AV-IT Equipment Recommendations

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Preamble

IT Services has prepared this resource as requested by Teaching and Learning Services to help the community make informed decisions when purchasing equipment in support of remote teaching activities. These recommendations are meant to be broad but informative. Making specific product recommendations is difficult as each use-case and budget differs, and product availability is always changing.

Should you wish to have other product recommendations added to this list, please send email to brian.arsenault@mcgill.ca with details about the equipment in question.

Computer peripherals

Listed below are common computer peripherals that may be required for the creation and delivery of course content.

Webcams

Feature	Recommendation
Resolution	• 720p at minimum, 1080p and above recommended
Frame rate	• 30 FPS minimum
Lens	• Glass optics preferred to plastic
Microphone	• If no external or dedicated microphone is available, a built-in microphone is a must.
Mount	• Ensure that it can physically attach to the monitor or laptop in question. • Tripod ready webcams are also available if required.
Notes	

Document cameras

Feature	Recommendation
Resolution	- Depends on the subject material but should use 3 megapixels at minimum for simple documents. - Use 8 megapixels at minimum for more complex documents and subject material.
Lens	- Glass optics preferred. - Optical zoom preferred over digital. - Auto-focus and auto-brightness are also recommended.
Capture area	- Depends on the subject material, but most will capture a legal-sized document. - Consider the device's ability to articulate, especially if the subject material is a complex shape rather than just a document.
Lighting	Some devices may have built in lighting. Consider this if it is to be used in low light conditions and another light source is not available.
Connectivity	- Connectivity will work through USB, HDMI, Wi-Fi, or a combination of the three depending on requirements. - Ensure your computer has the appropriate input/output.
Notes	

Computer Monitors

Feature	Recommendation
Size	Use 23 - 24" monitor for normal use. Larger monitors can be used if required and depending on the use-case (e. g. video or photo editing).
Resolution	Screen resolution should match the host device, typically 1920 x 1080 for standard HD.

Feature	Recommendation
Display type	• LED backlit LCD • Consider a true color device with high pixel density and contrast ratio if to be used for video editing.
Inputs	• HDMI, DisplayPort, VGA depending on availability on the host computer.
Notes	• Please see Le James Institutional Sales for currently available and recommended models.

Writing/drawing tablets

Feature	Recommendation
Tablet type	• Consider whether you require a desktop tablet that relies solely upon the host device display ($) or one with a built-in display ($$$).
Connectivity type	• Wired or wireless (USB and Bluetooth) are common choices.
Notes	• A noted manufacturer in this market segment is Wacom. Most of their products will be satisfactory.

Audio Components

Audio components listed below will most commonly be used in the production of audiovisual materials. These devices go beyond the standard computer peripherals in quality, durability, and cost.

Microphones

General microphone features and recommendations

Feature	Recommendation
Sensitivity pattern	- Dynamic microphones with a cardioid sensitivity pattern are recommended in most cases, especially when recording a speaker who is close to the microphone. Sound from the sides or behind this type of microphone will be rejected. - Omnidirectional microphones might be considered if capturing ambient sound from all directions is required
Form factor	Different microphone form factors are available such as lavalier, headset, stationary, or handheld. Choose the format that best suits your use-case.
Connector type(s)	- Quality microphones should have XLR and/or balanced ¼ TRS (tip-ring-sleeve) connectors. - Ensure that the target device has a matching input connector type. See Wireless microphone considerations below. - For recent iOS devices or other Smartphone without a headphone jack, adapter kits may be necessary (e.g. Lightning to 3.5 mm).
Stands and boom poles	- Microphone stands and clips may be required depending on the chosen form factor and use-case. - Most microphone clips and stands use 5/8" threaded connections but some may be 3/8" thread. - Recommended manufacturers include Konig & Meyer (K&M), Quicklok, and K-Tek.
Notes	- If being used outdoors or in windy conditions, an appropriate windscreen may be required. - Microphones from reputable manufactures such as Shure, Rode, AKG, Audio-Technica, Sennheiser, or Sony should be considered. - Many manufacturers offer "interview" kits for use with mobile devices like Smartphones. - Shure - https://www.shure.com/en-US/products/microphones/mv88plus - Rode - http://www.rode.com/microphones/sc6-lik

Wireless microphone considerations

Wireless type	Dedicated transmitter/receiver	Bluetooth
Wireless range	• Maximum 15 – 45 m (50 – 150 feet)	• Maximum 6 m (20 feet)
Pros	• Good audio quality • Lower latency/delay	• Minimal components required • Directly compatible with most Smartphones and computers
Cons	• External power may be required for the receiver • May be bulkier	• Lower audio quality due to compression (in some cases) • Can introduce latency/delay
Notes	• Ensure that the target device has a matching connector type. • For recent iOS devices or other Smartphone without a headphone jack, adapter kits may be necessary (e.g. Lightning to 3.5 mm). • McGill's standard wireless microphone is the Shure QLX-D (G50 frequency range). • Other well-known manufacturers make microphones specifically for mobile devices, e.g., Rode (http://www.rode.com/microphones/mobile).	

Headphones

Headphone features and recommendations

Feature	Recommendation
Form factor	• Over ear headphones passively reduce ambient noise and are preferred when worn by multiple users for hygienic reasons. • In ear monitors further reduce ambient noise and are discrete, but are not easily shared.
Connector type(s)	• Most headphones use a 3.5 mm or ¼" TRS connector. • Ensure that the target device has a matching output connector type.

Headphone type(s)	Wired	Bluetooth	Noise cancelling	Headsets
Pros	• Best audio quality	• Useful for connecting to Smartphones. • In-ear models can be discrete while on camera. • Many include a built-in microphone.	• Greatest reduction in ambient noise	• Eliminates the need for a separate microphone.
Cons	• Limited freedom of movement	• Range is limited to 6 m (20 feet). • Lower audio quality in both headphones and built-in microphone where present.	• Reduced frequency range and accuracy • Do not perform well in windy conditions or environments with spurious noise.	• Connector types can be vendor specific.
Notes	• Sony MDRX110 or MDR7506 are good choices.		• Sony MDRZX110NC is an affordable choice.	• Ensure that the connector type is compatible with your device.

Video Components

Like the audio components listed above, the cameras listed below will commonly be used in the production of audiovisual materials. Again, these devices go beyond the standard computer peripherals in terms of quality, durability, and cost.

Video Cameras

Camera type	Smartphones	Action cameras	Camcorders	DLSR and mirrorless cameras	Budget cinema cameras
Pros	• Ubiquitous • Current Smartphones are much better quality than their predecessors.	• Rugged, waterproof design • Very small and lightweight • Can easily be mounted on your person	• Relatively compact, all-in-one design • Typically have a built-in, optical zoom lens • Better suited for handheld operation	• Primarily used for photos • Large sensor • Interchangeable lenses	• Purpose built for cinematic video • Large sensor • Interchangeable lenses • Better support for raw, lossless filetypes

Cons	• Poor sound quality without an external microphone • Battery life may be inadequate • No optical zoom • No quality lens attachments	• Wide field of view is not suitable for all use-cases. • Fixed focus • Lower image quality when compared to other video cameras • May not support raw, lossless formats • Poor sound quality without an external microphone	• May not support raw, lossless formats • Average sound quality without an external microphone	• Not well suited for long durations of handheld operation without additional grips. • Poor sound quality without an external microphone • Depending on the model, a dedicated audio recorder and microphone might be required.	• Average sound quality without an external microphone
Mounts	• Mounts such as tripods, monopods or gimbals should be considered when appropriate for the use-case and camera type. • Ensure that the camera's receiving thread matches the tripod or mount. Generally, this is ¼-20 UNC, but for larger, professional cameras might accept 3/8"-16 UNC.				
Notes					