



FIELD PRODUCTION WORKSHOP Handout

Objectives:

- Fundamental Camera Theory & Operation
- Type of Camera we use (Though these fundamentals can be applied to most video cameras with slightly different operation)
- Other Components: Tripod, Audio, & Lighting
- Note: Participants can check out equipment following workshop.
- Utilize online resources/books to stay current

I. How a Digital Video Camera Works

A. How it works: allows light to enter and pass through iris (AKA aperture). Light is focused onto a CCD (Charge Coupled Device); transcribes image into ones and zeros that it stores digitally.

B. Image Compression to make room on data storage decreases color quality. Colors are separated by a prism- red, green, and blue (RGB). Each color is exposed to its own CCD and sampled several times/second. This is where the term 3 CCD comes from.

II. Basic Camera Features

- A. Powering the Camera on using dial
- B. Recording data to tape, memory card, or SD Card
- C. Using the viewfinder and/or LCD screen: For objects in constant motion, viewfinder is best for accuracy. The same applies for bright conditions.

- D. Using Batteries and/or AC Adaptor. After a video shoot, it's always good to put batteries on charge right away to be ready for the next shoot.
- E. Record Button- usually red. This is the last step in capturing video, after the ND filter, white balance, and iris have been set. We'll get to that next.

III. Camera Operation

- A. Setting the ND (Neutral Density) Filter: There are typically 2 or 3 ND filter settings. This filter applies to how much light you want the camera to take in. The highest ND filter would allow the least amount of light to come in. For example, you would use such filter when shooting outdoors in a very bright, sunny setting. If you were shooting outdoors and it was pretty cloudy and gray, you would probably use only the first ND filter, or possibly none at all.
- B. Iris/Aperture setting: Most cameras have a thin ring that adjusts the iris. Most cameras also have a "Zebras" option when adjusting the iris. As a general rule, you want to see only a few "Zebras (flashing lines)" peaking only on bright colors or surfaces that the sun is directly hitting (i.e. bright snow, white shirts that the sun is hitting, etc.). The iris affects brightness and depth of field by regulating the amount of light that reaches the CCDs and how the light is focused onto the CCDs. Closing the iris makes the images darken; opening the iris makes the image brighter. To open the iris, twist the lens ring closest to the camera body counter-clockwise. To close the iris, twist it clockwise.
- C. Shutter Speed: Affects brightness and sharpness of motion. The speed determines how long the shutter stays open to expose each frame. Typically, we shoot at 30 frames per second. Slower shutter speeds result in brighter object, but blur motion. You can use slow shutter speeds to record subject with little or no movement, unless a blurred effect is what you're after. A fast shutter speed results in darker images and sharper motion.

D. **White Balance:** This is one of the most IMPORTANT aspect of shooting video to ensure proper color quality and temperature. Essentially, the white balance tells the camera what “White” is, and balances all other colors accordingly. Once you’ve set your ND filter and adjusted your shutter speed and iris, set your white balance. Make sure your camera is on manual white balance, and also that the lever is not on “Preset.” You want it on A or B before white balancing, since these allow you a manual white balance. Now you’re ready to shoot. Remember that if you’re shooting in rapidly changing lighting conditions, you’ll want to re-white balance often and /or watch your iris closely and adjust as needed.

- Five Minute Break*

E. **Camera Focus:** You always want your main subject in focus, because that’s what draws the viewer’s attention. A sharply focused object in the foreground takes attention away from the background. The same applies vice versa. To focus, zoom all of the way in to your main object (If it’s a human being, I always zoom into the eyes and then focus there to get my “Critical Focus”). Twist the outermost lens until you see your object come all the way into focus. Sometimes you’ll want to use the creative effect of a “Rack Focus.” This is when you actively record on an object in focus, then while still recording, you slightly twist the focus ring to bring the background in focus. (E.g., a flower against a waterfall background.)

F. **Camera Gain:** Electronically boosts brightness, but compromises video quality by adding graininess. Use only when you have no other option, such as external lighting. A better technique to increase light is to find a balance between the iris and shutter speed. It’s best to leave the gain on low or it’s default setting unless absolutely necessary.

G. **Using Camera Zoom:** Unless you’re trying to achieve a “Reveal” effect when shooting, zoom in and out of object before hitting the record button. If you do wish to, for instance, zoom out from a mountain peak to reveal a ski mountain that you are on, use a tripod. You don’t

want camera “Shakiness” when using a live zoom- it’s jarring. Otherwise, frame your shot sequences before hitting the record button. Unless you’re shooting while moving with your object (i.e. ski tracking shots), it’s best to use a tripod to achieve maximum quality. If you don’t have a tripod with you, get creative and use a “Natural Tripod,” like a desk or rock, or lock your elbows against your body.

- H. Tripod Setup (Show manually): Extend tripod by starting with the bottom legs. You typically want your camera height to be level with your subject, unless trying to achieve more creative angles to showcase objects.

IV. Let’s Shoot! The Basics of Cinematography

- A. Pre-Production: Prepare by storyboarding and scripting your piece. What story do you want to convey? What components will you need to shoot in order to get your point across? Make a shot list of persons, interviews, places, and objects that you will need to shoot in order to tell your story. If your piece will be narrated, start by having a script, so that you will know what you have to shoot to showcase parts of that script. Perhaps you want interviews with various person(s) to tell your story. Make sure they give you FULL, COMPLETE SENTENCES when asking your interview questions. Remember, the audience won’t hear your question. Actively listen to ensure you are getting the answers you desire, and don’t be afraid to ask your interview subject to repeat a previous answer and help coach them along to what you are trying to achieve.

- B. Camera Shots and Angles:

- 1. The Wide Shot (AKA long shot or establishing shot): Shows entire subject and some of the background. Often used as a starting, or “Establishing” shot to show the viewer where you are and where you might be going with your story. See examples below.



2. The

MS

(Medium Shot): Includes upper half of body from waist up. This is typical for interviews, and when you wish to achieve more “Intimacy” in your shot. See examples below.



3. The CU
Shot):

(Close-up
Includes head

and shoulders of the subject. Used in interviews, though more sparingly than the MS. Creates even more intimacy.



4. The

Extreme Close-up:

This dramatic shot is close and only frames part of the face.

5. The 2-MS that two people or subjects rather than one.



Shot: A includes

6. OTS the-shot: on one subject by looking over the shoulder of the person conducting the interview with that subject.



(Over-shoulder) focuses

C. Shot



Composition:

Placing people, objects, and animals in a certain way within the camera frame. You can place emphasis where you want it, make your shot visually appealing overall, and create depth. The beauty is that you have ultimate freedom to frame our shot how you want! But certain mistakes can take away from your shot. Here are some general guidelines:

1. Head Room: The space between the top of the subject's head and the top of the frame. A well-composed frame places the subject's eyes 1/3 down the frame, leaving just a bit of room between the head and the frame.



2. **Nose room:** The space between a subject's nose and an edge of the frame. A subject should look toward the edge of the frame rather than directly at the camera. Place the subject off-center to signal to your audience that the subject is speaking to someone, rather than looking at nothing and looking awkward.

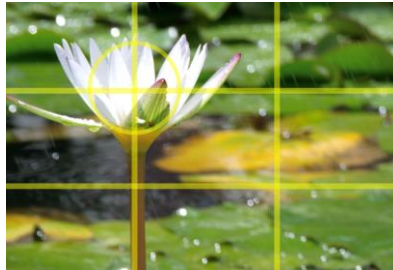


3. **Lead Room:** Similar to nose room, but applies when a subject is moving toward an edge of the frame. Again, place subject off-center to create lead room.



4. **Rule of Thirds:** Creates a balance and heighten the viewers' interest instead of a boring, centered shot. Imagine horizontal and vertical lines dividing your frame into thirds.

Place points of interest such as face, hand, horizon, or other objects at the intersection of these lines to please the eye.



5. Depth: A TV picture is 2-dimensional. To create the illusion of 3 dimensions. Place objects in the foreground or background at varying distances from the camera. For instance, an over-the-shoulder shot gives more depth than two people facing each other the same distance from the camera.
6. Other tools: Pans and tilts (You'll need to be on a tripod for these). Panning refers to moving the camera left to right and vice versa. Tilting refers to moving the camera up and down. When these shots are used smoothly, they can add a creative touch to your video.

- **5 Minute Break***

- D. Recording Audio: First, we'll look at a video that explains various microphones.
 1. Audio is just as vital as video! Distorted, loud, or soft audio can ruin your overall production. Use headphones to monitor your audio. Trust your ears, and also use the levels on your LCD monitor to ensure quality. -12 db or slightly less is the range you want to be in. Going over will distort your audio, which is hard if not impossible to fix in post. (Demonstrate audio controls on camera)

2. Built-in Camera Mic: Great for “Nat (Natural)” sound, but not ideal for interviews with people.
 3. Handheld mic: best for quick MOS (Man on the street) interviews. Records high-quality internal audio and allows to quickly pass the mic around.
 4. Wireless lav (Lavalier) mic: Best mic for candid interviews. Records high-quality internal audio and allows for a range of framing choices.
 5. “Boom” or “Shotgun” mic: Great for narrative stories/documentaries when you want high-quality directional sound with NO mic in your shot. Requires an assistant to move and hold the mic while shooting.
 6. External source: Sometimes if you’re recording, say, a play at the Vilar Center, you can plug directly into the audio board and get a “Live feed.” You would work with the director in the sound booth to achieve this.
- E. Lighting for Video: Important to achieve an appealing, enhanced image, whether you use natural light, indoor lighting, a light kit, or a combination thereof.
1. Natural light: often when you are shooting outdoors and the lighting conditions are consistent (I.e. really sunny or cloudy), you can use this light and adjust your camera settings accordingly. You can also use a reflector to reflect light from the sun onto your subject.
 2. Indoor lighting: If you’re lucky, lighting conditions while shooting inside are favorable and consistent. However, this is often not the case, and the most likely time you will need external lighting sources, like a light kit. The basic setup for this is called three-point lighting.
 - a. Key Light: Primary light source which illuminates your subject, usually directed at subject’s face.

- b. **Fill light:** A diffused light which is dimmer than the key light. It is placed on the opposite side of your subject and fills the shadows that your key light didn't hit.
 - c. **Back light:** Small light above and behind your subject that shines on the back of their head and shoulders. This can also be called a "Hair light."
- *Note: PATV 5 has a light kit available.

F. Checkout Procedures and Questions

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