

**Philosophical Aspects of Cognitive Science (Philosophy 360)  
Spring 2013**

*Instructor:* Brian P. McLaughlin, Philosophy Department

*Location:* FH B2

*Time:* MTh 2<sup>nd</sup> period

*Office Hours:* 4<sup>th</sup> period on Thursday or by appointment

*Office:* 3<sup>rd</sup> floor of Seminary 1 CAC

*Required Text:*

Stephen E. Palmer's *Vision Science: Photons to Phenomenology* (MIT Press, 1999).

(There will also be various handouts.)

*Course Requirements:*

1. Regular attendance and class participation
2. 15 page term paper
3. Mid-term exam
4. Final-exam

*Course Description:* The course will begin with a brief overview of the basic issues of and the main fields of cognitive science, and then will focus specifically on cognitive science theories of vision. Vision science, which is one of the most developed areas of cognitive science, will be treated as a case study of research in cognitive science. The course will cover the inverse optics problem, the nature of visual representation, visual illusions, color vision, spatial vision, visual attention, visual experience, and the relationships between visual consciousness and the brain.

**Learning Objectives:**

- To introduce students to the main areas of cognitive science.
- To familiarize students with the basics of the computational theory of mind.
- To familiarize students with issues concerning mental representation.
- To familiarize students with the inverse-optic problem and the basic approaches to solving it.
- To familiarize students with the basic issues concerning color perception.
- To familiarize students with the basic issues concerning the visual perception of geometrical properties.
- To familiarize the students with the mind-body issues raised by visual consciousness.

Jan 24 The mind-body problem

28 The fall of behaviorism and the rise of cognitive science

*Reading:* Handout

31 The mind as a computer

*Reading:* Handout

Feb 4 Introduction to vision science

*Reading:* Preface and Chapter 1 of Palmer, pp.1-44

- 7 Same as on Feb 4
- 11 Theoretical approaches to vision  
*Reading:* Chapter 2 of Palmer, pp.45-93
- 14 Same as on Feb 11
- 18 Color vision  
*Reading:* Chapter 3 of Palmer, pp.94-142
- 21 Same as on Feb 18
- 25 Spatial Vision  
*Reading:* Chapter 4 of Palmer, pp.143-198
- 28 Same as on Feb 25
- Mar 4 Perceiving surfaces oriented in depth  
*Reading:* Chapter 5 of Palmer, pp.199-253
- 7 Same as on Mar 4
- 11 Organizing objects and scenes  
*Reading:* Chapter 6 of Palmer, pp.254-310
- 14 Same as on Mar 11
- SPRING BREAK
- 25 REVIEW OF Ch.s 1-6; PAPER PROPOSAL DUE
- 28 MID-TERM EXAM
- Apr 1 Perceiving object properties and parts  
*Reading:* Chapter 7 of Palmer, pp.311-361
- 4 Same as on Apr 1
- 8 Representing shape and structure  
*Reading:* Chapter 8 of Palmer, pp.362-407
- 11 Same as on Apr 8
- 15 Perceiving function and category  
*Reading:* Chapter 9 of Palmer, pp.408-462
- 18 Same as on Apr 15
- 22 Visual Awareness  
*Reading:* Chapter 13 of Palmer, pp.615-664
- 25 Same as on Apr 22
- 29 Dale Purves's empirical strategy for solving the inverse optics problem  
*Reading:* Handout
- May 2 Same as on Apr 29, TERM PAPER DUE
- 6 REVIEW

FINAL EXAM (date, time, and place assigned by the university)