Welcome to Education Night

September 2014

Introduction

to

Digital Photography

The Digital Single-Lens-Reflex Camera (DSLR)



Photography Essentials

- Light
- Lens (Aperture in f-stops)
- Time (Shutter Speed in seconds or fractions of a second)
- Sensor with adjustable Light Sensitivity (ISO)
- Memory Card (temporary storage device)

Shutter/Exposure Mode Dial



Selects and controls exposure modes such as Auto, Manual, Time Value and Aperture modes among others.

Main Dial



Select various settings, often with the menu screen, such as white balance, ISO and focus controls. Can also adjust shutter speed and lens aperture on some camera menu screens.

Quick-Control Dial



Generally works in conjunction with other buttons and often drives selections on the menu screens.

ISO Selection





Controls the light sensitivity of the camera sensor. Often found as a separate button on the camera, but can be menu controlled and, in many cases, both.

Light Meter Modes

Most advanced digital cameras provide several light metering modes:

SpotEvaluativePartialCenter Weighted

The selection appears on one or more menu screens.



White Balance

White Balance selections allow the photographer to compensate for the color temperature of the light falling on the scene.

Most cameras offer these choices:

- •Auto White Balance, which adjusts to the light as it changes
- Shade
- •Cloud
- •Tungsten-Flash
- •Daylight



LCD Screens

LCD screens on the back of your camera provide information from the menus and, with many cameras, these screens also provide a live view of the scene through the

lens.

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Image review	8 sec.
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Release shutter w	vithout card ON
Lens aberration c	orrection
External Speedlite	e control
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The Exposure Triangle



ISO Settings

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How ISO Works

- ISO– International Standards Organization
- Determines the level of sensitivity of the light sensor
- High ISO number, more sensitivity and more image noise (like grain)
- Low ISO number, less sensitivity and less image noise
- ISO ranges 50- 25,000

Aperture





How Aperture Works

Aperture- The size of the opening in the lens at the time you take the picture.

When you push your camera's shutter release, a hole opens in the lens, known as the aperture opening, that allows your camera's image sensor to capture the scene from the lens.

Aperture and Light

Aperture is measured in f-stops such as: f/2.8, f/4, f/5.6, f/8, f/22, etc. Moving from one f-stop to the next doubles or halves the size of the opening of your lens (and the amount of light passing through it during exposure).



Aperture and Depth of Field

Big f-stop number, small hole, greater depth of field

Little f-stop number, big hole, less depth of field

Aperture is a major factor in the degree of Depth of Field in a photograph



The Shutter



How Shutter Speed Works

Shutter speed is the amount of time that the shutter is open. It is the length of time that your image sensor 'sees' the scene you're attempting to capture through a given lens aperture. We measure shutter speed in seconds or, in most cases, fractions of a second.

The Shutter and Light

- The bigger the denominator, the faster the speed (1/1000 is much faster than 1/30).
- Shutter speed settings usually double such as 1/500, 1/250, 1/125, 1/60, 1/30, 1/15, 1/8, etc.

Changing your aperture setting one stop also doubles or halves the amount of light falling on the sensor. Increasing your shutter speed by one stop and decreasing aperture by one stop gives the same exposure, but also affects depth of field and the ability to stop action or show motion.

Shutter Speed will control the **Stopping or Blurring** of movement in a photograph



Review: The Exposure Triangle



Meter Settings

- Evaluative Metering— This is the "default" setting on most cameras. The camera sets the exposure controls automatically to suit the scene and subject of the photograph.
- Partial Metering This type of metering is helpful for photographing backlit subjects. The metering is weighted to the center of the shot.
- Center-Weighted Average Metering— This metering mode gives priority to the center portion of the photograph, but also averages the surrounding portions of the frame.
- Spot Metering— This mode is in the center of the viewfinder and has a coverage of approximately 1.5%. It is great for precise or spot measurements.

Exposure Modes



Auto - The internal program tells your camera to select shutter speed, aperture, ISO, white balance, focus and flash to achieve the best possible image at the camera's discretion.

Program Mode (P) - Similar to Auto on some cameras.

Exposure Modes



Portrait Mode

When you switch to portrait mode, your camera will automatically select a large aperture (small f-stop number) which creates a narrow depth of field, ensuring your subject is the only thing in focus and that the background is soft, blurry and less distractive.





Camera selects: Shutter Speed and Aperture for shallow *Depth of Field*

Exposure Modes



Macro Mode - Allows you to move into your subject for tight close-ups when shooting flowers, bugs, jewelry and other small objects



Landscape Mode - Sets the camera up with a small aperture (a large f-stop number) to insure that the entire scene photographed will be in focus with a large depth of field.



Sports Mode - Ideal for moving objects: sports, pets, moving cars, wildlife, etc. This mode attempts to freeze the action by increasing the shutter speed.





Camera selects: Shutter Speed and Aperture to manage *Depth of Field* and *Close Focus*





Camera selects: Shutter Speed and Aperture for greater *Depth of Field* and *Infinity Focus*





Camera selects: Shutter Speed and Aperture for *Stopping* action and *Focus Tracking*

Exposure Modes



Night Mode– Designed for shooting in low-light situations and sets your camera to use a longer shutter speed to help capture more details, but most cameras fire the flash to illuminate the foreground (and subject). A tripod is recommended.





Camera selects: Shutter Speed and Aperture to capture night scene and use flash and *Focus* for the foreground

Semi-Automatic Modes



Aperture Priority Mode (Av) - In this mode, you choose the aperture and your camera automatically chooses the appropriate shutter speed.



Shutter Priority Mode - (Tv stands for Time value) The opposite of aperture priority mode. You select a shutter speed, and the camera automatically chooses the appropriate aperture.

Manual Exposure Mode



Manual Mode – Provides the most creative freedom, since the photographer has full control over all facets of the camera's exposure operation. The photographer chooses aperture, shutter speed and the associated settings of ISO, white balance, etc.

Focus and Depth of Field



Focus - Digital cameras have auto focus, which works through electronics built into the lens. Most DSLR lenses allow you to turn off auto focus if you want to use manual focus, which is necessary in some low-light situations.

Drive Modes



Drive	mode				
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Single Shot - When you press the shutter button completely down you make a single shot.

High Speed Continuous - When you hold down the button completely, the camera continuously shoots and captures multiple frames per second (fps, which vary by make and model of camera).

Drive Modes



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Low Speed Continuous Shooting -When you hold down the button completely, the camera continuously shoots and captures fewer frames per second (fps, which vary by make and model of camera).

Self-Timer - Press the shutter and the camera's computer delays opening the shutter for a specified time, usually 10-20 seconds. Options vary by make and model of camera.

Understanding FILE FORMATS



The "Compressible" Format

The most versatile image format.

All digital cameras have a JPEG ability.

Cameras usually allow two or three degrees of compression.

Can be read by any computer and/or imaging software.

TIFF

The "Uncompressed" Format

A 'No Image Degradation' format.

This system does not reduce the file size rendering large files and high image quality.

Can be read with any computer and most imaging software.

RAW The "DIY" Format

This format saves the image straight from the CCD or CMOS sensor with no automatic image improvements made by the camera's image processor.

Typically used by experienced digital imagers who want to make all the image processing adjustments themselves using special software.

Step 1 — Set up Quality:

•Choose File Format: JPEG or RAW, compression (Fine or Normal)

•Set ISO and consider the light values and your needs, such as to stop action or to shoot still-life landscapes.

•Choose the proper White Balance or use Auto White Balance

Step 2 — Select the Exposure Mode:

•Automatic

- •Creative Zone Portrait, Landscape, Macro, Sports, Night Portrait, Flash Off
- •Aperture Priority
- •Shutter Priority
- •Manual Full Manual

Step 3 — Choose Aperture and Shutter Speed if shooting Full Manual

Step 4 — Set Metering Mode:
Multi-Zone
Center Weighted
Spot

Step 5 — Set Focus:

- Automatic
- •Manual
- •Single Servo
- Continuous Servo

Step 6 — Set Drive Mode:
Single Shot
Continuous

Step 7— Compose images, take a test shot, adjust and have fun!

So, what's the best camera??

The BEST camera is the one with you!

Even if it's your phone...



Carry an entire darkroom and display studio in the palm of your hand









QUIZ TIME !!

THANK YOU!