Audio Production

When recording, turn the “On Air” light switch on to alert those outside the Studio.

1. Computer Workstation
   a. Log in with your Emory NetID and password
   b. Launch the sound recording application of your choosing. Audacity, Adobe Audition, and Logic Pro X applications are installed
   c. Use The Yeti Blue microphone for sound recording
   d. Use the Sony headphones connected to the microphone to monitor the microphone recording in real time and for playback.

2. The Yeti Blue Microphone
   a. The front of the microphone is designated with the “Blue” logo.
   b. Front controls:
      i. Mute button – press to mute the microphone. When the button light is flushing, the microphone is muted and no signal is sent to the computer. To unmute, press the button again. The solid light indicates that the microphone is active.
      ii. Headphone volume knob – adjust as desired.
   c. Back controls:
      i. Gain knob – adjust to the desired input sound gain
      ii. Pattern knob – select between the Stereo, Omnidirectional, Cardioid, and Bidirectional patterns. Use the Cardioid for one sound source (podcasting, voice-over) and Bidirectional for two (interviewing).
   d. Consult the posted signage for the correct positioning of the microphone to the speaker(s) and for description of the recording patterns.

3. If there is no sound input through the microphone or no output through the headphones:
   a. Check the wired connections.
   b. Ensure that The Yeti Stereo Microphone is selected as both the Input and the Output sources in the System Preferences (Click on the Apple icon / System Preferences / Sound /Input or /Output).
1. Studio production lights power, brightness, and tungsten/daylight modes are controlled from the iPad:
   - Click on the Home button to see screen for controlling the lights.
   - On the screen, slide the MASTER switch (top right) to the right to turn the lights on.
   - Student Production...slider affects all the lights simultaneously. Normally it should be positioned at 100%, all the way to the right, and the lights adjusted individually.
   - The lights are named from the perspective of the camera operator: Front Left, Front Right (the closest lights to the camera), Middle Left, Middle Right (the middle lights), Back Left, Back Right (the farthest lights from the camera; these lights have barn-doors installed). Each light is labeled accordingly.
   - You can control the brightness of a particular light by moving its respective slider. For convenience, tap on the desired light, which will take you to that light’s page, where you can control its brightness and the tungsten / daylight setting.
   - To set up the lights for the Interview and Green Screen production types, please consult the Preset section below. For more Green Screen lighting tips, consult the Green Screen Production section below.
   - Remember to turn the lights OFF when you leave by sliding the MASTER switch on the screen to the left.

2. To redirect the lights, use the step stool. Be extremely cautious when using it as a fall may result in serious injury. Be sure all 4 legs of the step stool are on even footing, and do not overreach or otherwise compromise your balance. If you need assistance, visit the STS desk.

3. In case of iPad malfunction, the lights can be controlled manually using the knobs on the back of each light with the assistance of the step stool. The top knob controls brightness, the bottom the tungsten / daylight setting.
Interview Lights Preset:

Ungrouped Devices

Grouped Devices

- Student Production... 100%
- Front Right 65%
- Middle Right 50%
- Back Right 50%
- Middle Left 50%
- Back Left 50%
- Front Left 65%
Green Screen Lights Preset:

Edit Devices

MASTER

Ungrouped Devices

Grouped Devices

Student Production... 100%

Back Left 52%

Middle Left 79%

Front Right 67%

Middle Right 79%

Back Right 50%

Front Left 67%
**Green Screen Production Tips**

- The talent cannot wear any green.
- Pull the green curtain around to create the green screen background. Make sure it fills your camera view.
- Make the green screen as flat as possible to minimize wrinkles. You can use the Velcro at the bottom of the green curtain to stretch the screen flat.
- Direct the two middle lights on the green screen to keep the light even and consistent across the screen.
- Consult the Green Screen Light Preset above to adjust the light settings. Your objective is to both have the green screen lit evenly and to have your talent lit from the front (front lights) and from the back (back lights) to separate your talent from the screen.
- Adjust the camera zoom, pan, and tilt as needed. Remember that the green background needs to fill the view with nothing else (walls, floor) visible.
- Get the subject farther away from the screen to eliminate the shadow cast by the talent on the screen. Readjust your camera zoom, pan, and tilt as needed.
1. **Inserting the Memory Card.** Open the cover on the back of the camera and insert an SD memory card into the slot A or slot B until it clicks into place (one memory card is sufficient). The recording time allowed by the memory card will be displayed in the top right of the LCD display.

2. **Note:** XAVC (QFHD and HD) format (see 5. below) requires a SDXC card. AVCHD can also use SD and SDHC card.

3. Turn the camera on by setting the ON/STANDY switch on I:

4. **Formatting the Memory Card.** If you are using the memory card for the first time in this camera, it needs to be formatted. Remember that formatting will delete all data from the card. To format the card:
   a. Press the MENU button.
   b. Select \[\] (SYSTEM) \[\] \[MEDIA FORMAT\] with the SEL/SET dial (turn the dial to navigate, press to select).
   c. Select the memory card to format.
   d. Select OK \[\] \[OK\].
5. **Selecting the Recording Settings (4K/HD).** The currently selected recording format is displayed in the upper left section of the camera’s LCD screen. For example:

- **XAVC 2160/24p 60** stands for **4K** recording (image size 3840x2160) at 24 fps, progressive, at 60 Mbps bitrate. This format requires an **SDXC** memory card.
- **XAVC 1080/24p 50** stands for **HD** recording (image size 1920x1080) at 24 fps, progressive, 50 Mbps bitrate. This format requires an **SDXC** memory card.
- **AVCHD 1080/24p PS** stands for **HD** recording (image size 1920x1080) at 24 fps, progressive, max 28 Mbps bitrate. This format can use an **SD, SDHC, or SDXC** memory card.

To change recording settings:

a. Press the **MENU** button.

b. For **4K**, select **XAVC QFHD**; for **HD**, select **XAVC HD** or **AVCHD** mode by selecting (REC/OUT SET)–>[REC SET]–>[FILE FORMAT]–>a desired file format with the SEL/SET dial.

c. Select **frame rate, image size, bitrate, and scanning system** by selecting (REC/OUT SET)–>[REC SET]–>[REC FORMAT]–>a desired recording format with the SEL/SET dial.

**Recommended Recording Settings for 4K**

- File format: **XAVC QFHD**
- Image size: **2160**
- Frame rate: **24**
- Scanning system: **p** (progressive)
- Bitrate: **100** Mbps if the memory card size allows for the desired length of footage, otherwise **60** Mbps.

**Recommended Recording Settings for HD:**

- File format: **XAVC HD** (recommended) or **AVCHD** (if you do not have an SDXC card or if the card volume is an issue)
- Image size: **1080**
- Frame rate: **24**
- Scanning system: **p**
- Bitrate: **50** Mbps (for XAVC HD) or **PS** (for AVCHD, max 28 Mbps)
6. **Resetting the Time Code** before you begin your recording session is useful for synchronization of your footage in postproduction. To reset the time code:

a. Press the MENU button.
b. Select 00:00 (TC/UB SET) → [TC PRESET] with the SEL/SET dial, then press the dial.
c. Select [RESET], press the dial.

7. **Connecting External Microphones**

a. External microphones (boom or lavalier) connect to the camera via an XLR cable.
b. When using a single microphone, the other end of the XLR cable connects to INPUT 1 jack (G). If connecting a second microphone, connect the second XLR cable to INPUT 2 jack (B).
c. The INPUT 1 switch (H) needs to be set to **MIC+48V**. If connecting a second microphone, set the INPUT 2 switch (A) to **MIC+48V**. Otherwise, leave the INPUT 2 switch on **LINE**.
d. Press the MENU button.
e. Select 🎤 (AUDIO SET) → [CH1 INPUT SELECT] → [INPUT1] with the SEL/SET dial.
f. If using only one microphone, set [CH2 INPUT SELECT] → [INPUT1]. That is, both channels 1 and 2 should be set to the same input 1.
g. If using two microphones, set channel 2 to input 2: select [CH2 INPUT SELECT] → [INPUT2].

If you need to switch from the preset boom microphone to a lavalier microphone, simply disconnect the XLR cable from the boom microphone and connect it to the lavalier microphone.
1. Remove the cap from the lens.

2. Turn the **Ninja Flame monitor on** by pressing its power button (1). If it does not turn on, check the power cord connectivity.

3. Adjust **pan** (horizontal) and **tilt** (vertical) angles of the camera as needed (unlock the appropriately labeled locking knob, adjust, relock).

4. See the previous section for turning the camera **ON** and **Pre-Recording Prep Work**.

5. **Zooming.** Use the zoom lever on the grip to zoom in or out. Press and hold **W** for Wide angle view (zoom out) and **T** for Telephoto view (zoom in). You can also use the Zoom Ring on the lens, which is the farthest ring from the front of the lens.
6. **Focusing the camera.**

   a. Make sure the focus switch on the left panel of the camera is switched to **MAN**.
   b. With the talent in place, zoom in on the talent’s eyes. Tilt the camera as needed.
   c. Adjust the focus with the Focus Ring on the lens (the ring closest to the front of the lens) until the eyes are in focus.
   d. Zoom out to the desired frame and readjust the camera tilt.

The **Ninja monitor** has a **Focus Assist** function that is useful for ensuring your recording is always in focus. To use this function,

   a. Press the Monitor Assist icon on the bottom right of the monitor.
   b. In the right panel that opens, press the Focus Assist icon. This enables focus peaking, and the parts of the image in focus are highlighted in red.
   c. Press 2:1 to magnify the screen. The indicator box shows the location of the screen you are viewing. You can move the zoomed location by dragging across the screen.
   d. Zoom in and focus on your talent’s eyes with the Focus Ring (see above). When the eyes are in focus, they will be highlighted in red.
   e. Press 2:1 again to deselect the feature (pressing any icon selects/deselects its function).
   f. Press anywhere on the screen outside of the Focus Assist panel to close it.
   g. Zoom out to the desired frame.
7. **Adjusting the Brightness.** You can control the amount of light in your recording by using iris, ISO sensitivity, shutter speed, and ND filter. The pre-set values to use with the Interview and Green Screen Lights presets and the frame speed of **24 fps** (see above) are:
   a. **IRIS – 8**
   b. **ISO – M (1600)**
   c. **Shutter speed – 48**
   d. **ND filter – Clear**

   These values can be adjusted as described below.

8. **Adjusting the Iris.**
   a. Make sure the FULL AUTO (A) is off.
   b. Set the ND/IRIS switch (B) to the IRIS position.
   c. Press the IRIS button (E). “A” next to the iris value in the bottom left section of the LCD display disappears.
   d. Turn the ND/IRIS dial (C) to adjust the value.
       The **volume of light increases** as you open the iris by **decreasing the value** and vice versa.
   e. Once done, set the ND/IRIS switch (B) back to ND position to avoid accidental change of the iris value.

9. **Adjusting the ISO.**
   a. Make sure the FULL AUTO (A) is off.
   b. Press the ISO/GAIN button (G). “A” next to the ISO (or gain) value in the bottom left section of the LCD display disappears.
   c. Set the ISO/GAIN L/M/H switch to the desired position, which by default corresponds to the ISO values of 1000/1600/3200 accordingly.

10. **Adjusting the Shutter Speed.** The shutter speed depends on and is normally double of your chosen fps (frames per second) value. Thus, 24fps corresponds to the shutter speed of 48 and 30fps to 60. To adjust shutter speed:
    a. Make sure the FULL AUTO (A) is off.
    b. Press the SHUTTER SPEED button (H) to highlight the shutter speed value on the LCD display. “A” next to the shutter speed value disappears.
    c. Turn the SEL/SET dial (F) to adjust the shutter speed and press the dial to set it.
11. **ND Setting.** For the Studio, the ND (neutral density) filter should be set to CLEAR. Make sure that the PRESET switch on the front left of the camera is set to PRESET, and the ND FILTER dial (A) is set to CLEAR.

12. **Audio Levels.** During recording, the audio level peaks should be kept for the most part within the -20dB — -12dB range, which corresponds to the yellow zone on the sound levels displayed in the bottom left of the Ninja Flame monitor (it is okay if the peaks are in the green or the red zone occasionally, but not continuously). In order to adjust the audio levels:
   a. Open the door covering the AUDIO LEVEL control panel.
   b. Set the AUTO/MAN audio level switches (A) and (B) to MAN.
   c. Wear headphones to monitor the sound and to ensure that there are no extra sounds or noises present.
   d. Having you talent speaking at the scene, turn audio level dials (C) and (D) at the half-notch increments as needed to achieve the -20dB — -12dB range.

See the Video Production | Prep Work section on connecting external microphones to the camera.

13. **Recording.** Press the REC START/STOP button (A) on the grip to start or stop recording. Record buttons can be also found on the top of the handle and on the top left panel of the camera. Red recording lights light up on the front and the back of the camera during recording.
Video Production | Playback

1. To access the **Playback** function:
   a. Press the THUMBNAIL button (next to the MENU button). The thumbnail screen appears showing your recorded clips.
   b. Navigate among the clips and select them for playback using the SEL/SET dial. You will need to use the headphones to hear the sound during the playback.

2. To **erase** a clip:
   a. Press the MENU button when the THUMBNAIL screen is displayed.
   b. Select (EDIT)–>[DELETE] with the SEL/SET dial.
   c. Select the clip to delete.

3. To **exit** playback, press THUMBNAIL button again.
1. **Inserting the Memory Card.**

   1. **Open the cover.**
      - Slide the cover as shown by the arrows to open it.

   2. **Insert the card.**
      - As shown by the illustration, face the card’s label side toward you and insert it until it clicks in place.

   3. **Close the cover.**
      - Close the cover and slide it in the direction shown by the arrows until it snaps shut.
      - When you set the power switch to **<ON>**, the number of possible shots (p.35) will be displayed on the LCD monitor.

2. **Turning the Power On.**

   **<ON>:** the camera turns on. **<OFF>:** the camera turns off. Either one automatically executes sensor cleaning.

3. **Formatting the Memory Card.** If you are using the memory card for the first time in this camera, it needs to be formatted. Remember that formatting will delete all data from the card. To format the card:
   a. Press Menu.
   b. Using the control dial, navigate to the section containing the Format card option and press <SET> in the center of the dial.
   c. Select [OK], then press <SET>. 
4. **Setting the Image-Recording Quality.**
   
a. Press Menu.
   
b. Using the dial, navigate to the section containing the Image Quality option and press <SET>.
   
c. To select a RAW setting, turn the dial. To select a JPEG setting, press the key.
   
d. On the upper right, the size of a shot, the resolution, and the number of possible shots are displayed.
   
e. Press <SET> to set your selected settings.

5. **Attaching and Detaching a Lens.** If you need to swap the lens:
   
a. Turn the camera Off.
   
b. While pressing the lens release button (1), turn the lens counterclockwise until it stops (2).
   
c. Detach the lens and set it aside (3).
   
d. Remove the rear lens cap from the lens that you are about to attach and attach the cap to the lens you just detached.
   
e. Align the red dots on the lens and camera and turn the lens clockwise until it clicks in place.

6. **Setting the Lens Focus Switch.** Set the switch to AF for Autofocus and to MF for manual focus.
1. **Fully Automatic Shooting.**
   a. Set the Mode Dial to <A> by turning it while pressing the button at the center.
   b. Aim the center AF point at the subject.
   c. Focus the subject by pressing the shutter button halfway. The lens will shift to focus, the beeper will sound and focus confirmation light <●> in the viewfinder will light up.
   d. While holding the shutter button halfway, recompose your shot as desired. Your subject will remain in focus as long as the shutter button is held.
   e. Take the picture by pressing the shutter button completely. The captured image will be briefly displayed on the LCD monitor.

2. **Shooting Portraits in SCN: Special Scene Mode.**
   a. Set the Mode Dial to <SCN>.
   b. Press the <Q> button.
   c. Select the Portrait shooting mode <●>. This mode blurs the background to make the subject stand out. It also makes skin tones and the hair look softer.
   d. Shooting tips:
      i. The further the distance between the subject and the background, the blurrier the background will look. The subject will also stand out better in front of a plain, dark background.
      ii. Use the zoom lens, zoom in on the subject to the maximum. Move away or if necessary.
      iii. Focus on the face. For close-ups of the face, focus on the eyes.
1. **P: Program AE.** The camera automatically sets the shutter speed and aperture to suit the subject’s brightness (Program Auto Exposure).
   a. Set the Mode Dial to <P>.
   b. Focus on the subject by pressing the shutter button halfway.
   c. Check the display for shutter speed and aperture. They should not blink. If the “30” shutter speed and the lower f/number blinks, increase lighting or ISO. If the “4000” shutter speed and the higher f/number blinks, decrease lighting or ISO.
   d. Take the picture – compose the shot and press the shutter button completely.

2. **Tv: Shutter-Priority AE.** You set the shutter speed and the camera automatically sets the aperture based on the selected shutter speed and the brightness of the subject.
   a. Set the Mode Dial to <Tv> (stands for Time value).
   b. Set the desired shutter speed: while looking at the LCD panel, turn the dial above the panel. A faster shutter speed freezes the action; a lower blurs it.
   c. Focus the subject by pressing the shutter button halfway. The aperture is set automatically.
   d. Check the viewfinder display. The aperture should not be blinking. If the lower f/number blinks, set a lower shutter speed, increase lighting or increase ISO. If the higher f/number blinks, set a faster shutter speed, decrease lighting or decrease ISO.
   e. Take the picture – compose the shot and press the shutter button completely.

3. **Av: Aperture-Priority AE.** You set the aperture and the camera automatically sets the shutter speed based on the selected aperture and the brightness of the subject.
   a. Set the Mode Dial to <Av> (Aperture value).
b. Set the desired aperture: while looking at the LCD panel, turn the dial above the panel.

c. Focus the subject by pressing the shutter button halfway. The shutter speed is set automatically.

d. Check the viewfinder display. The aperture should not be blinking. If the “30” shutter speed number blinks, set a larger aperture (lower f/number), increase lighting or increase ISO. If the “4000” number blinks, set a smaller aperture (higher f/number), decrease lighting or decrease ISO.

e. Take the picture – compose the shot and press the shutter button completely.

f. Shooting tips for portrait shooting:
   
   i. **The further the distance between the subject and the background**, the shallower the depth of field and the blurrier the background will look.
      The subject will also stand out better in front of a plain, dark background.
   
   ii. **The larger the aperture (the lower the f/number)**, the shallower the depth of field.

   iii. Use the zoom lens and **zoom in on the subject to the maximum**. Move away or if necessary.

   iv. Focus on the face. For close-ups of the face, **focus on the eyes**.

4. **M: Manual Exposure.** You set both the shutter speed and aperture.

5. **Setting the ISO:** press the <ISO> button on the top of the camera, turn the dial to the desired ISO number displayed on the LCD panel. “A” indicates ISO Auto.

6. **Setting the AF Operation:**

   a. Make sure the lens focus switch is set to AF (auto focus).
   
   b. Turn the Mode Dial to a Creative Zone Mode (P, Tv, Av, M, or B).
   
   c. Press the <AF> button on the top of the camera.
   
   d. While looking at the LCD panel, turn the dial to set the AF to:
i. ONE SHOT for still subjects (most relevant in the Studio setting)
ii. AI SERVO for moving subjects
iii. AI FOCUS for auto switching between One Shot and AI Servo AF.

7. **Setting the Drive Mode.**
   
   a. Press the <DRIVE> button on the top of the camera.
   b. While looking at the LCD panel, turn the dial to set the drive mode.
      
      i. single shooting
      ii. continuous shooting (4.5 shots/sec)
      iii. Silent single shooting
      iv. Silent continuous shooting
      v. 10-sec self timer
      vi. 2 sec self timer

8. **Shooting with the LCD Monitor (Live View Shooting).**
   
   a. Set the Live View shooting/Movie shooting switch to <
   
   b. Press the <Start/Stop> button.
   c. Focus by pressing the shutter button halfway.
   d. Recompose and take the picture by pressing the shutter button completely.

9. **Focusing Manually** for precise focus – especially recommended for shooting movies.
   
   a. Set the lens focus mode switch to <MF>.
   b. Zoom in on the subject’s eyes and focus by turning the lens focusing ring.
   c. Zoom out and recompose as needed.
   d. Take the picture by pressing the shutter button completely.
10. Shooting Movies
   a. Set the Live View shooting/Movie shooting switch to <····>. You will hear a sound from the reflex mirror going up, then the image will appear on the LCD monitor.
   b. Set the Recording Size, Frame Rate, Compression Method:
      i. Press the Menu button.
      ii. With the dial, navigate to the menu section displaying Movie rec. size.
      iii. Select the image size, frame rate and the compression method (1920 24 ALL-I).
          1) 1920 (1920x1080) – Full HD – is recommended.
          2) 24 fps frame rate is recommended.
          3) ALL-I compression (one frame at a time) is recommended.
   c. Focus the subject. Manual focus is recommended.
   d. Press the <Start/Stop> button to start shooting a movie. Press the same button to stop.
   e. While shooting a movie, you can take a photo by pressing the shutter button completely.
   f. The camera automatically divides your footage into 4Gb files.
   g. The maximum recording time is 29 min 59 sec. To continue shooting, press the <Start/Stop> button again.

11. Playback
   a. Press the<····> button.
   b. Turn the dial under the button to browse through the images and movie clips.
   c. To play a movie clip, press <SET> in the center of the dial.