J. (2008) Cochlear outer hair cell motility. *Physiological Reviews*, 88, 173-210

Joris, P. & Yin, T. (2006) A matter of time: internal delays in binaural processing. *TRENDS in Neurosciences*, 30, 70-78.

Nov 13, 18)                 **Auditory perception**

Yantis chapter 10

Hirsh, I. J. & Watson, C. S. (1996) Auditory psychophysics and perception. *Annual Review of Psychology*, 47, 461-484

Warren, W. H. & Verbrugge, R. R. (1984) Auditory Perception of Breaking and Bouncing Events: A Case Study in Ecological Acoustics. *Journal of Experimental Psychology: Human Perception and Performance*, 10, 704-712.

Nov 20)                     **Speech perception and production**

Yantis chapter 11

Lieberman, A. M. and Whalen, D. H. (2000). On the relation of speech to language. *Trends in Cognitive Sciences*, 4, 187-196.

Remez, R. E. (2005). Perceptual organization of speech. In D. B. Pisoni & R. E. Remez (Eds.), *The handbook of speech perception*. Blackwell (pp. 28-50).

Nov 25, Dec 2, 4, 9) **Student presentations**

## Proposal for Psychology 3310H, Sensation and Perception

### **Overview**

Psychology 3310, sensation and perception, is one of the more popular courses in the Department of Psychology at Ohio State. At least one section of Psychology 3310 is taught every term, including the summer, and the course typically enrolls close to 500 students per year. Part of the appeal of this course is that it satisfies distribution requirements for both the psychology and neuroscience majors.

The relatively large size of each section of the course makes it difficult, if not impossible, to have much class discussion about the material; include essay questions on exams; or to assign written papers. These constraints limit the learning experiences of all the students who take the course, but I think the inability to engage in extensive in-class discussion and the absence of written assignments is a particularly serious problem for Honors students who expect these types of class experiences and who are most likely to profit from them. To address these problems, at least for Honors students, I am proposing an Honors section of Psychology 3310, Psychology 3310H, with an enrollment cap of 25 students.

An additional limitation of the current course is that the reading assignments all come from a textbook on sensation and perception. Using a text is standard practice for an undergraduate course in psychology, but Honors students especially would benefit from direct exposure to original works on theory and research in this field. Students in Psychology 3310H would be expected to read one journal article or book chapter each week (in addition to textbook assignments) and to write a short summary of that article. Much in-class discussion will focus on the articles in order to help students develop the ability to understand and critique original social science research.

### **Course Prerequisites**

Because of the interdisciplinary nature of sensation and perception, I am interested in having students from a variety of majors take the course. Students with diverse backgrounds bring differing perspectives to the in-class discussions and to the written assignments. Moreover much of the material is quite relevant to students in other disciplines such as speech and hearing, philosophy and computer science. For these reasons, I plan to have only one prerequisite, Psychology 1100(H), Introductory Psychology. The course will be structured so that more specific knowledge beyond Psychology 1100(H) will be unnecessary to master the covered material.

### **Honors Courses in Psychology**

Currently the Department of Psychology, one of the largest departments on campus, regularly offers ten Honors courses, but we do not have offerings in the cognitive or psychobiological areas. Psychology 3310H should therefore be an attractive addition to Honors students interested in the more basic science aspects of psychology.

### **Relation to Psychology 3310**

Psychology 3310H will include slightly fewer topics than are covered in Psychology 3310, but those topics will be covered in much greater depth. For example, more time will be devoted to experimental methodology through the discussion of original research articles. We will also include several field visits to laboratories at OSU so that students can obtain first-hand experience in how research is conducted on various topics of sensation and perception.

### **Faculty**

Currently there are two full-time faculty who teach Psychology 3310, and one advanced grad student who also teaches one section of the course per semester. I would be responsible for teaching Psychology 3310H, and expect to teach it once per year. The other faculty member is also willing to teach an additional section of the course, if there is sufficient demand to justify it.

### **Development of Written and Oral Communication Skills**

Students in Psychology 3310H have two types of written assignments, each designed for a different purpose. Students will write one-page summaries of the different articles assigned for the course. The purpose of these papers is to help students develop the ability to understand and summarize the main points of original research. Students also write a 8-10 page review and critique of empirical literature on some topic pertaining to sensation and perception. The purpose of this assignment is to have students develop some expertise in at least one area of the field and to learn how to review and synthesize several related studies on a single topic.

Working in groups of 4-5, each student will present to the class a summary of the research on a topic of the student's choosing. I expect these presentations to include answering questions from students in the class and from me in order to help students develop the ability respond to issues they may not have thought about and for which they may not be prepared.