TECHNOLOGY GUIDE

The NYU Arthur L. Carter Journalism Institute provides an array of tools and equipment designed to help you proceed with assignments. There are instances when the check-out room can’t satisfy the demand for equipment—for example, on those occasions when news happens unexpectedly, as it often does.

These days, the working journalist owns a “personal kit” of basic equipment. The Institute has compiled a list of essential items recommended to students interested in purchasing their own equipment. Actual models and prices change frequently, and the Institute does not endorse specific brands or vendors. Nevertheless, based on experience and research, our technology team does offer basic guidelines to students interested in buying their own gear. Please note that we are not responsible for the maintenance and repair of personal equipment.

Regardless of brand, model and vendor, all the field equipment suggested by us meets the following minimum technical requirements:

- All the newly purchased equipment must use solid-state media (CF, SD, P2 cards). This requirement applies to audio recorders, still cameras and video cameras.

- The equipment must allow the user to perform the basic manual adjustments (recording volume, aperture, white balance, shutter speed).

- The equipment must have the appropriate input and output ports/jacks (3.5 mm, XLR, USB, firewire, audio, and video).

- When possible, it is advisable to purchase equipment that runs on standard commercial batteries (AA, AAA) rather than proprietary batteries.

Decisions about what equipment to buy vary according to media (broadcast SD/HD, Web, large screen movie theatre) and should be made in consultation with appropriate faculty.

**AUDIO**
(Solid-state media, in/out ports, standard batteries)

The sound needed for a radio program, a podcast, a slideshow, or any other type of multimedia production must be recorded at the highest quality possible. While most audio recorders have a built-in microphone, in most instances a good quality sound recording requires the use of an external microphone. Even the most affordable audio recorder must have an external microphone input and a headphone jack. Our equipment checkout room currently lends the Marantz PMD-660 and Edirol R-09 digital audio recorders.

Students interested in purchasing their own digital audio recorders have a few choices. We recommend the **Zoom H4N**
Only purchase audio recorders that offer WAV and MP3 file format recording. For optimal sound recording, all the above choices require the purchase of an external microphone, a microphone cable and headphones.

For current prices, you should check with B&H Photo, or the vendor of your choice. Please note that B&H Photo, located at 9th Avenue and 34th Street, offers educational discounts to matriculated students.

PHOTO CAMERAS
(Point-and-shoot or DSLR)

DSLR stands for Digital Single Lens Reflex. The image in the viewfinder is identical to the image that is recorded. The most important advantages of a DSLR camera are its interchangeable lens and the size of its sensor. The larger the sensor, the better quality image. The quality of the lens is even more important than the number of megapixels.

The decision to buy point-and-shoot camera vs. a DSLR camera depends on where the final work will appear and should be made in consultation with an instructor.

While available models and characteristics change constantly, some minimum technical requirements remain for both point-and-shoot and DSLR cameras:

- Manual focus adjustment, manual aperture adjustment, manual ISO speed adjustment, manual white balance adjustment
- A minimum of 5 megapixels resolution
- A USB and/or Firewire port for computer connectivity
- Solid-state media (CF, SD, cards)
- Standard file format (.jpg, .RAW)
- Incorporated flash, or a flash port
- Standard AA or AAA batteries for the point and shoot cameras

Students interested in purchasing a good quality DSLR camera should consider a Panasonic GH4, Canon 5D Mark III, a Nikon D300/D700, or any other brand with similar characteristics/specs. There are lower-end DSLR cameras that can perform well in the right hands. One cheaper option is the Canon EOS XS camera. Please, check with your instructor before purchasing your camera.

In addition to the DSLR camera body, the student also needs: at least two zoom lenses, covering the focal length range between 16mm to 200mm; appropriate UV filters; two or three 4GB media cards (more megapixels, more storage space needed); at least one additional camera battery.

Faster lenses (f2.8) are better than slower lenses (f4-5.6) and the IS (Image Stabilizer) feature can be handy for a fast-moving photojournalist.
As long as the minimum technical requirements listed above are met, students can choose any brand and model of a point-and-shoot camera.

One very good point-and-shoot camera is the **Canon PowerShot A1000 IS** (10.0 megapixels).

It is worth remembering that in extreme circumstances, at the right time, in the right spot, and in the right hands, a phone camera can capture a perfectly suitable image.

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**VIDEO CAMERAS**

While most of the video cameras available today can capture video, good quality audio and low quality stills, the difference in quality is noticeable even on the Web.

Our minimum technical requirements for any video camera are:

- External microphone input
- Headphone audio jack
- Manual focus adjustment, manual aperture adjustment, manual white balance adjustment, (manual shutter speed is a big plus), manual audio input adjustment
- Solid-state media (SD/SDHC card preferred)
- USB port for computer connectivity
- Standard file format recording (AVI, MOV, H.264, MPEG-4)

There are many reasons most major manufacturers include only some of these technical requirements in their lower-end models. Oddly enough, choosing the “right” low-end video camera suitable for Web video is more difficult than expected and requires compromises. We are constantly evaluating new models and adjust our suggestions accordingly. Based on the current available models, we suggest two low-end video cameras, each with its pros and cons:

**Canon Vixia** meets most technical requirements (external microphone input, headphone audio jack, auto and manual controls, records on solid state media card, has an USB port),

**The video camera** must be combined with the following or their equivalents:

- one additional battery (actual model depending on camera choice)
- two 8GB SD cards
- one video tripod (Pearstone VT-2000 suggested)
- one Electro-Voice 635A omni directional microphone
- one XLR female to 3.5mm mono male audio cable
- one Bescor TCM-88 electret condenser lavalier microphone (low end)
- one pair stereo headphones
For students interested in purchasing a more advanced multimedia HD (High Definition) video camera that also qualifies as a very low-end still camera and low-end audio recorder, we suggest the **Canon VIXIA HF-20 AVCHD** (3.5mm stereo external microphone input, headphone jack, auto and manual controls, records on solid-state media in MPEG4-AVC and H.264 formats, has an USB 2.0 port): it offers low-res JPEG stills and Dolby Digital (AC-3 2 channel stereo sound). This camera requires at a minimum:

- one BP-809 additional battery
- two 8GB SDHC cards
- one video tripod (Pearstone VT-2000 suggested)
- one Electro-Voice 635A omni directional microphone
- one XLR female to 3.5mm mono male audio cable
- one Bescor TCM-88 electret condenser lavalier microphone (low end)
- one pair stereo headphones

Students producing broadcast TV and/or documentaries have a wide variety of choices. Regardless of the brand and model, the minimum technical requirements for a camera at this level are:

- three separate 16:9 native aspect CCDs
- two separate 1,2 XLR microphone/line balanced inputs
- HD and SD capability, 24p recording mode (for documentaries)
- Solid-state media recording (SD/SDHC, Express Card/34, P2)
- USB 2.0 and/or Firewire port for computer connectivity

Depending on the budget, news and documentary students could consider the following video cameras:

- **Sony PMW-EX1 XDCAM EX SXS Pro HD** (high-end pro ENG solid state media video camera)
- **JVC GY-HM100** (3 CCD ProHD video camera that records to solid-state media SDHC in the native QuickTime format used by Final Cut Pro, which means no other video conversion is necessary when using FCP)
- **Panasonic AG-HMC150 AVCCAM** (high-end prosumer solid-state media video camera)
- **Canon XH-A1 3 CCD HDV camcorder** (“prosumer” camera that records on both miniDV tape and SD/SDHC and MMC solid state media)

For all the above cameras, students should buy additional batteries, media cards, a tripod, a shotgun microphone, a lavalier microphone, a wireless microphone, a reliable pair of headphones, audio cables, a UV filter, a wide angle lens adapter and a carrying bag.

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**LAPTOPS**
PC laptops with a minimum 2GB of RAM (Windows XP or Vista) and MacBook/MacBook Pro laptops (2GB of RAM, OS X v10.4 or higher) should handle most multimedia and broadcast projects.

EXTERNAL DRIVE

All students should buy their own external drives. External drives must be formatted either to Mac OS or the PC NTFS. External drives can be re-formatted many times in either format, but the process will erase all the data on that particular drive.

The minimum technical requirements for external drives are:

- USB 2.0 and Firewire 400/800 ports (for video editing applications the firewire ports are strongly recommended)
- 500 GB (for most projects, including broadcast) to 1 TB (for documentaries)
- 7,200 RPM (Rotations per Minute) spinning rate

Based on our extensive testing with student projects, we recommend the G-Tech 500 GB Q Quad Interface hard drive and the G-Tech G-drive Q I TB (quad interface) hard drive.

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SOFTWARE

While all laptops come bundled with basic audio and video editing programs, students interested in more advanced production should consider adding additional software:

Photoshop Elements is a bare minimum for students working with still images.

Final Cut Express is the very first step above iMovie for Mac owners who want to perform basic video editing, audio editing and/or slide shows.

According to the Apple website, the system requirements to run FCE are:

- A Mac computer with a 1.25GHz or faster PowerPC G4, PowerPC G5, Intel Core Duo, Intel Core 2 Duo, or Intel Xeon processor
- For AVCHD: a Mac computer with an Intel processor
- 1GB of RAM or more
- An AGP or PCI Express graphics card compatible with Quartz Extreme or an Intel GMA integrated graphics processor in a MacBook or Mac mini computer (some FxPlug filters are not compatible with integrated Intel graphics processors)
- A display with 1024-by-768 resolution or higher
- A DVD drive for installation
Mac OS X v10.7.5 or later

**Pro Tools M-Powered 8.x (professional audio editing for PCs and Macs)**

The Pro Tools M-Powered software requires an audio interface. We are currently using the M-Audio Fast Track. Consult the [Digidesign](#) website for the most recent operating system requirements.

**Adobe Creative Suite CC (professional photo editing for PCs and Macs)**

If you need any additional information, our technology team will be happy to help you find an answer.

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