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


(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

<table>
<thead>
<tr>
<th>Week/Day</th>
<th>Topic</th>
<th>Readings</th>
</tr>
</thead>
</table>
| **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

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

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

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 |
| W | Eye movements and reading | Rayner, et al. |
| Th | Wrap-up | Chamberlin |