Your name: _____

Camera _____

Lens (focal length and lens speed): _____

EXPOSURE TESTS: COLOR BALANCE / THE ZONE SYSTEM / DYNAMIC RANGE / ISO & NOISE

The completed exposures for this project are due at the start of class, Tuesday, February 5. There are examples of each of these tests on the web site. I strongly recommend that you work slowly and methodically and take written notes for each exposure.

ASSIGNMENT OBJECTIVES

To master on-camera color-balance. To refresh and clarify critical aspects of exposure. To refine your understanding of contrast and dynamic range, as well as the relationship between exposure, digital values and corresponding tonal values in a print.

For the duration of this project, please use ONLY manual exposure settings. Set your resolution to the highest possible jpeg setting, use the least amount of compression, and turn off any special effects or adjustments (such as sharpening).

COLOR BALANCE EXERCISE

You will need a clean WHITE sheet of paper for this exercise.
Set your camera to its lowest ISO setting and make all exposures in MANUAL settings.

Locate a scene you wish to photograph that is illuminated ONLY by **natural daylight** and has a range of colors in the scene, including some neutral values (whites or grays).
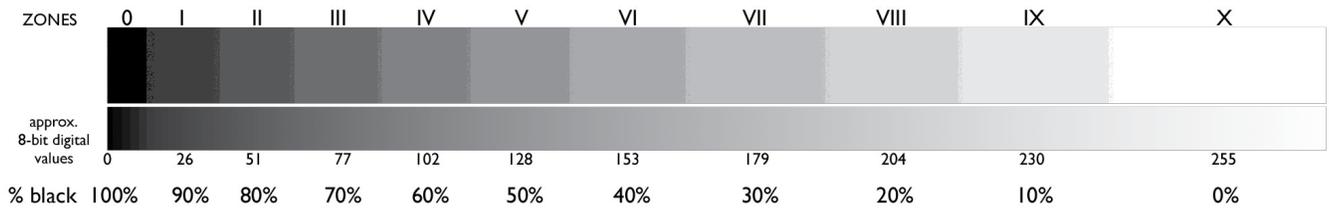Photograph the exact same scene each of three ways:

      1. With color balance set to AUTO
      2. With color balance set to what you believe to be the correct PRESET VALUE
      3. Use your white piece of paper to create a CUSTOM white balance, and use this setting for the third picture.

Repeat these steps for scenes illuminated by **tungsten**, **fluorescent**, and **mixed** (two or more combined sources) lighting conditions. You should have 12 total image files when you complete this portion of the assignment. Please make sure that you properly follow the prescribed sequence (don't mix the order of exposures up. If you mess up, delete files and start over).

When we download your files in Lightroom we will name and number them and make a contact sheet. For example, call your Daylight files something like "01-DaylightAuto, 01-DaylightPreset, 01-DaylightCustom."

Create a contact sheet that's 3 across and 4 down at 300 dpi. Print it out.

> Based on your contact sheet, what conclusions can you draw about the various white balance settings you used and the subsequent results?

ZONES	0	I	II	III	IV	V	VI	VII	VIII	IX	X

approx. 8-bit digital values	0	26	51	77	102	128	153	179	204	230	255
% black	100%	90%	80%	70%	60%	50%	40%	30%	20%	10%	0%

ZONE SYSTEM TEST

• Find an evenly lit surface of with little color and some texture - plain concrete is a perfect choice or the rubber back of a large bathmat.

• Manually color balance your camera using a white piece of paper in the same lighting environment as your surface.

• Set your ISO to your lowest possible setting and leave it there for this portion of the assignment.

• Follow the chart below and record the exposure settings for the following zones.

FRAME #   **EXPOSURE SETTINGS**

1   meter and expose at the recommended settings (this is **ZONE V**)   _____@_____

2   remeter, then stop down five stops to place the area at **ZONE 0**   _____@_____

3   remeter, then stop down four stops to place the area at **ZONE I**   _____@_____

4   remeter, then stop down three stops to place the area at **ZONE II**   _____@_____

5   remeter, then stop down two stops to place the area at **ZONE III**   _____@_____

6   remeter, then stop down one stop to place the area at **ZONE IV**   _____@_____

7   remeter and expose at the recommended setting   **ZONE V**   _____@_____

8   remeter, then open up one stop to place the area at **ZONE VI**   _____@_____

9   remeter, then open up two stops to place the area at **ZONE VII**   _____@_____

10   remeter, then open up three stops to place the area at **ZONE VIII**   _____@_____

11   remeter, then open up four stops to place the area at **ZONE IX**   _____@_____

12   remeter, then open up five stops to place the area at **ZONE X**   _____@_____

You should have 12 total image files when you complete this portion of the assignment. Please make sure that you properly follow the sequence (don't mix the order of exposures up. If you mess up, delete files and start over). Make another 3 across, 4 down contact sheet with your name on it.

In Lightroom, label each file with the appropriate Zone numbers. Print it out as a 3 x 4 contact sheet.

Based on your contact sheet, how many zones between (and including) O - X can you count with texture and tonality?

DYNAMIC RANGE and FLASH FILL

Set your light meter to "spot" mode. Look for an outdoor scene that has very low contrast. Meter your highlights and record (write down) the recommended exposure. Next, meter your shadows and record the recommended exposure. Count (in stops) the difference between these two different recorded settings then this number. If the scene doesn't have a dynamic range (a difference in stops) of approximately 3 stops, keep searching until you find one that does. Once you find an appropriate scene, choose an exposure setting right in between the two extremes and use that setting to make a picture.

Sketch the resulting histogram.

Repeat this procedure with scenes that have six and nine + stops difference.

Frame 1 - Very low contrast (approx. 3 stops) _____@_____ _____@_____ _____ _____@_____
    SHADOW   HIGHLIGHT   DIFFERENCE   FINAL EXPOSURE

Frame 2 - Normal contrast (approx. 6 stops) _____@_____ _____@_____ _____ _____@_____
    SHADOW   HIGHLIGHT   DIFFERENCE   FINAL EXPOSURE

Frame 3 - High contrast (approx. 9+ stops) _____@_____ _____@_____ _____ _____@_____
    SHADOW   HIGHLIGHT   DIFFERENCE   FINAL EXPOSURE

Frame 4 - Turn your flash on in a manual setting and set it to full power. Take a picture of your high contrast scene with your flash using your pre-determined manual settings. Sketch the resulting histogram. Did it change and if so, how?

ISO NOISE TEST

• Set your metering method to overall/average.

• Set your camera to lowest ISO/ASA setting available on your camera.

• Find a dimly lit scene with a medium dynamic range (six stops). Meter the scene, then make an appropriate exposure.

• Change your ISO setting to the highest possible value on your camera, remeter, adjust as necessary and expose.

Open each file from this test in Photoshop. Crop a small portion out of each image (approximately 1/16 of the overall size) to a final size of exactly 3in x 4in @ 300 dpi. Place the two cropped areas on a single photoshop canvas, label the ISO value for each frame with the text tool, add your name to the sheet, and print it out.
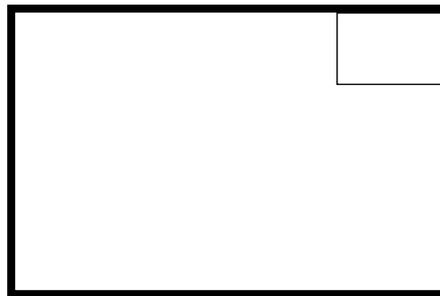
Crop this much of your picture
to 3in x 4in @ 300 dpi.

full frame

Based on the print from this test, what conclusions can you draw about ISO settings and image quality on your camera?