

DIGITAL PHOTOGRAPHY INTRO

Week #3 of 4 Flash, email files and color

Exposure Compensation

Exposure compensation forces camera to give more or less exposure than the camera thinks it needs. Use positive compensation if background is significantly brighter than your subject or if large areas of background are white (snow). Negative compensation is less used. Needed if large areas of background are dark/black or if subject is significantly brighter than background.

Metering Modes

Using Multi-Section, center weighted, spot and manual metering modes.

Flash

In camera flash. Flash dissipates very quickly over distance. Double the distance from camera to subject and you get $\frac{1}{4}$ the flash power (not $\frac{1}{2}$). Built in flash units on typical consumer cameras are useful only if the subject is 4 feet to 12 feet away from camera.

On camera flash. Many (not all) digital cameras will allow you to purchase and use a more powerful flash. These are typically attached to a “hot shoe” on the camera. Typically 8 times more powerful than an in camera flash, allowing use from 4 feet to 60 feet.

TTL automatic versus manual flash on camera flash. TTL flash must be “compatible” with your camera and then it allows the camera to set correct exposure.

Your camera’s sync speeds. One place where the inexpensive cameras often outperform the expensive cameras! Sync speed is the fastest shutter speed you can use when a flash is being used. On many simple consumer digital cameras there is no limit (use any shutter speed you want). Some prosumer digital cameras are limited to 1/500 (use 1/500 or any speed slower). Top end professional DSLR cameras are typically limited to 1/200 (use 1/200 or any speed slower).

Daylight fill flash. Most people think of flash only for night or dark indoor images. An overlooked flash use is to “fill” in shadows in an outdoor daylight image. Just turn on your automatic (in camera or TTL on camera) flash and shadows on “near to camera” subjects will be significantly reduced.

Camera White Balance

Color of Light. Perhaps you've seen a lighting display at a hardware or interior design store showing that different light bulbs have different colors. Sunlight is actually blue light, regular light bulbs (incandescent) are rather orange and most fluorescent tubes are green. In the real 3D world or brains "fix" this for us, we don't "see" these colors. In a 2D photograph we do!

White Balance in camera. Digital cameras can be set any of three ways to fix this problem. Auto white balance tries to read the color of light and adjust the camera without your input. It works reasonably well, but can be fooled in odd situations (a room with bright colored walls, snow, a room with strongly colored lights such as a stage production). Manual white balance is used when you want to tell the camera what color light exists. If color on a ski slope fools your auto white balance, you would switch to manual white balance and select sunlight. Custom white balance (may not be available on simpler cameras) lets you make and use your own personal versions of manual settings. Very useful in situations where you have 2 or more light sources mixed together (blue sunlight coming in a window mixing with green florescent lights in the room).

White Balance in image editing software. It is possible to "fix" an imperfect white balance in software after the image is taken. See below for image editing software part (3 color correction). Because this is time consuming and often confusing, it is best to get color as close as possible in the camera first, rather than try and "fix it" later in software.

Image editing software part 3 (email and color correction)

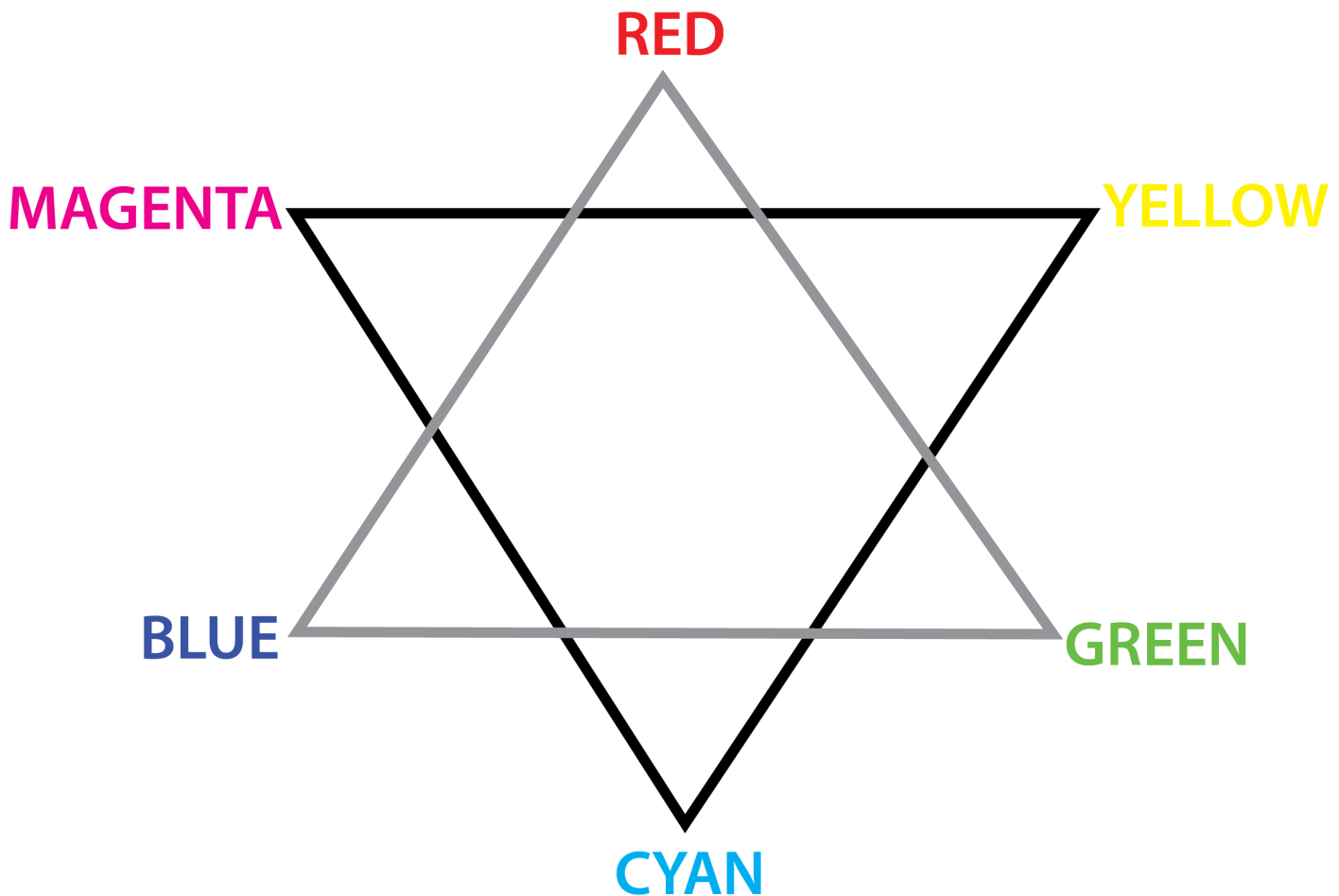
room 10: username photo password: photo123

Email sizing and compression. Images for web or email VIEWING should always be sRGB color space and 96dpi at a maximum of 1000 pixels on the longest side (600 pixels is probably safer). A direct from camera file may be as large as 3Meg, this can take a few minutes per image for a phone modem user to download. Using these instructions will reduce your file to about 1/60th that size. Photoshop Elements instructions:

- 1) Launch Photoshop Elements, if needed.
- 2) Select "Photo Editor", if needed.
- 3) Open image 3-7-email.jpg (File>Open). You will see image on your screen.
- 4) Make sure you are "Edit Full" rather than "Edit Quick" mode (Elements specific command, in upper right of screen).
- 5) Resize (Image > Resize > Image Size). Make sure both "Constrain Proportions" and "Resample Image Bicubic" are checked.
- 6) Enter 96 into the resolution box.
- 7) Select Pixels in the width drop down menu.
- 8) Enter the number of pixels you want on the longest side (height or width).
- 9) Click OK.
- 10) Save your new smaller file as a new file/name (File>Save As) to a location on your hard drive (not your camera's memory card). Chose file type as JPEG. In the next window chose Quality "6". Without this step you would "over-write" your existing file, which would permanently reduce your resolution.
- 11) Using your email program, attach this new (smaller) file to your message.

Manual color correction (best method)

- 1) Launch Photoshop Elements, if needed.
- 2) Select "Photo Editor", if needed.
- 3) Open image 3-8-WhiteBalance.jpg (File > Open). You will see image on your screen.
- 4) Make sure you are "Expert" rather than "Edit Quick" mode (Elements specific command, in upper right of screen).
- 5) Select Enhance>Adjust Lighting>Levels.
- 6) Note that the image is too Yellow. Note that yellow and blue are opposite each other in the color diagram below. Switch the Levels "Channel" to "Blue".
- 7) Adjust the middle (gray) slider until the image appears neutral.
- 8) Save your new corrected file as a new file/name (File > Save As) to a location on your hard drive (not your camera's memory card).



Auto color correction (quick and easy, but very little control)

- 1) Launch Photoshop Elements, if needed.
- 2) Select "Photo Editor", if needed.
- 3) Open image 3-9-WhiteBalance.jpg (File > Open). You will see image on your screen.
- 4) Make sure you are "Edit Quick" rather than "Edit Full" mode (Elements specific command, in upper right of screen).
- 5) Select "Hue" and then click the "Auto" button on the color pallet.
- 6) Save your new corrected file as a new file/name (File > Save As) to a location on your hard drive (not your camera's memory card).

Computer and screen color management

Computers use color spaces and tags to describe the color field and its limits. sRGB is most common space used in consumer gear. sRGB is always used for email or web viewing. AdobeRGB is an example of a larger color space. Larger color spaces contain more extreme colors. Your camera gear most offer a larger space for it to be useful.

Calibrating a computer screen, at the very least:

- 1) Set the correct monitor profile (select the profile with your monitor's name on it):
Windows 10: Start > Settings > System > Display > Advanced Display Settings > Display Adapter Properties > Color management > Color management
Windows Vista and 7: Start > Control Panels > Color management > Devices > Select Monitor
Mac OSX: System Preferences > Displays > Color
- 2) Set your monitor to 6500K and Gamma 2.2. These setting often found on your monitor's (not your computer's) menu. Some flat screens and laptop screens are pre-set and non-adjustable.
- 3) Run the brightness and contrast calibrations on my homepage:
<http://www.ferguson-photo-design.com/>

Calibrating a computer screen, the better and more expensive way. Use a hardware "spider" that measures your monitor and creates a custom profile. This is the best method, but more than most non-pro photographers choose to do.

- 1) Read typical instructions for using a calibration spider:
http://www.booksmartstudio.com/color_tutorial/monitors.html
- 2) Read reviews for available hardware
http://www.drycreekphoto.com/Learn/monitor_calibration_tools.htm
- 3) Buy and use a calibration "spider".

HOMEWORK (in four parts, 5 prints):

Part #1: Know where your camera settings are (read manual).

Part #2: Shoot a backlit object or person with and without a plus exposure compensation.

Part #3: Shoot one indoor (large dark room) or night scene including a close subject and distant background. Use an on camera flash as the primary light source and your camera's highest sync speed.

Part #4: Shoot a daylight scene (with annoying shadows) two ways, with daylight flash fill and without.

Bring your favorite of each assignment to the next class (5 prints)



Bright sky in the background fools the camera into underexposing our subjects



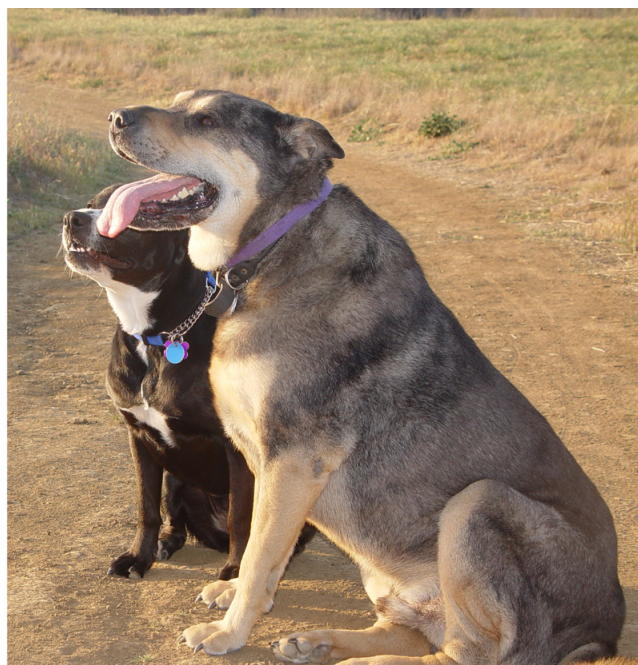
Using 2 stops of exposure compensations lets us see our subjects. However, the sky is now overexposed



Flash as primary light. Notice dark background.



Harsh sunlight. Direct sun on Dogs' right make deep shadows on Dogs' left. Camera in Program Mode chose 1/125 at F/4 trying to hold both white fur highlights and black fur shadows.



Turning on Forced Flash allowed us to "Daylight Fill" our subjects. They are now more evenly exposed, without the deep shadows. Notice that the distant grass is not affected.