

Psychology 351 - Psychology of Perception

Week 4

The Eye

Structures

Cornea (hornlike), Iris, Sclera, Pupil, Lens, Humors, Retina, Choroid / Tapetum

Accommodation and refraction by cornea, [lens](#)

Pupil diameter, [depth of field](#)

Refractive errors: spherical and cylindrical

Myopia, Hyperopia, Astigmatism

Retina

Another view

[Rods](#) (120 million)

[Cones](#) (8 million)

Duplex structure: Photopic and Scotopic

Collector cells (Horizontal and Amacrine)

Sensitivity - acuity tradeoff

Bleaching of photopigments

Pathways to Brain

Optic nerve, [myelin sheath](#)

[Optic chiasm](#)

[Lateral geniculate](#)

[Visual cortex](#)

[Retinotopic maps](#)

[Primate cortex](#) (more below)

[Wiring diagram](#)

[Dorsal vs. Ventral Routes](#)

Coding Processes in Vision

Steady state vs. change

Conceptual model of retina

Lateral inhibition: [Limulus](#), [eye](#)

Receptive fields

[LGN receptive fields](#)

[Simple](#) cells

[Motion cells in Area MT](#)

[Hypercolumns](#)

[V1 – V5 Summary](#)

Grandmother cells

Human Behavioral Evidence

[Hermann Grid](#)

[Mach Bands, model](#)

Aftereffects: McCollough, tilt, waterfall

Fortification images