Course Syllabus
Perceptual Processes, Psychology 441, Winter 2007
John Palmer
2 January 2007

Synopsis

This course is about visual perception. Perception is the process of obtaining information about the world. In the class, we learn about perception by reading and interpreting research articles. The course is intended for advanced undergraduates or graduate students. It is a W course and it is for 5 credits.

Prerequisites

Students are expected to have **one** of the following:

(a)   A first course in sensation and perception such as Psychology 333.

(b)   A good background in experimental psychology.

(c)   A good background in math, computer science, or a natural science.

(d)   Graduate standing.

Schedule

MTWTh, 10:30 to 11:20, 025 Electrical Engineering Building

Instructors and Office Hours

John Palmer is the course instructor. He is available for office hours on Friday 2:00–3:00, immediately after class, or by appointment. His office is in room 27 of the Chemistry Library. He can be reached by phone at 206–543–0706 or by electronic mail at jpalmer@u.washington.edu. His web site is: http://faculty.washington.edu/jpalmer/. Course information can be found at: http://faculty.washington.edu/jpalmer/files/Perception441/

Readings

(a)   Palmer, Stephen E. (1999). *Vision Science*. MA: MIT Press.

(b)   A course pack of journal articles will be available at the copy center in the Odegaard Undergraduate Library (206–543–8302).

Assignments

(a) **Daily readings**. It is essential to do the reading on a topic before the class on that topic. Please bring the relevant readings to class because specific references are made to the articles.

(b) **Weekly short essays**. The essays are restricted to one page in length. They must be typed, double spaced, 12–point font, and have one–inch margins. Please keep the essays when returned because one assignment is to rewrite an old essay.

(c) **Weekly problem sets**. Short and simple.

(d) **Class discussion**. This is an integral part of the course. Everyone is expected to participate. It is not possible to get a 4.0 grade without participating in class discussion. To participate effectively, it is necessary to read about the topic before class.

All weekly assignments are due at the beginning of the first class in the week following when they are assigned. Most weeks this will be 10:30 Monday. No late papers, please.

Grading

The grades are based 70% on the essays, 15% on problem sets, and 15% on class participation. For both papers and problem sets, the lowest grade is automatically dropped. The one exception is that missing papers cannot be dropped. They must be handed in late and are automatically given a lower grade. Grading is on an absolute system rather than a curve. Each assignment is given a numerical grade: 1, 2, 3, 3.5, 3.8, or 4. These values are averaged according to the percentages above to yield the final grade.

Schedule of lectures, readings, and assignments

Week/Day	Topic	Readings

1   Introductions
  No problem set this week
  No essay this week

W	Introduction to the course	
Th	Introduction to vision	S. Palmer 1.1, 1.2

2   Light detection and discrimination
  Problems on psychometric functions and thresholds
  Paper on experimental methods

M	Signal detection theory	S. Palmer, Appendix A
T	Psychometric functions lab	
W	Light adaptation	Aguilar & Stiles
Th	Review and preview	S. Palmer 3.1, 3.3

3   Lightness and color constancy
  Problems on signal detection theory and matching measures
  Paper describing an experiment

M	HOLIDAY – no class	
T	Lightness judgments	Jacobsen & Gilchrist
W	Constancy	Kraft & Brainard
Th	Review	

4   Edges and spatial frequency
  Problems on grating stimuli, spatial frequency, & linear systems
  Paper describing a theory

M	Overview	S. Palmer 4.2, 8.2
T	Grating detection	Campbell & Robson
W	Compound grating detection	Graham et al.
Th	Review	

5   Size and Depth
        Problem set on visual geometry
        Paper proposing a constancy experiment

        M   Overview   S. Palmer 5.1–5.5, 7.1
        T   Size constancy   Holway & Boring
        W   Moon illusion   Kaufman & Kaufman
        Th   Review

6   Motion
        Problem set on motion
        Paper rewriting a previous paper

        M   Overview   S. Palmer 10.1, 10.2
        T   Grating and plaid motion stimuli   Adelson & Movshon
        W   Space or frequency?   Brown & He
        Th   Review

7   Objects
        Problem set on statistics
        Paper contrasting two hypotheses about objects

        M   Overview   S. Palmer 6.1–6.4, 7.6
        T   Word superiority effect   Johnston
        W   Objects superiority effect   Weisstein & Harris
        Th   Review   S. Palmer 9.3

8   Attention
        Problem set on uncertainty and signal detection theory
        Paper proposing a project

        M   HOLIDAY – no class
        T   Overview   S. Palmer, 11.2
        W   Visual search   Palmer
        Th   Stroop phenomena   Risko, et al.

9   Memory and Awareness
        No problem set this week
        Paper proposing a theory

        M   Overview   S. Palmer 12.1
        T   Change detection   Rensink, et al.
        W   More change detection   Scott–Brown et al.
        Th   Review

10 Reading and Wrap–up
          No problem set this week
          Rewrite paper proposing a project

M	Overview	S. Palmer 9.4, 11.1
T	Measuring reading performance	Legge, et al.
W	Eye movements and reading	Rayner, et al.
Th	Wrap–up	Chamberlin