DSLR STUDIO

Introduction

Welcome to Photography Basics! This course will cover manual and creative settings that allow you to adjust the exposure of your photographs. You'll be taking perfect pictures in no time at all.

The default settings for a camera automatically expose the photograph, which results in a "scientifically correct" exposure--this means that the main focus of the shot will be exposed in a way that offers the most detail. Often, though, this results in a photograph that appears to be unnaturally bright. See below:

The photo on the left is an exposure created with the automatic setting of the camera. It properly exposes the foreground, but the sunset is a little blown out. The one on the right, however, is a nicer looking photo with richer color. Some of the detail in the foreground is sacrificed for a clearer image of the sunset. That photo is technically underexposed, resulting in a darker picture, but is the more appealing image. Without the manual modes of the camera, this photograph would not be possible.

The three elements of exposure include aperture, shutter speed, and ISO. Each of these elements are interrelated to expose a photograph.
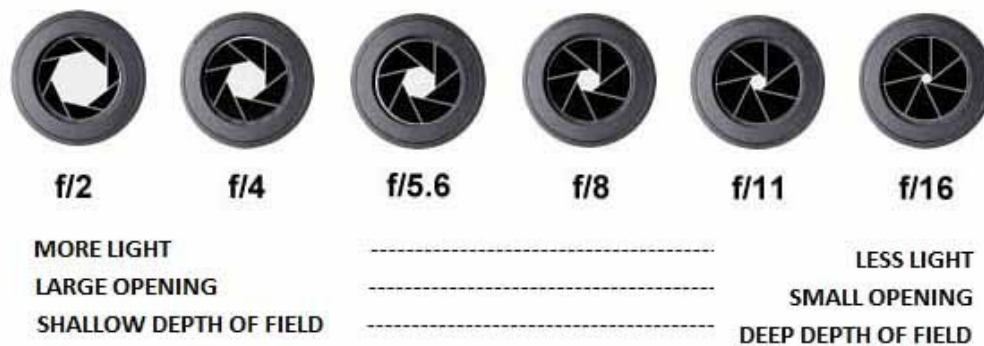
Aperture

Aperture is a set of blades within the camera that are overlapped together to create an octagonal hole (see image to the right). This hole is where the light enters to create the exposure in the camera. Adjusting the aperture means making this hole larger and smaller. The larger opening will let more light in. This means that if you take a photo using manual settings and the image is too dark, opening up the aperture will lighten things up.

The size of the aperture is measured in f-stops. It is important to remember that **the larger the f-stop, the smaller the hole.** A large f-stop setting, such as f/22, will result in a very small hole and a darker photo, while a small f-stop like f/1.8 will be wide open and let in a lot of light. The aperture is often the primary tool for over-exposing or under-exposing a photograph.

In addition to controlling light, the aperture also controls depth-of-field. This is how much of the photo is sharp and how much is out of focus. A smaller f-stop (like f/2.8 or 3.5) will result in a blurry background, while a large f-stop results in a clear depth-of-field, making everything sharp. This is important to keep in mind when shooting something like portraits, where a using a small f-stop would create a blurry background would increase the attention on the subject of the photo, or taking a landscape shot, which would require a full depth-of-field using a larger f-stop to capture a wide amount of detail.

f/2	f/4	f/5.6	f/8	f/11	f/16

MORE LIGHT
LARGE OPENING
SHALLOW DEPTH OF FIELD

LESS LIGHT
SMALL OPENING
DEEP DEPTH OF FIELD

ELEMENTS OF EXPOSURE

Shutter Speed

Since aperture dictates how much light is allowed to enter into the camera, the shutter speed controls *how long* that light is allowed to create an exposure. This element is more straight-forward, as the smaller number (measured in fractions of a second) results in a faster speed. A fast shutter speed would be 1/1000, meaning that light would only be allowed to enter the camera for one thousandth of a second. Cameras can allow for longer shutter speeds as well. If you want to take a photo in the middle of the night, a long shutter speed (10-15 seconds) will allow the minimal light to expose the image enough to be a visible photo.

While aperture is the primary controller of light exposure, sometimes you might find yourself unable to change the aperture setting because you want a particular depth of field. Say you're taking a landscape photo at sunset, and you want as much detail in your photo as possible-- you're going to want a large f/stop (which will give you a small aperture size). This will not let much light in, so to compensate for that, you will need a longer shutter speed to give the light more time to create the exposure.

The shutter speed should primarily be used to support the aperture setting, so that you do not give up control of your depth-of-field. An exception to this rule, though, would be if you were capturing movement. If you are shooting something like a sporting event, a fast shutter speed would be required to "freeze" the action in a way that would be difficult if you were relying solely upon the aperture setting.

ISO

The ISO controls the exposure of a photo by using software in the camera to make it extra sensitive to light. A high ISO rating (1600) will create a brighter image, whereas a low ISO (100 or 200) results in minimal adjustment to the cameras exposure software. The drawback to using a high ISO is that it results in a grainier image. (When you take a photo at night on your phone, you will notice that it is grainer than normal. This was your phone automatically compensating for the low light by increasing the ISO). Since the photo is being artificially exposed, the image suffers in quality. The ISO should only be adjusted if the exposure cannot be adequately balanced with just shutter speed and aperture settings.

CREATIVE CAMERA MODES

On most cameras that allow manual exposure settings, there is a dial that allows for the user to control one of these individually or all at once.

P mode: Allows for user control of **ISO**, and automatically adjusts the aperture and shutter speed accordingly. (This is almost identical to automatic setting.)

A mode: Allows for user control of the **aperture** setting, and automatically adjusts the shutter speed accordingly.

S (Tv for Canon) mode: Allows for user control of the **shutter** speed, and automatically adjusts the aperture setting accordingly.

M mode: Allows the user to manually adjust **aperture, shutter speed, and ISO**.

There may be other modes on your camera, indicated by pictorial icons (portrait mode, sports mode, night mode, landscape mode) that automatically adjust shutter speed, aperture, and ISO to compensate for these scenarios. But you use these at your own risk, because automatic settings take the control away from you, making the image you produce a matter of chance rather than craft.

This can all be rather confusing at first, but practice makes perfect!

Further info:

Written walkthrough covering the material of this course:
http://improvephotography.com/photography-basics/shooting-modes/

Lynda.com- video tutorials for various cameras and camera functions.

DSLR EXPOSURE CHEAT SHEET

The following are a basic range of settings that you might use under certain circumstances. Although your results may vary, these settings should provide a place to start that then can be tweaked for greater results.

Outdoor Sports Photography

ISO: 100 - 200
Shutter Speed: 1/250 - 1/1000
fStop (Aperture): f8 - f22

Reasoning: For sports photography, which has a lot of movement, we want to capture things clearly with a short shutter speed. It is also most likely bright outside so we'll use a smaller ISO number as well.

Indoors

ISO: 400 - 800
Shutter Speed: 1/80 – 1/125
fStop (Aperture): Lowest possible number, f1.8 - f3.5

Reasoning: Shooting indoors can provide of the most difficult conditions due to the small amount of available light. For exposure, we want to choose settings that add light, such as a slower shutter, smaller fstop, and higher ISO.

Close-up Nature Photography (Shallow depth of field)

ISO: 100
Shutter Speed: 1/250 - 1/1000
fStop (Aperture): Lowest possible number, f1.8 - 3.5

Reasoning: For close-up nature photography we most likely want to create a shallow of depth of field. To create a shallow depth of field we need to have a smaller fstop number. Decreasing this number will also make our photos much brighter so we adjust the shutter speed much shorter to compensate.

DSLR EXPOSURE CHEAT SHEET

Landscape Nature Photography (Deep depth of field)

ISO: 100 - 200
Shutter Speed: 1/125 - 1/250
fStop (Aperture): Highest possible number, f8 - f22

Reasoning: For Landscape photography, we want a long depth of field. This means that we need our fstop to be as high as possible. In order to compensate, we will need to use longer shutter speeds.

Digital Photography Studio Activity

1. **Increasing the shutter speed from 1/60th to 1/250th will:**

   Make the Photo Brighter   Make the Photo Darker

2. **Increasing the ISO number from 400 to 800 will:**

   Make the Photo Brighter   Make the Photo Darker

3. **Increasing the ISO number from 400 to 800 will:**

   Make the photo grainier   Make the Photo less grainy

4. **Increasing the Aperture or F-Stop number from 3.5 to 5.6 will:**

   Make the Photo Brighter   Make the Photo Darker