

# Intro to Digital Photography

### Class description:

In the course you will learn the fundamentals of digital photography using Canon DSLR cameras.

# Learning Objectives:

- 1. How to hold the camera and practice taking pictures
- 2. Understanding depth of field and focal length
- 3. Understanding aperture, shutter speed, and ISO

### What is a DSLR?

A digital single lens reflex camera is also referred to as a DSLR or SLR camera. These cameras use a mirror to reflect light from the lens up into a pentaprism which reflects the image into the viewfinder. These cameras have large image sensors behind the mirror which allows the camera to take high-quality photographs. The image sensors are one of the most delicate parts of the camera. Another feature of a DSLR camera is the ability to change lenses, making them very versatile.

### Equipment Care:

Cameras:

- Do not drop the camera
- The cameras are NOT waterproof
- Keep cameras and SD cards away from magnets
- Do not leave in excessive heat or direct sunlight
- Do not touch the electrical contacts with your fingers
- Avoid exposing the image sensor to any type of debris
- Always keep either a lens or dust cover on the camera

### Lenses:

- Do not touch the glass parts of the lenses
- Do not drop the lenses
- The lenses are not waterproof
- Do not leave in excessive heat or direct sunlight
- Avoid exposing the image sensor to any type of debris
- Do not manipulate the focus ring when the switch is set to AF
- Only use the recommended camera cleaning supplies to clean the lenses
- Do not wipe the lenses with your shirt or any clothing

# Attaching Lenses

\* When changing lenses, do so quickly in a place with minimal dust.

- Remove the caps
- Align the red or white dots and turn clockwise until the lens clicks into place
- Set the focus mode on the lens to either auto focus (AF) or manual focus (MF)
- To detach lens, press the lens release button and turn lens counterclockwise and reattach caps.

### Holding the Camera

- The strap should go over the shoulder
- Wrap your right hand around the camera grip and place your index finger on the shutter button
- Place your left hand under the lens
- Keep your elbows in close to your body and keep the camera as still as possible
- Maintain a stable stance by placing one foot slightly ahead of the other
- Press camera against your face and look through the viewfinder



### Shutter Button

- Pressing the button halfway will activate autofocusing and the automatic exposure system
- Pressing the button completely will take a picture



# Exposure Triangle

The exposure triangle represents the three variables that determine the exposure of a photograph. These three variables are the aperture, shutter speed and ISO. Knowing how these variables work together provides the photographer unlimited creativity and the basic knowledge to become exceptional at their craft.



# <u>Aperture:</u>

The aperture is the opening that controls the amount of light that passes through a lens. In photography, aperture is represented in f-stops. Each lens will determine how large or small the aperture can get.

f/1.4	f/2.8	f/5.6	f/11	f/22
Very Large Aperture	Large Aperture	Medium Aperture	Small Aperture	Very Small Aperture
	•	•	•	•
Very Small Depth of Field	Small Depth of Field	Medium Depth of Field	Large Depth of Field	Very Large Depth of Field
Almost Nothing In Focus	Little In Focus	Some In Focus	Much In Focus	Almost All In Focus
Brightest	Bright	Medium	Dark	Darkest

Graphic courtesy of photographylife.com

- The lower the f-stop, the blurrier the background. This is ideal for portrait or product photography.
- The higher the f-stop the sharper the background. This is ideal for landscape photography.

### Shutter Speed:

Shutter speed controls how long the sensor is exposed to light and is measured in seconds or fraction of seconds. The larger the denominator, the faster the shutter. This allows the photographer to freeze or capture motion in the photograph.



Fast shutter speeds freeze motion and slow shutter speeds will capture motion. If you are trying to capture motion and are using a shutter speed slower than 1/60 of a second you may encounter camera shake, which is unwanted movement of the camera. Use a tripod or another form of camera stabilization to avoid camera shake.



Capture motion



Freeze Motion



Camera Shake

ISO

- ISO is the level of sensitivity of your camera to available light
- The more light available, the lower the ISO needs to be.
- Using a higher ISO means the camera has less light to work with and could introduce 'noise' or 'grain' into the photograph.



# Focal Length

Focal length tells us the angle of view—how much of the scene will be captured. It is the distance between the center of a lens or curved mirror and its focus. It is usually stated in millimeters. The image below illustrates this concept.



<u>24mm</u>

<u>50mm</u>



<u>80mm</u>

<u>105mm</u>

# Depth of Field

Depth of Fields (DOF) is a the zone of acceptable sharpness within a photo that will appear in focus. In every picture there is a certain area of your image in front of, and behind the subject that will appear in focus. This zone will vary from photo to photo. The aperture will be the primary way to control the depth of field but other factors do affect this as well.



### <u>Resources:</u>

### Websites used in class:

Exposure video - https://vimeo.com/41174743

Canon Play - http://www.canonoutsideofauto.ca/play/

### Books:

- Digital SLR cameras & photography for dummies
- Digital photography: an introduction
- Mastering digital photography
- The complete idiot's guide to digital photography
- Digital photography complete course

# Video Tutorials:

- 3 Tips to Master Exposure Technically and Creatively | Photography 101

   <u>https://www.youtube.com/watch?v=eAhEatlueXA</u>
- The Three Basics of Exposure and Photography
  - https://vimeo.com/41174743

# Other:

Lynda.com (online tutorials with nearly 200 beginner photography lessons) Universal Class (library database)

http://camerasim.com/apps/camera-simulator/

\*There are many helpful resources online that are not listed. Simply doing a google search or searching the library catalog for "photography tutorials" will provided an abundance of additional resources.