

Example of a Well-Designed Course in: PSYCHOLOGY

1. Specific Context

- **The subject matter:** The five sensory systems of the human body and how they function and interact with other systems.
- **The title of the course:** Sensation and Perception
- **Typical class size:** 20-40 students
- **Level of the course:** Upper division undergraduate or graduate level
- **Mode of delivery:** Face-to-face and some online interaction
- **Type of institution:** University

2. General Description of the Course

Sensation and perception will review the fundamentals of sensory psychology. The class will focus on the anatomy and physiology of sensory systems and types of stimuli affecting these systems. There will be a large focus on the visual system, including a dissection of a sheep eyeball. Clinical and practical applications of the fundamental knowledge will also be explored by the utilization of case studies. Case studies will allow you to work in groups to problem and diagnose patients based upon given symptoms and the acquired foundational knowledge.

3. Big Purpose of the Course

Understanding sensation and perception allows one to reevaluate and discover how each sensory system work together to form perceptions of different scenarios and situations in one's daily life. Sensation and perception will play a role in simple daily activities like eating a meal.

For example, when eating breakfast, one will realize that the visual system is in use when viewing the different visual properties of the food. The gustatory and olfactory systems are in play when you smell and taste the food. Your auditory system is activated when you hear the crunch of the food, and you also feel the different textures as well. Sensation and perception can be useful at a job where you have to use several sensory systems in order to complete one task. Doctors use several sensory systems to listen, talk to, and see a patient in order to arrive at a diagnosis. Musicians use their hearing, seeing, and dexterity of their hands in order to sing and play an instrument. Sensation and perception will be useful in simple daily activities, hobbies, and even at your daily job.

4. Important Situational Factors/Special Pedagogical Challenge

Context

- 20-40 students
- Upper division undergraduate or graduate level
- Meets 2 days a week (1:15each)
- Classroom instruction, perhaps some skyping of guest speakers or tours (some online integration)

Nature of the subject

- Convergent (only 1 answer to basic anatomy material) but divergent during discussion—working toward multiple interpretations of journal articles
- Could be divergent on case studies where some students interpret different things based upon given information

Characteristics of learners

- Full-time students
- Students are probably Psychology majors, working towards going to medical school or graduate school
- Students enroll because they find the class interesting; undergraduate upper level requirement
- Students will probably have a general overview from introductory psychology and biology courses, but they will not know a lot of detail
- Students will be used to lecture style, but I will change them

Characteristics of teachers

- Background in sensation and perception (S&P)
- First time teaching S&P, but will have at least taken an S&P course at the graduate level
- The teacher will teach this course many times in the future
- High level of competence, taken this course before, and perhaps does research or knows the literature behind this subject area
- Taken GRSC 7770, a teaching practicum course, and a class on course design (GRSC 7900)

Special pedagogical challenge

- Challenge: Students may be only extrinsically motivated to learn the material in order to get a good grade in the class.
- Response: My hope is that using an active learning style will enable students to become intrinsically motivated the students to learn

5. 3-Column Table

	Learning Goals	Assessment Activities (Goal)	Learning Activities (Actual)
Foundational	<p>Identify the differences between sensation and perception</p> <p>Identify differences and similarities between each sensory system</p>	<p>Memory Matrix that separates sensation and perception</p> <p>Concept Map that separates the sensory systems but also shows a holistic view of all sensory systems combined</p>	<p>Discuss, evaluate, and critique the differences between sensation and perception (discuss the memory matrix)</p> <p>Readings in textbook</p>
Application	<p>Solve sensation and perception problems, using concepts and information about sensation and perception</p> <p>Evaluate the quality of experimental studies in research literature</p>	<p>Case Study (separate class into groups)</p> <p>Reading Circles for literature discussions</p>	<p>Have each group discuss why they came up with their solutions to the case studies</p> <p>Minute paper reflection on what each individual student would have as the solution to the case study—what would they agree/disagree with?</p>
Integration	<p>Identify differences and similarities between each sensory system</p> <p>Explain the etiology and treatment of sensory diseases and disorders using their knowledge of sensory systems</p>	<p>Concept Map that separates the sensory systems but also shows a holistic view of all sensory systems combined</p> <p>Give each group a sensory disease or disorder and have the students identify the etiology and develop a treatment (separate class into groups)- class presentation</p>	<p>Reflection Paper- have each student reflect on another group's presentation to see if the treatment developed is appropriate for the sensory disease or disorder based on the etiology and method of treatment</p>

Human Dimension	<p>Be confident that they are capable of learning and can master the material</p> <p>Be confident when expressing opinions, and be open-minded to others' opinions</p>	Pre/Post self-evaluation on confidence in different areas (e.g., presentation skills, ability to critique literature, self-confidence in ability to contribute to discussions, ability to learn)	<p>Each student leads a discussion with a journal article</p> <p>Create a class website (Google sites) where students can post additional readings or activities that may pertain to class material</p>
Caring Goals	Discover the joy of being able to learn on their own	Jeopardy brings out students' care and competitiveness and also assesses their knowledge	Creative Connection- each student identifies a creative connection that interests them (e.g., news, radio, movies, books) that relates to a class topic
Learning to Learn	Discover the ability to learn via multiple, different learning styles that can be applied to future learning whether it be in the classroom or employment	Pre/Post self-evaluation of learning styles (e.g., why am I motivated to learn, what ways do I learn best, discovery of new learning styles)	Have students share and discuss their own learning techniques with the class (via online discussion) which may motivate others to learn in a new way

Application of knowledge is important because it uses foundational knowledge to learn and do other activities. I created learning and assessment activities that I thought would help students learn better, but also added variety to the learning process. By varying the activities, I would be better able to cater to the needs of all students.

6. Weekly Schedule

Date	Activity (in-class)	Reading (before class)	Assignment (due in class)
Week 1 Introduction	Syllabus Icebreakers (Values Walk) Sensation vs. Perception (Memory Matrix)		Complete Course Goals
Week 1 Psychophysical Techniques	Demonstration: Psychophysical techniques using visual and auditory stimuli 24/7 Activity	Ch.1 (p. 2-25)	
Week 1 Research Methods	Design an experiment using your understanding of research methods (group activity) Mythbusters		Be prepared to use your understanding of research methods
Week 2 Vision	Lecture: Visual Anatomy	Ch. 2 (p. 26-45)	Mythbusters Activity (Pick 1 myth, and critique it by finding 1 empirical paper to bust the

			myth—2 pages)
Week 2	Sheep Eyeball Dissection 24/7 Activity		
Week 2	Minute Paper on Eyeball Dissection Diagramming the visual pathways using large concept maps		Be prepared to use your understanding of visual pathways
Week 3 Color Vision	Trichromatic vs. Opponent Processing Theories (Memory Matrix)	Ch. 5 (p.98-125)	
Week 3 Visual Perception	Optical Illusions Change Blindness Videos Design Change Blindness Activity (conduct experiment outside of class)	Ch. 6 (p.126-153)	

Week 3 Visual Perception	Create examples of forced perspective (group activity) 24/7 Activity		Be prepared to use your understanding of visual perception
Week 4 Visual System Disorders	Case Studies- Visual System Disorders (group activity)	Ch. 8 (p.176-203)	Change Blindness Reflection Paper (2 pages) Be prepared to use your understanding of visual system disorders
Week 4	Reading Circles (Vita et al., 2008) Give Student Generated Questions Assignment	Reading Circles (Vita et al., 2008)	Reading Circles Role Sheet
Week 4	Case Studies- Visual System Disorders (group activity)		Be prepared to use your understanding of visual system disorders
Week 5	Case Studies- Visual System Disorders (group activity) 24/7 Activity		Be prepared to use your understanding of visual system disorders

Week 5	Exam 1 Review (Discussion of Student Generated Questions) Introduce Concept Map		Student Generated Questions for Exam Review (1 question)
Week 5	Exam 1		Concept Map (Study Guide)
Week 6 Motion, Object, and Depth Perception	Lecture: Motion Perception Video: Akinetopsia	Ch. 4 (p.74-97)	Application Paper #1 (2 pages)
Week 6	Lecture: Object Perception 24/7 Activity		
Week 6	Discussion: How does the visual system influence motion, object, and depth perception?	Ch. 7 (p.154-175)	Be prepared to use your understanding of motion, object, and depth perception
Week 7 Audition	Demonstration: Introducing the auditory system, human hearing range (frequencies vs. decibels)	Ch. 9-10 (p.204-259)	Be prepared to use your understanding of the auditory system

Week 7	Reading Circles (Simner et al., 2010)	Reading Circles (Simner et al., 2010)	Reading Circles Role Sheet
Week 7	Demonstration: Vestibular System 24/7 Activity		Be prepared to use your understanding of the vestibular system
Week 8 Auditory System Disorders	Hearing Loss Case Study Discussion: Can you identify any similarities and differences between disorders of the visual and auditory systems?		Concept Map that shows both the visual and auditory systems and the connections between the two systems
Week 8 Music and Speech Perception	Reading Circles (Nakahara et al., 2009) Introduce 50 word summaries	Reading Circles (Nakahara et al., 2009)	Reading Circles Role Sheet
Week 8 Music and Speech Perception	Demonstration: Introducing Music Perception (tones, chords, melodies, rhythms); how music influences physiological responses	Ch. 11 (p.260-285)	Be prepared to use your understanding of music perception

	24/7 Activity		
Week 9	<p>Experiment: Can music influence the taste of food?</p> <p>Demonstration: McGurk Effect</p>		Be prepared to use your understanding of speech perception
Week 9	<p>Music vs. Speech Perception (Memory Matrix)</p> <p>Discussion: Are there disorders that target the auditory system that may influence music and/or speech perception?</p> <p>Exam 2 Review</p>		50 word summary of each chapter covered for this exam
Week 9	Exam 2		

Week 10 Gustation	Tongue Map	Ch. 14 (p.340-361)	Application Paper #2 (2 pages)
Week 10	Experiment: Can the auditory system influence gustation (sweet vs. salty)?		Be prepared to use your understanding of the gustatory system (sweet vs. salty)
Week 10	Experiment: Can the auditory system influence gustation (bitter vs. sour)? Concept Map: Gustatory system incorporating all 5 tastes		Be prepared to use your understanding of the gustatory system (bitter vs. sour, and umami)
Week 11 Olfaction	Lecture: Olfactory System 24/7 Activity	Ch. 13 (p.314-339)	
Week 11	Experiment: Do you need your olfactory system in order to taste? (Apples and onions) What about other senses (e.g., visual)? (colored jello)		Be prepared to use your understanding of the olfactory system
Week 11	Reading Circles (Stevenson & Boakes, 2010)	Reading Circles (Stevenson & Boakes, 2010)	Reading Circles Role Sheet

Week 12 Gustatory and Olfactory System Disorders	Demonstration: What can go wrong in the olfactory and gustatory systems? 24/7 Activity		
Week 12	Experiment: Can non-gustatory factors influence the taste of food (e.g., using the visual and auditory systems)?		
Week 12	Exam 3 Review		Student Generated Questions for Exam Review (1 question)
Week 13	Exam 3		Concept Map (Study Guide)
Week 13 Touch (Skin Sensation) and Pain	Demonstration: How do you perceive touch? 24/7 Activity	Ch. 12 (p.286-313)	Application Paper #3 (2 pages)
Week 13	Debate: Which sensory system is the most important?		Review each sensory system for class debate

<p>Week 14</p> <p>Touch (Skin and Pain) Disorders</p>	<p>Minute Paper: Did the class debate change your opinion on which sensory system was the most important? Why or why not?</p> <p>Demonstration: Pain</p>		<p>Be prepared to use your understanding of touch and pain</p>
<p>Week 14</p>	<p>Concept Map: What can go wrong if you cannot perceive touch and/or pain?</p> <p>24/7 Activity</p>		
<p>Week 14</p>	<p>Medicinal Marijuana Debate</p> <p>Minute Paper: How is this debate relevant to touch and pain? What about the other sensory systems?</p>	<p>Medicinal Marijuana Case Study Supplemental Reading</p>	<p>Final Paper Due (5-7 pages double-spaced): One common theme in class is the idea that perception is multimodal. We have discussed the influence of the visual system with respect to the perception of the auditory senses, vestibular senses, gustatory senses, and the chemical senses. Using specific concepts from class, describe THREE examples of how the visual system influences what we hear, or our vestibular system, what we taste/smell, or our</p>

			awareness of our body in space.
Week 15 States of Consciousness (Sleep, Hypnosis)	Lecture: States of Consciousness 24/7 Activity Discussion: How does the movie Inception relate to what you have just learned about the states of consciousness?		Optional: Watch the movie Inception
Week 15	Hypnosis Susceptibility Activity Minute Paper: Reflect on the hypnosis susceptibility activity		Reading Circles Reflection Paper (2 pages)
Week 15	Discussion: Do states of consciousness differ from that of sleep? If so, how? States of Consciousness vs. Sleep (Memory Matrix)		Be prepared to use your understanding of sleep

Week 16	Exam 4 Review		50 word summary of each chapter covered for this exam
Week 16	Exam 4		Concept Map (Study Guide)

24/7 Technique. One active learning procedure that I have tried and like is the 24/7 technique.¹ In this course, the 24/7 technique will be used as a quick activity after a lecture or reading that will help the students to succinctly summarize information in 24 words, and then further summarize the 24 words into a 7 word summary. The idea is that students take away small chunks of information from large lectures, but when students are asked to learn information in small chunks, they remember the information better, and the information remains longer than lecture-based learning. Students will learn their 24/7 and if students are asked to present the material to the class, others will learn new 24/7 in addition to the one they have created.

A Case Study. One case study I have used is the stem cell corneal implant case study from the National Center for Case Study Teaching in Science (NCCSTS) after giving students an overview of the anatomy of the eye. Students will work in small groups to answer the questions that follow each section of the case study. I have noticed that students feel like they are actually diagnosing a case, and they definitely apply their foundational knowledge about the anatomy of the eye in order to answer the questions. Student feedback shows that students really enjoy using case studies to learn more about a specific topic, and they feel that case studies challenge them more than lecture-based learning. Case studies also facilitate great discussions in the classroom in each group and between groups when groups come up with different solutions in response to a case.

"Change Blindness" Experiments. I also have students design change blindness experiments after watching video demonstrations of the concept, and I think students definitely understood the concept more when they could see change

¹ "24/7 Lectures As an Exam Review Technique," by J.B. Fenwick et al., SIGCSE '10, March 10-13, 2010.

blindness occurring in real-life. I had students work in small groups of three to design change blindness experiments they could try out on their friends. Students were eager to test out their experiment, and if the experiment failed, students were still eager to re-design the experiment in order to see if they could replicate change blindness. Student feedback shows that students are excited to conduct their own experiments, and they are eager to present their results to the class.

7. Your Contact Information

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