PHTO 110

# Week 1

## Lecture 1

### Exposure

* Built-in exposure meter
* Activated by pressing the shutter button halfway
* Found on either the top or rear LCD (or both) and through the viewfinder

### Camera Elements

* Lens
* Aperture
* Opened shutter
* Image sensor
* The mirror is what allows us to see directly through the lens through the viewfinder
* The light is redirected by a pentaprism in the upper part of the camera
* DSLR
* Digital Single-Lens Reflex
* Mirror = Reflex

### ISO

* The light sensitivity of your camera sensor
* It is the digital equivalent of film speeds
* As you increase ISO, you amplify the signal of the imaging sensor, thereby increasing its sensitivity to light
* This will allow you to either shoot at smaller apertures, faster shutter speeds, or a combination of the two
* The major drawback of shooting at a high ISO is that you will introduce noise into your images, which is generally undesirable
* Image noise is the grainy effect that happens
* Chroma noise
* Color noise
* Luminance noise
* Black and white noise
* You are forced to use a higher ISO in situations like low light or to capture action
* The general rule of thumb is to use the lowest ISO the photographic situation will allow

### Shutter Speed

* Exposure time
* Affected by the speed of the shutter in the camera
* Measured in fractions of seconds
* Determined by the size of the aperture of your lens, the ISO sensitivity of the image sensor, and the amount of available light
* Fast shutter speeds, such as 1/2000s, will allow you to freeze action in a photograph
* Slower shutter speeds, such as 1/2s, will cause moving objects to blur
* While blurring movement in an image could be used to achieve a desired effect, it is important to keep in mind that slow shutter speeds will result in unintentional camera shake
* Typically, you are not going to get satisfactory results with trying to shoot at shutter speeds below 1/25s
* This is where you would want to use a tripod
* To further clarify our exposure trifecta, if you find yourself in a situation where you need faster shutter speeds, open up your aperture, set a higher ISO, or a combination of the two
* Slower shutter speed = higher f-number (close aperture), faster shutter speed = lower f-number (open aperture)

### Aperture/f-stop

* The physical opening of a given lens, which determines how much light passes through to the image sensor
* Referred to as f-stops
* The lower the f-number, the larger the opening; the higher the f-number, the smaller the opening
* Opening your aperture = decreasing the f-number (e.g. more open = f/1.4), closing your aperture = increasing the f-number (e.g. more closed = f/11)
* Depth of Field
* Refers to how much in your scene is in focus from right in front of you, out to infinity
* Shallow Depth of Field
* Larger apertures (smaller f-numbers)
* For a given object you have focused on, objects in front of and behind your subject will be out of focus
* Helps to separate the subject from the background and gives us a mental cue as to what we should be looking for
* Deep Depth of Field
* Smaller apertures (larger f-numbers)
* Gives you an increased plane of focus
* Small apertures are used often in landscape and architecture photography
* Example: if you wanted some flowers in the foreground and the mountains in the background in focus, you would use a smaller aperture (larger f-number), something like f/11 or f/16
* Diffraction
* A smaller aperture (larger f-number) actually decreases the sharpness of an image
* The more you close down the aperture, the less light you are letting in through the lens
* Need to compensate your exposure by using either a slower shutter speed, a higher ISO, or a combination of the two
* Slower shutter speed = higher f-number (close aperture), faster shutter speed = lower f-number (open aperture)