Course Syllabus
PHY112: Light, Color and Vision
Instructor: Prof. Chang Kee Jung

In the following list, the chapter numbers in parentheses refer to the following textbook which is required for the class: *Seeing the Light: Optics in Nature, Photography, Color, Vision and Holography* by D. S. Falk, D.R. Brill, and D.G. Stork (John Wiley and Sons Publishers, Inc. 1988)

1. Philosophical overview of the nature of light and Perception.
2. (Chap. 1) Fundamental properties of light - direction and speed of light, the electromagnetic spectrum, and color.
3. (Chap. 15) Light in modern physics - Quantum theory of light, atomic spectra, and lasers.
4. (Chap. 2) Principles of geometric optics - shadows, reflection, refraction, and dispersion.
5. (Chap. 3) Mirrors and lenses - images, convex and concave mirrors, converging and diverging lenses, and aberrations.
6. (Chap. 4) The camera and photography - focal length, depth of focus, the f-number, and basics of film.
7. (Chap. 5) The human eye and vision I: Producing the Image - parts of the eye, the retina, focussing and accommodation.
8. (Chap. 6) Optical instruments - eyeglasses, contact lenses, microscopes, and telescopes.
9. (Chap. 7) The human eye and vision II: Producing the Image - lightness perception, lateral inhibition, receptive fields, afterimages, eye movements, and temporal response.
10. (Chap. 8) Binocular vision and the perception of depth - binocular disparity, and ambiguous depth cues.
11. (Chap. 9) Color - spectral and nonspectral colors, brightness, hue, saturation, color mixing by addition and subtraction.
12. (Chap. 10) Color perception mechanisms - trichromacy of color vision, color mixing and matching, color deficiency, spatial and temporal processing of color.

The textbook is out of print. However, many new and used books are available online, e.g. amazon.com. Check the university bookstore as well as the used bookstore near the LIRR Stony Brook station across the 25A.
ACADEMIC INTEGRITY SYLLABUS STATEMENT

Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is always wrong. Any suspected instance of academic dishonesty will be reported to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at http://www.stonybrook.edu/uaa/academicjudiciary/
- Adopted by the Undergraduate Council September 12, 2006

CRITICAL INCIDENT MANAGEMENT

Statement regarding the instructor's responsibility to report behavior that interrupts the learning process, inhibits instructor’s ability to perform his/her duties, or compromises the safety of other students:

Stony Brook University expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, and/or inhibits students’ ability to learn.