

Study Guide for the final examination (Tuesday, 3 May 2005, 13:30–16:00). Be able to answer the following questions and be familiar with the concepts involved in the answers.

1. What are the three main physical dimensions of the sound stimulus? What are the three main psychological dimensions of the sound experience? What are the relationships and interdependencies among them?
2. Diagram the three parts of the auditory system: Outer, middle and inner ear. How is sound mapped onto the basilar membrane?
3. What is the critical band? Describe three methods for measuring the critical band. In describing each method illustrating how to measure the critical band centered on 1000 Hz, where it is about 150 Hz wide.
4. According to Plomp and Levelt (1965), how far apart in frequency must two sine wave tones be in order to sound maximally unpleasant? Why do two complex musical tones sound so special when played together if their fundamental frequencies have a frequency ratio of 2:1 or 3:2?
5. What are the three main components of the speech production system? In speech sounds, what is the relationship among the fundamental frequency and its harmonics and the frequencies of the main formants? What factors influence the frequency of the first and second formants?
6. Consider the **functional** properties of the visual system and the auditory system such as localization, object identification, basic sensory experiences. Discuss two ways in which these systems are similar and one way in which they are different.
7. Be able to identify the major components of the olfactory and the gustatory systems (not including the projections to the brain).
8. Are there primary tastes? Discuss evidence for or against. Discuss John Amoore's "lock and key" concept of taste and smell perception. How did Susan Schiffman (1974) use multidimensional scaling (MDS) to investigate taste and smell and how do her findings relate to Amoore's theory of molecular shapes?
9. What is the distinction between taste and flavor? What role does the sense of smell play in the taste and the flavor of food?
10. What is the definition of a pheromone? Discuss two pieces of evidence that humans are able to communicate with each other by means of chemical stimuli.
11. There have several recurrent themes about perceptual processing in this class. Pick one of these themes and discuss how it applies to two sensory systems of your choice by comparing and contrasting them with each other.