

Physics 112: Light, Color and Vision

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Textbook: Seeing the Light, Optics in Nature, Photography, Color, Vision and Holography

By David Falk, Dieter Brill and David Stork

Lectures: Tuesday & Thursday 1:15-2:35

Grading:

Quizzes 20%, Midterm Exam 20%, Project/Presentation 20%, Participation/Worksheets 20% Final Exam 20%

Projected Class Schedule

| Day | Topic | Reading |
|--------|---|------------------------------|
| Jan 25 | Introduction to the class. What is light? | 1.1 |
| Jan 27 | Waves, sources of light | 1.2,1.3 |
| Feb 1 | Geometrical optics, shadows, pinhole camera | 2.1,2.2 |
| Feb 3 | Reflection and Scattering | 2.3 (2.4) |
| Feb 8 | Refraction | 2.5 |
| Feb 10 | Dispersion – rainbows, prisms | 2.6 |
| Feb 15 | Mirrors (flat) | 3.1,3.2 |
| Feb 17 | Mirrors (spherical) | 3.3 |
| Feb 22 | Lenses | .3.4 |
| Feb 24 | Cameras (w & w/o lenses) | 4.1,3.2,4.3 |
| Mar 1 | Camera shutter & Movies | 4.5,4.6 |
| Mar 3 | Midterm in Class | Chps 1-4 |
| Mar 8 | Molecular movies | Handout |
| Mar 10 | Human eye basics I | 5.2,5.3 |
| Mar 15 | Spring Break | ----- |
| Mar 17 | Spring Break | ----- |
| Mar 22 | Human eye basics II | Handout/Exp |
| Mar 24 | Optical Instruments: Glasses | 6.2 |
| Mar 29 | Optical Instruments: Telescopes and Microscopes | 6.3,6.4 |
| Mar 31 | Human vision & perception | 7.1,7.2 |
| Apr 5 | Human vision & perception | 7.3,7.4,7.5 |
| Apr 7 | Depth perception I | 8.1,8.2,8.3 |
| Apr 12 | Depth perception II | 8.4, 8.5 |
| Apr 14 | Color I | 9.1, 9.2, 9.3, 9.4 |
| Apr 19 | Color II | 9.5, 9.6 |
| Apr 21 | Interference, Diffraction | 12.1, 12.2, 12.3, 12.4, 12.5 |
| Apr 26 | Polarization, Scattering | 13.2, 13.2, 13.3, 13.4 |
| Apr 28 | Project Presentations | ----- |
| May 3 | Project Presentations | ----- |
| May 5 | Review | ----- |

SPECIAL NEEDS: If you have a physical, psychological, medical or learning disability that may impact your course work, please contact Disability Support Services, ECC (Educational Communications Center) Building, room 128, (631) 632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential. Students requiring emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information, go to the following website: <http://www.ehs.sunysb.edu/fire/disabilities/asp>