Digital Photography as a Hobby

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Are you afraid of your digital camera?

- Many of us have cameras in the closet or drawer ...
- Did your son or daughter tell you to get a “good” camera?
- Are you intimidated by the camera?
- Have you used it? Transferred pictures to computer?
- Ever edited a photo?
- Shared a photo – by cell phone or e-mail?
- Sent a digital picture to be printed?
- Have you “lost” your pictures?

We’ll try to help you with answers to all of these questions!
All smart phones have decent cameras with some zoom capability; included in cost of phone.
Types of Cameras – Point and Shoot

Nikon, Canon, Sony, Fuji, Olympus ..... Pocket cameras with little or lots of zoom capability. Cost range from $100 to $250. Built in flash, mostly automatic, little operator control.
Types of Cameras – Point and Shoot 2

Nikon, Canon, Sony, Fuji, Olympus ..... Point and shoot with more capabilities: zoom, mode selection. Bigger, more to hold. Price range from $250-$500.
Types of Cameras – Digital Single Lens Reflex (DLSR)

Interchangeable lens camera – most versatility, choice of lenses, external flash. Maximum operator control, but still offers full automatic mode. Cost range (body only) $800 and up and up! More on DLSR features later.
So what do **YOU** need?

• What do you want to do???

• **Selection Criteria:**
  • Use – size, weight and features
    • Screen Only or Viewfinder?
  • Use – storage media capacity (“film”)
  • Picture quality – how many megapixels is enough?
  • Optical zoom? Again driven by use.
  • Picture display? Print or media?
  • Cost
  • Support availability

**12 MP minimum, Prefer 20 MP**

**Digital Zoom is useless.**
Other “Stuff” – The sky’s the limit!

• Camera bags, photographer’s vests
• Tripods and monopods
• External flash units
• “Soft Box” for flash – portrait work
• Lenses and more lenses!
• Extra batteries
• Extra memory cards

Just get what you WILL USE!!!
Memory Media

- Most digital cameras today use one of the classes of SD cards.
- SD is “secure digital”
  - SDHC SD High Capacity
  - SDXC SD Extreme Capacity
- Micro SD – miniaturized SD format card – needs an adapter
- Buy high speed cards!

32 GB card holds over 3000 20 megapixel files!!!

About $30; film equivalent: over 80 rolls, 36 exp @ $2 plus $6 to process, prints at $0.20 Total $1240!!!!
Starting Out

• DO NOT LEAVE DISPOSABLE BATTERIES IN YOUR CAMERA!!!
• Turn it on! - Fresh batteries, recharge batteries Set on AUTO
• Frame your shot – use your screen or viewfinder.
• Expose picture
• Review picture - “chimp” it!!!
• If you don’t like it, delete it. Discarding 0’s and 1’s is free!

Digital Photography offers immediate feedback on how you’re doing!
The Language of Photography

• There are several settings that control what actually gets through the lens and onto the sensor (film).

• These are aperture, shutter speed, zoom, focal length, ISO, and depth of field.

• We’ll go over each, define them and show how they interact with each other and what they do to your photo.

• f/2.8, 1/250 sec, 135 mm, ISO 400 describe the settings for your photo

• Depth of Field is a dependent variable
Aperture

• The aperture is the hole in back of the lens through which light passes onto the sensor. Historically described by a measure called the “f-number”

• The higher the f-number, the smaller the hole, and the less light gets through the lens. f/22 is a very small hole while f/1.4 is a large hole.

• Just think of the f-number as how open or closed your blinds are!
Shutter Speed

• This is pretty simple: How long does the hole behind your lens stay open when you push the button?

• Shutter speed varies between seconds and tiny fractions of seconds. Typical daylight exposures call for $1/60^{th}$ of a second down to about $1/200^{th}$.

• To stop action - sporting events or birds on the wing, need to go much faster to “freeze” the action – $1/500^{th}$ down to $1/2000^{th}$ of a second!
Shutter Speed and Aperture Relationship

• To keep the same amount of light on the sensor, if you increase the aperture (lower f-number) – which lets more light in – you have to decrease the shutter open time – have it open for shorter times.

• So as you decrease f-number, you need to decrease shutter speed.

• Third leg of the exposure triangle is ISO, or “film” sensitivity.
ISO – International Standards Organization “Film Speed”

• ISO is a measure of the sensitivity of your sensor (or film) to light. The higher the ISO is the less light is needed to take a picture.

• In film days, speeds of 25-200 were used for nearly all situations, 400 was FAST!

• Today’s digital camera sensors offer dynamic changes to ISO on a shot to shot basis – all the way up to numbers like 12,500!

• Selecting your ISO does two things: allows you to shoot in less light and also allows you to control “noise”

• Higher ISOs give pixilation (“noise”), so this must balance low light needs.
“Ideal” Exposure

ISO

Motion Blur

Depth of Field

Aperture

Shutter
Burst Mode

• One key characteristic of modern digital cameras is the ability to use burst mode or continuous exposure mode.
• Depending on camera, you can take from 5-12 frames per second in continuous mode.
• This allows you to capture the “right” moment in an action scenario.
• Extra frames are easily discarded ... don’t have to “develop” multiple frames to get your keeper!
• This is why you need to get fast memory cards, marked Class 10 or greater than 80 Mbit/second write speed.

In the “old days” 1 frame/sec was max with a motor drive on a film camera ... if the film didn’t break!
Lenses – Zoom and Focal Length

• Zoom is the amount of magnification you can get with a variable focal length lens.

• Focal Length in millimeters divided by the sensor size gives you a measure of how much magnification a lens will give you.
Full Frame vs. Crop Sensor

• Lenses are described as “full frame” or “crop sensor” lenses.
• Digital cameras have sensors that are equal to or smaller than 35 mm film cameras.
• If sensor is same size as the 35 mm film frame, it is called a FULL FRAME camera.
• Sensors smaller than the 35 mm standard are CROP SENSOR cameras.
• Full Frame lenses can be used on crop sensor cameras and will have longer focal lengths by the crop factor.
• Crop sensor lenses used on full frame cameras will not fully illuminate the sensor.
Zoom Lens Examples
Red-tail on the fence
f/5.6, 1/500 sec, 300 mm

This beauty was shot through my sliding doors from about 70 feet.
Gentoo penguins on the move – Antarctic Peninsula f/6.3, 1/400 sec, 210 mm

These little guys (about 3’ long) were about 200 yards from the ship.
0920 10 Nov 2012
(GMT-4)
C 123, STBD Beam
Bearing 220, D 7 mi
Depth of Field

• This is a more advanced concept, but a very important one for many types of photography.

• Depth of field, sometimes called depth of focus, is how much of the area in front of and behind your subject is in focus.

Low f-number

High f-number,
Focal range 1/3 in front, and 2/3 in back
Depth of Field Examples
Baby mockingbird in a Nellie Stevens holly
f/5.6, 1/800 sec, 200 mm lens

Just the bird is in focus
Aurora, Indiana at Christmas time
f/5.9, 1/200th second, 35 mm lens

Everything is in focus
Shooting Modes

• Automatic – camera selects all exposure parameters – you frame and shoot. AUTO

• Aperture Preferred – You set aperture, camera selects other exposure parameters - A

• Shutter Preferred – You select shutter speed and camera does the rest – S

• Manual – You select all exposure settings! M

• Program – Varies with camera P
Automatic Mode

- General purpose mode – when you don’t have time to think about settings.
- Group outings ...
Aperture Preferred - A

• Use this mode when you want to control depth of focus to make subject “jump out”
• If leaves were in focus, would be distracting.
• Again, focus on the eyes!
Barred Owl
f/5.6, 1/1000 sec, 120 mm

About 15 feet away: eyes sharp, bark starting to blur both in front and behind bird.

Focus on the eyes!
Great Horned Owl
f/5.6, 1/1250 sec, 200 mm

About 18 feet away: eyes sharp, blur both in front and behind bird.

The eyes have it!
Shutter Preferred - S

• Generally used to stop action – moving event, wildlife, sporting events.
• Other uses, slower shutters, can be poetic – background clear, moving object for drama.
• Sometimes it’s just luck!!
• f/5.6, 1/500 sec, 300 mm, ISO 1600
Red-tail on the wing
f/9, 1/640 sec, 300 mm

Bird was about 300 feet up and fast shutter stopped action.

Used fairly high f-number – don’t know range to bird so need deep field of focus
Great Blue at Hagerman
f/9, 1/1600 sec, 300 mm

Bird was probably 150 yards away.

Lucky, far shore was beyond focal range, so blurs nicely
Humming for Lunch
f/6.3, 1/1000 sec, 140 mm

Taken through a window about 5 feet away
Manual - M

• Select this mode when you need to take full control of your exposures.
• More challenging since you have to think of it all
• Chimping helps!!!
• Sometimes the only way you’ll get keepers.
Iceberg off Antarctic Peninsula – f/10, 1/500<sup>th</sup>, 230 mm lens, ISO 100. Berg was about ½ mile away, and about the size of the MS Zaandam!
Where are my pictures???

• Now that you’ve shot some pictures, what’s next?
• Review on camera – not a good way to share.
• Download to your computer – wired or wireless.
  • If your camera came with a special cable, use it.
  • If your camera supports wireless and you have wifi, read the manual to learn how to do this.
• If you need to take memory card out of camera, get a USB card reader
  • Turn camera OFF when removing or replacing card.
Set up File System on your Computer

• Start right and set up a system so you’re not searching for your pictures all the time!

• I use a major folder called “Photos” and each download is named for the date the pictures were taken: 2017-08-09 for example.

• After I’ve reviewed the date folder (and culled it down) I add a one word descriptor: 2017-08-09 Hawk

• I also back up all my photo files on at least 2 external hard drives!
Photo Editing Software

• Photo Shop (also a verb now!) ; Very powerful, overkill for hobbyist. Cloud based - subscription $20-50/month
• Lightroom – Cloud based – subscription, $10 and up per month
• ON1 RAW – Very powerful, stand alone, $100 typically.
• Adobe Elements 15 – “PhotoShop light” $80, stand alone product
• Etc etc etc
• Windows built in photo viewer allows simple editing, and it’s FREE
Windows 10 Photo Viewer Editing

• Demonstration of editing using free Windows 10 software
• We’ll take a sample picture and run through how easy it is to fix, or at least improve, your photos.
  • Crop out unwanted elements
  • Resize
  • Enlarge
  • Remove red-eye
  • Add vignette

• Always save a copy after editing !!!!!
Demonstration
Sample Photo Presentations
Time Permitting

• Sampling of Travel and Local Photos
• Winged Critters at Robson Ranch
• Blackland Prairie Raptor Rehab Center
Moon Eclipse
29 Sept 2015
f/6.3, 1 sec,
500 mm
Support Resources

• Fort Worth Camera Stores:  318 S Park Grapevine TX 76051
  817-421-3187 and 1600 Montgomery Fort Worth, TX 76107
  (817) 335-3456

• Robson Ranch Photo Club – www.rrphotoclub.org or call
  Dick Remski 940-262-0194

• Adorama Learning Center – www.Adorama.com/alc

• Prints or photobooks – Mpix.com and Fullcolor.com