

BIBB 217/PSYC 117
Visual Neuroscience
Spring 2007
McNeil Bldg. 395 Tues. 6:30-9:20

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<u>Date</u>	<u>Lecture</u>	<u>Readings</u>
1/9	Introduction Principles of neurons and sensory pathways	Ch. 1
1/16	The Eye I The Eye II	Ch. 2
1/23	Optics Central Visual Pathways I	Ch.3 Ch.4
1/30	Central Visual Pathways II Retina I	Ch.5
2/6	Retina II Retina III	Ch. 6 Kuffler
2/13	EXAM I (through 1/30)	
2/20	Retino-geniculate Projection/parallel pathways LGN	Ch.7
2/27	Primary Visual Cortex I Primary Visual Cortex II	Ch.8 Hubel and Wiesel
3/6	SPRING BREAK	
3/13	Dorsal and Ventral Streams of Processing Motion I	
3/20	Motion II Binocular Vision and Depth Perception	Newsome et.al Ch.10
3/27	EXAM II (through 3/13)	

4/3	Color Vision I Color Vision II	Ch.11
4/10	Form, Shape and Object recognition Ocular movements	Ch.12
4/17	Developmental Plasticity in Visual Cortex Plasticity in Adult Visual Cortex	
5/1	FINAL EXAM	

Synopsis:

An introduction to the scientific study of vision, with an emphasis on the biological substrate and its relation to behavior. Topics will include anatomy of the eye, physiological optics, transduction of light, anatomy and physiology of visual pathways, perception of motion, depth and form, color vision, development and plasticity.

Readings:

An Introduction to the Biology of Vision; J.T. McIlwain. Cambridge University Press, 1996

Kuffler SW (1953) Discharge patterns and functional organization of mammalian retina. *J Neurophysiol* 16 : 37-68.

Hubel DH, Wiesel TN. 1977. Ferrier lecture: functional architecture of macaque monkey visual cortex. *Proc R Soc Lond B* 1981:1-59

Newsome, WT, Britten, KH, Salzman, CD and JA Movshon, (1990) Neural mechanisms of motion perception. *Cold Spring Harbor Symposia on Quantitative Biology* **LV**, 697-705.

Grading:

3 Exams each worth 100 points