Spring 2017

AF100 – BASIC Procedures

- Select the lens, attach adapter, attach lens, remove lens cap, check lens
- Power on
- Insert SD card

https://www.youtube.com/watch?v=PHNnPL0Y0jY

AF100 /HMC 150 Camera Setup:

- **Formatting the SD card**
  - -Menu button > scroll to CARD FUNCTIONS
  - -Select CARD FORMAT > select slot
  - -Formatting will erase content
- You can choose to *not* format the card and keep the media files that are already on the card
- Best practice for staying organized: download your previously recorded media files to a hard drive or desktop folder to save them, re-format the card, and start shooting with a clean slate.

AF100 / HMC150 Setup

- Recording settings: PH – highest quality

  HA – ok quality, HE – lower res

  For best quality, use one of the PH settings
- 1080i – interlaced video – based on analog system of scanning every even line and then every odd line of video in each frame – may cause jagged edges around objects in your frame at lower res exports
- **1080p – progressive scan** – this scans the entire image at one time & will give you a better digital image

AF100 / HMC150

- **Iris** adjustments - wheel onside of camera to set aperture/f-stop value
- **Neutral Density (ND)** filter adjustments – dial near camera lens
- **Shutter** speed / frame rate – Use the dial on the back with the DIAL SELECT button
- **Gain** – electronically lightens or darkens your image (adds more or fewer white pixels to image)
- **Exposure** – determined by a combination of settings

Iris / Aperture / F-stop for AF100 & HMC150

- The amount of light entering the lens through the iris, or aperture, is measured in terms of ‘F-STOPS’, which are numerical values based on the square root of 2.
- Typical f-stop values vary per camera and per lens, but the range is from f/1.4 to f/2, f/2.8, f/4, f/5.6, f/8, f/11, f/16 and f/22
- All lenses do not have the same range, but f/2 on one lens is equivalent to f/2 on another lens.
- The higher the f-stop number, the smaller the aperture opening

Aperture and F-Stop

- The smaller the aperture opening, the less light is getting into the lens
- The smaller the aperture opening, the sharper the image
- The smaller the aperture opening, the wider/deeper the depth of field

F-Stop Values

Each f-stop is twice as bright as the f-stop below is and half as bright as the f-stop above it.

- ’Below’ means the numbers are getting higher, e.g. f/8 is below f/5.6
- ‘Above’ means the numbers are getting smaller, e.g. f/4 is above f/2
- Values are visible on the lens if your camera allows you to set values manually

Neutral Density Filter

What is it? What does it do?

“Sunglasses for your camera”

- The ND filter is an internal filter that reduces the amount of light entering the image
- Always use it when shooting outdoors; do not use when shooting indoors
- It allows you to use lower aperture/f-stop settings, to be able to control Depth of Field in bright outdoor situations
- Has no effect on color values or white balance

ND Filter

- Set Neutral Density (ND) filter settings –use the dial on side of camera, just behind the lens:

Setting 1: No ND filter being used – indoors

Setting 2: Cuts light intensity by 2 full f-stops, or to 1 /4 brightness

Setting 3: Cuts light intensity by an additional 2 f-stops

Setting 4: Cuts light by an additional 2 f-stops

So, **ND filter settings** will take you from…

- Position 1, which represents no change in amount of light let in, to…
- Position 4, which represents a difference of 6 f-stop values in the amount of light reaching the lens

AF100 White Balance

- Video primary colors are RED, GREEN and BLUE
- All of the colors in your shot are made by combinations of amounts of RED, GREEN and BLUE
- RED, GREEN and BLUE combined at 100% value = WHITE

WHITE BALANCE continued

- White balancing the camera is the process of setting the value for what is white in your current lighting setup (studio lights, outdoor bright light, outdoor cloudy light, florescent lights, etc.)

- When you set the value for what is WHITE in your shot, and because WHITE is the value of RED, GREEN, and BLUE combined, you are setting the proper value for all of your colors as well

- White balance the camera AFTER you have set up your lighting

Manual White Balance

- Set the White Balance switch on the side of the camera to ‘A’ or ‘B’

  -- either one is OK
- Hold a WHITE OBJECT in front of the lens, but far enough away from the lens that it has light hitting it from your scene
- In the front of the camera, under the lens, there is a button labelled ‘AWB’, which stands for ‘Automatic White Balance’
- Press the AWB button and hold it until the flashing cursor on your screen stops flashing
- That’s it!

Black Balance

- These cameras also have a ‘Black Balance’ function that sets your camera to ’TRUE BLACK’, which is 0% white.

- Black balancing the camera gets rid of noise and stray grey pixels in the black areas of your image

- To Black Balance the camera, hold the AWB button for a few seconds longer while White Balancing, and it will also Black Balance the camera

Shutter Speed

- Controls the duration of how long the light hits the sensors
- Effects amount of motion blur in your image
- Set it once for your entire shoot and leave it there
- For NTSC formats (USA), set it at 1/60 sec
- **Shutter "Off" setting switches it to a default speed for your fps (frames per second) setting**
- Shutter speed must always be higher than frame rate, e.g. don't set shutter speed to 1/30 if your frame rate is 60p.
- Setting a lower shutter speed will give you a blurry slow motion effect with pixel 'trails'

Depth of Field

- The area in front of the lens that is in focus
- Controlled by Aperture settings
- With a Shallow/Narrow Depth of Field, there is only a small area in focus
- With a Deep/Wide Depth of Field, more of the scene is in focus

AF100 **GAIN Setting**

- Another way to control image brightness
- Represents camera's sensitivity to light
- Gain – low, medium, high settings on side of camcorder – SET TO LOW for best image quality, least 'noisy' image. Equivalent to ISO, or 'film speed'

Gain switch has the settings Low (200), Medium (400), and High (1600)

Gain electronically brightens or darkens your image – it does not change the amount of actual light hitting the sensors

Higher gain means more grain and noise in your image

The ‘normal’ range for the AF100 is 400

- **Lower is better – keep it at 200**
- It will take twice as much light at 200 as it takes at 400 but you will have a better image

Exposure

- Making sure your brights and darks, within the same frame, are at good levels
- Most situations require a balance of exposure settings for brights and darks in any scene
- Use combinations of camera settings (iris, gain) and external lighting situation (daylight, bounce light, studio lighting) to get the best exposure for your scene

Exposure

- Under-exposure means you don’t have enough light on your subject
- Image appears grainy
- Black values are crushed, meaning black and darker objects will lose detail and definition
- Difficult to correct in post-production

- Over-exposure means your image is too bright
- White values are blown out and anything bright in your frame will lose detail and definition
- *Impossible* to correct in post-production – information lost

Exposure Tools - Zebra Pattern

- Leave it on
- Button on side of camera, Zebra1 & Zebra2, that you can use to set values
- What are the values measuring? The percentage of brightness in the digital image.
- 100% = pure white
- 0% - pure black
- Shows up on your LCD screen as diagonal lines.
- How to read Zebra pattern: e.g. if your Zebra pattern is set up 90%, you will see diagonal lines in bright areas of your image that represent 90% white
- Set Zebra value, open iris until you just barely begin to see the zebra pattern
- You *never* want to see Zebra stripes if your value is set to 100%

Exposure tools – Waveform Monitor – no guesswork!

- WFM button on side of camera
- Tells you everything about the image on an IRE scale
- IRE is the Institute of Radio Engineers, the IRE scale measures brightness on a range from 0% to above 110%
- Shows the brightness levels throughout the image on a left to right basis
- Use WFM to locate areas where the brights are blown out
- Use WFM to locate areas where the darks are crushed
- Best WVM readout shows a range reflected by the scene with almost no blown out whites and almost no crushed darks – a balance

[up to 29:00 on video :: begin Focusing @28:40]

HMC150 Basic Setup

- Set up tripod and level it
- Remove camera from kit
- Remove lens cap & check the lens
- Attach power source
- Attach tripod plate, mount camera on tripod

HMC150 setup contd.

- Switch to manual mode
- Format: Frame rate – use 24 or 30fps
- Resolution – 1080p
- Gain should be set to lowest setting
- Shutter speed – press + or – button 1/60
- Ring switch on focus for manual control
- Iris button – set to manual

HMC150 contd.

- Zebra shows exposure levels and overexposure – set to somewhere betw 70 & 100%
- Manual iris is controlled by wheel next to iris button – scroll iris wheel until you find correct setting, which is an f-stop value
- Neutral density filter – use outdoors
- Zoom controllers – side and top
- Top zoom has speed control on side of handle
- Built-in microphones

HMC150 contd.

- XLR connectors
- Audio input switch near XLR port – set to mic
- Audio input settings:

  INT for cameras internal mic

  INPUT 1 or 2 for mic input via XLR
- White balance

  hold white card in front of camera
  set to soft focus/out of focus
  press & hold AWB switch on front of camera

HMC150 contd.

- Focus- set to M (Manual)
- zoom in to your subject as far as possible
- Press FOCUS ASSIST button on side of camera to magnify the frame
- Adjust focus using focus wheel
- Press FOCUS ASSIST button again to turn off magnification of frame