

NEURAL MECHANISMS OF COLOR VISION
Syllabus Fall 2015

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1. Perception of color and brightness: Phenomenology --September 2

Chapter 1 Color in art (Bomford),

Chapter 6 Color in nature (Parks)

in Lamb and Bourriau 1995 *Colour, Art and Science*, Cambridge UP

2. Measuring brightness and color of lights and surfaces. Color matching--September 9

Graham 1965 *Vision and Visual Perception*

Chapter 1 Light as a stimulus for vision (Riggs)

https://en.wikipedia.org/wiki/CIE_1931_color_space

http://www.michaelbach.de/ot/col_mix/index.html

3. Cone Photoreceptors--September 16

Tomita, Kaneko, Murakami, Pautler 1967 *Vision Research* 7: 519-31

Baylor, Nunn, Schnapf 1987 *J Physiol* 390:145-160

Hofer et al 2005 *J Neurosci* 25: 9669-79

September 23—no seminar because of Yom Kippur

4. Evolution of color vision in primates—September 30

Imamoto and Shichida 2014 *Biochimica et Biophysica Acta* 1837:664-673

Jacobs 2008 *Vis Neurosci* 25: 619-633

5. Color opponent neurons: LGN--October 7

DeValois 1960 *J Gen Physiol* 43 Suppl. 115-128

Derrington, Krauskopf, Lennie 1984 *J Physiol* 357:241-265

6. Color opponent neurons: LGN II--October 14

Reid Shapley 1992 *Nature* 356:716-718

Reid Shapley 2002 *J Neurosci* 22:6158-6175

October 21—no seminar because of the Society of Neuroscience meeting

7. Color-opponent neurons: Retina—Oct 28

Lee, Martin, Grünert 2010 *Prog Retinal Eye Res* 29:622-639

Solomon et al. 2005 *J Neurosci* 25:4527-39

8. Color coding in primary visual cortex I—November 4

Livingstone Hubel 1984 *J Neurosci* 4:309-356

Conway Livingstone 2006 *J Neurosci* 26:10826-46

9. Color coding in primary visual cortex II—November 11

Lennie, Krauskopf, Sclar 1990 *J Neurosci* 10:649-66

Friedman, Zhou, von der Heydt 2003 *J Physiol* 548:593– 613

10. Color coding in primary visual cortex III --November 18

Johnson, Hawken, Shapley 2001 *Nature Neurosci* 4:409-16.

Johnson, Hawken, Shapley 2008 *J Neurosci* 28:8096-8106

November 25—(optional) review session of color in V1 cortex

Shapley Hawken Johnson (2014) "Color in the Primary Visual Cortex", Chapter 40 in *The New Visual Neurosciences*, ed. Werner and Chalupa,

11. Color coding in extrastriate cortex --December 2

Zeki 1983 *Neuroscience* 9:741-765

Kiper Levitt Gegenfurtner. Chapter 13-- Extrastriate visual areas, in Gegenfurtner and Sharpe 2001 *Color Vision, from genes to perception*

12. Color in human visual cortex--December 9

Wandell et al. Chapter 14-- Color tuning in two human cortical areas, in Gegenfurtner and Sharpe 2001 *Color Vision, from genes to perception*

Schluppeck Engel 2002 *J Vision* 2:480-92.

Mullen et al 2007 *Eur J Neurosci* 25:491-502

Final exam (Dec 16 or Dec 23, 2015)