Photo Samples for SPH4U

Notice that the exposure time (e.g., 1/125 s) and aperture setting (e.g., f-8.0) are indicated for each photo.

Horizontal Polarization

Light that reflects off a (non-metallic) surface is polarized. But a polarizing filter with the correct orientation can absorb the polarized light. This is illustrated in the two photos of the same small pond. Can you tell which photo was taken with the polarizing filter oriented horizontally? Do you know how the angle at which the maximum absorption occurs depends on the index of refraction of the material (in this case, water) from which the reflection occurs? You should be able to explain the physics principles that cause the effects observed.

1/80 s; f-7.1

1/60 s; f-6.3

Vertical Polarization

Here is evidence that light that reflects off a vertical (non-metallic) surface is polarized. The photos were taken of the same restaurant windows. Can you tell which photo was taken so that the polarizing filter absorbed the polarized light? At what angle does the maximum absorption occur? Can you explain the physics principles involved?

1/50 s; f-5.0

1/60 s; f-5.6

Polarized Light in the Sky

Everything in these two photos is same except for the orientation of the polarizing filter. Light from the sun that is scattered off the particles of the atmosphere is polarized, and can be absorbed by a polarizing filter oriented appropriately. You should be able to explain how to obtain these types of photos and the principles needed to understand the effects.

1/125 s; f-9.0

1/160 s; f-10

Other Examples of Polarization

Can you explain what you observe related to light and polarization in these two sets of photos?

1/50 s; f-5.6

1/50 s; f-5.6

1/40 s; f-5.0

1/50 s; f-5.0

Controlling Shutter Speed

These three photos were taken at different exposure times. You should be able to explain how these photos were obtained as well as the resulting effects.

1/40 s; f-32

1/80 s; f-13

1/2500 s; f-5.0

Controlling Depth of Field

In these photos, the aperture was varied to alter the depth of field. You should be able to understand how and why the depth of field is affected by the camera's aperture, and explain the effects observed.

1/400 s; f-5.6

1/200 s; f-8.0

1/50 s; f-16