DIRECTIONS: Working in your camera groups, do each of the following exercises while keeping a detailed camera log (keep a record of camera settings, exposure, etc for each shot). When you are finished watch the footage and write down your responses on the results. For “Automatic v. Manual functions” specifically comment on the differences between the same shots with different settings. For the others, analyze how the different settings affect the footage (if at all). This is an exercise in shooting, but also in observing and analyzing the results.

A. Basic Set-up Procedure

1. Put in a battery, power up your camera, and make sure camera is in MANUAL mode (check switch on left side of camera)

2. Set your viewfinder to display in Black and White: Menu > Display Setup > EVF Color > OFF

3. Customize your Zebra Displays to 70 IRE and 105 IRE: Menu > Display Setup > Zebra Detect 1 / 2

4. Turn on Mic ALC: Menu > Recording Setup > MIC ALC > ON

5. Set the lens diopter if you wear glasses – turn the diopter ring on the viewfinder until the viewfinder display looks sharp

6. Format your card (MENU > CARD FUNCTIONS > CARD FORMAT)

B. Practice using Focus Tools

   a) Zoom in on subject to 100%
   b) Open iris up to narrow DOF
   c) Put on ND filter if image is too bright with open iris
   d) Make sure EVF detail is turned on (button is in back under P2 card slot). With the camera still zoomed in, turn EVF on and off so you can see the difference in edge enhancement.
   e) Press focus assist to dial in on subject
   f) Use the manual focus ring to find your focus
g) Zoom out to find framing and shoot

**C. Using Exposure Tools - write down all exposures used on camera log**

a) Compose an “interview” scene – a seated subject in a room
   i) Turn on the Marker tool (hit Zebra button and scroll through until it says Marker On)
   ii) Zoom all the way in and move camera so that inner square shows different parts of the scene. Notice the changing IRE numbers on the left side of the viewfinder display. Compare the darkest shadow in the scene to the brightest highlights to assess the range in the scene. Check the reading on your subject’s face – it should be around 50-70
   iii) Now zoom out to the framing you want for the interview and turn on Zebra 2 (105 IRE). Nothing on your subject’s face should be zebra striped.
   iv) Now switch to Zebra 1 (70 IRE) – you should now see zebra stripes on your subject’s hotspots —the tip of the nose, forehead, etc.
   v) Film a 10 second shot at the exposure you have selected
   vi) Now stop up one stop and film for 10 seconds
   vii) Now stop down one stop and film

b) Use manual exposure to shoot in a situation where your subject is backlit (eg in front of a window). Bracket the exposure so that you have your subject properly exposed (in which case the window will be too bright). Then set the exposure so the world outside is properly exposed (in which case your subject will be very dark). Try many different exposures.

c) Experiment with underexposing and overexposing an image.

**D. Manual Focus / Depth of Field**

One of the biggest challenges in working with video is fighting against the camera’s natural tendency to make everything sharp. Shallow DOF can be a powerful storytelling tool, is very cinematic, but can be very hard to achieve on video. Try to create two shots of the same subject, one deep focus and one with shallow DOF. Select a subject with a strong z-axis composition / using depth in the picture plane (i.e. many different focal planes).

a) Shot 1 – Deep Focus
   i) Keep your camera wide and walk up close to your subject
   ii) Keep your aperture stopped down – the higher your f/stop, the greater your DOF

b) Shot 2 – Shallow DOF
   i) This can be hard to do, but experiment and see if you can get an image with the background thrown out of focus
   ii) Zoom in all the way – zooming cuts down on light and also compresses the focal planes in the shot
iii) Walk as far away from your subject as you need to get the subject to be about the same relative size in the frame as Shot 1.
iv) Open the iris all the way up. If you need to, use the ND filters to reduce the amount of light coming into the lens / allow you to open up even more without overexposing.
v) Try cheating your background – move the subject further away from his / her background to try to force the background out of the in-focus range.

c) Shots 3-5 - Rack Focus
Try a few rack focuses where an object in one image plane is in focus and then focus shifts to a different image plane (example: A person is very close to the camera and a vase is on a table very far away. Shift from the person to the vase and back again). Shoot someone walking toward the camera with the focus sharp in varied planes. (in other words set the focus so that the person is sharply focused when they are far from the camera and out of focus when they are close. Then try the reverse.)

E. Shutter Speeds
Film a subject running past the camera. Use the shutter on and speed sel + / - buttons to experiment with different shutter speeds. NOTICE that the exposure changes dramatically as you change the shutter speed (slower speeds let in more light, faster speeds cut the light), so make sure you compensate accordingly by changing the exposure.

a) Shot 1 – Slow shutter speed
i) In VIDEO CAM mode, Set your shutter speed to 1/15
ii) Close down the iris to reduce the amount of light
iii) Shoot your subject in motion – notice the blurry motion effect

b) Shot 2 – Fast shutter speed
i) In VIDEO CAM mode, Set your shutter speed to 1/1000
ii) Open up the iris to adjust
iii) Shoot your subject in motion – notice the stobing effect (this is kind of a trendy Hollywood effect, for instance used in Saving Private Ryan).

F. Automatic v. Manual Functions
For the following frame the shot and movement as similarly as possible for the Automatic and Manual functions. Shoot each shot in Automatic then the same shot in Manual directly after so you can compare each shot as you play them back.

A. Focus - Shoot each of the following with Automatic and Manual focus:
  Someone walks directly towards the camera.
  Someone runs past the camera from Right to Left.
  Walk with the camera towards a fixed object or person.
Zoom in on a person or object

B. Exposure – Shoot each of the following with Automatic and Manual iris:
   - Someone walks by a window in daytime
   - A curtain or blind opens in front of a window in daytime
   - A curtain or blind closes in front of a window in daytime
   - Walk through a shadow while shooting your feet.

G. White Balancing

i) Set the white balance for daylight that is coming through a window. Now shoot a subject in the middle of the room far from the window under or near a light.
ii) Set the white balance in the middle of the room near a light fixture and away from the window. Not shoot a subject near a window.
iii) Set the white balance for a space where the light is mixed, both daylight and Tungsten light are present. Now shoot a subject directly in front of the window and then shoot the subject directly near the light fixture.
iv) Set the white balance for a color that is not white

H. Gain
If you are shooting in very low light conditions gain allows you to get an image, but it increases the “graininess” of the image. Gain increases the audio or video signal from the chip. Boosting gain is generally not recommended; it is much more advisable to use proper lighting and get an appropriate exposure.

i) Attempt shooting in low light by boosting the gain.
ii) Now shoot in the same situation by increasing the light and shooting without gain.

I. PB Mode

a) Change from Camera to Playback mode by pressing the mode button
b) Navigate through thumbnails and play through your clips
c) Watch your clips and take notes on your observations
d) Select and delete one clip
J. Bring Your Footage into FCP / Back up

a) Power off the camera
b) Eject the SDHC card
c) Put the card in the USB adapter and connect the adapter to an intel Mac
d) You should see the card appear as a desktop icon. DO NOT make any changes to the contents of the card or any of its folders!
e) Make a backup by making a new folder on your hard drive with a descriptive name (e.g. “April 1 Test Shoot” and drag and drop contents of card into new folder.
f) Open FCP.
g) Set your capture drive (FCP > System Settings)
h) Go to File > Log and Transfer to open your capture window.
i) Your media should now be visible in the transfer tool window. Open each clip one by one. Assign a name and reel name to each clip (this is very important – having good editing / organizational habits is crucial). Make sure you turn off audio tracks 3 and 4 if you’re only working with 2 channels of sound.
j) Once your clip is labeled, add it to the queue and FCP will ingest it.
k) When you are finished bringing in all your clips, BACK UP YOUR MEDIA! You may copy your capture scratch folder to a second hard drive, or drag and drop the entire contents of the card directly to a second hard drive.