The TAs will hold a study session on Thursday, March 9, from 5:00 - 7:00 pm in PRCE 277.

The exam will include 25 multiple choice questions worth 2 points each, and 5 short answer questions worth 10 points each. Total points on the exam is 100. This exam makes up 20% of your class grade.

You are responsible for knowing both the material in the textbook and in lecture. The exam will draw from both sources.

You should **not** need a calculator for this exam.

At the end of each chapter in the textbook there are study questions. I will use these for creation of multiple choice questions. In particular, I will use the study questions that are numbered by a multiple of three (e.g., 3, 6, 9, 12, 15,...). Of course, you may have to know the material from other study questions in order to answer these particular questions, but this is a way to focus your studying efforts.

In addition, the short answer questions will be drawn from the material below. This material was discussed in the lectures, but much of it is also discussed in the textbook.

**Lecture 13: Signal Detection Theory**

1. What is the difference between perception and recognition? Give an example.

2. What are some problems with the “traditional” psychophysical methods of measuring a threshold?

3. Describe the important parts of a discrimination task. How is it that stimulus thresholds involve a discrimination task? What are the kinds of responses that can be made by a subject?

4. Explain how bias may change the reports of subjects in a discrimination task, even if stimulus sensitivity is unchanged. Explain how bias functions in signal detection theory.

5. Explain what $d'$ in signal detection theory measures and how it corresponds to sensitivity to the stimulus in the context of noise.

**Lecture 14: Gestalt Psychology**

1. Describe the ideas of structuralism and the problems with this approach.

2. Describe the Gestalt laws of perceptual organization.

3. Explain how impossible figures are difficult to accept in the context of some of the Gestalt laws of perceptual organization.

**Lecture 16: Figure-ground / Object features**
1. Explain the distinction between figure and ground in a scene. Describe the stimulus features that tend to make a stimulus seem to be figure rather than ground.

2. Describe the visual search task (as in CogLab) and explain how the pattern of responses allows us to investigation object perception.

3. Describe the Feature Integration Theory of visual perception and explain how it accounts for the visual search data.

4. What is a geon? What special properties does it have that might not be part of just any stimulus? What is a geon used for?

Lecture 17: Color perception

1. Explain the relationship between the wavelength of light and the perception of color.

2. Describe Helmholtz’s color matching experiment and how the results gives rise to the trichromatic theory of color perception.

Lecture 18: Opponent theory

1. Discuss the properties of color perception that suggest an opponent relationship between “opposite” colors.

2. Explain how trichromatic theory and the opponent theory of color perception co-exist.

Lecture 19: Constancy

1. What is brightness constancy? How is it related to illusions like the “Snakes” illusion?

Lecture 20: Monocular cues to depth

1. Describe the basic problem with perceiving depth given how light projects on to the retina.

2. Explain how the convergence and accommodation oculomotor cues can provide some information about object depth.

3. Be able to describe and give an example of each of the monocular cues to depth.

Lecture 21: Binocular cues to depth

1. Explain motion parallax and how it is a cue to depth.

2. Describe the horopter.

3. Explain the difference between crossed and uncrossed disparity and their relationship to dept.

4. Describe a random dot stereogram and explain why it’s ability to create a depth percept is important.

Lecture 22: Size perception

1. Explain size-distance scaling. How does it explain Emmert’s Law?

2. Describe the Muller-Lyer illusion and discuss it’s relationship to size-distance scaling.

3. Describe the moon illusion and give the explanation that was discussed in lecture.