

# Geography 5120/6120

## Environmental Optics

Monday and Wednesday, 3:00-4:20pm

215 Orson Spencer Hall

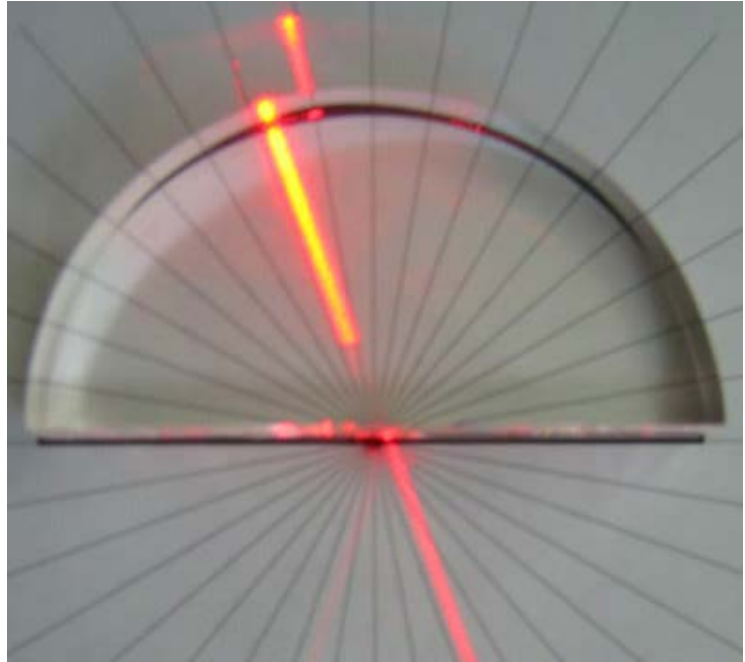
Instructor: Dr. Phil Dennison

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The interactions between **light** and **matter** are fundamental to remote sensing, Earth's climate, and even our own vision. This course explores the complex interactions between electromagnetic radiation and the Earth's surface and atmosphere.

Course topics include:

- The Electromagnetic Spectrum
- Reflection, Refraction, Absorption and Transmission of Light
- Solar and View Geometries
- Modeling Transmission of Light through the Atmosphere (Radiative Transfer)
- Calibration and Correction of Remote Sensing Data
- Energy Flux and Net Radiation



Environmental Optics is quantitatively based. Students will get hands-on experience with laboratory equipment including lasers, prisms, and spectrometers. Labs will demonstrate and prove concepts of atmospheric absorption, refraction, and directional reflection. Microsoft Excel will be used to calculate equations and graph results.



Through this course, students will gain a new understanding of remote sensing, energy fluxes, and phenomena present in everyday life.

Requirements: Exams will consist of 2 take-home midterms and a take-home final. Students will also be required to complete lab assignments. Two short, inexpensive books and a course reader are required reading for the class.

For more information, contact Phil Dennison: [dennison@geog.utah.edu](mailto:dennison@geog.utah.edu)

