



# STUDENT SUPPLY LIST FOR DIGITAL MEDIA, GRAPHIC DESIGN AND PROFESSIONAL PHOTOGRAPHY 2021-22 ACADEMIC YEAR

## QUICK LOOK:

### Minimum REQUIRED equipment:

- Camera Body
- Camera Lens
- Tripod
- Extra Camera Batteries
- Extra Memory Cards and Card Reader
- Audio Recorder
- Headphones
- Gear Bag
- Insurance

### Optional but highly suggested additional equipment:

- Filters: UV, ND, Polarizing
- Flash
- Color Checker
- Remote Trigger
- Sensor Cleaning Supplies
- Personal Computer

## DETAILS: Required Equipment

### **Something to consider:**

*A camera is a very "personal" item. It can also represent a major investment. You will likely discover you have very specific preferences. Graphic Design and Digital Media students might consider borrowing a suitable camera from a family member or friend, or purchase a used camera and become more familiar with digital photography and videography before investing in a camera.*



### Camera Bodies

All students entering the Graphic Design, Digital Media and Professional Photography programs are required to have their own digital camera. There are many different cameras that can be acquired, with a number of factors to consider.

At minimum, your camera must support manual controls (specifically manual exposure, use interchangeable lenses, capture high definition video (1920x1080 minimum), and preferably have custom white balance capabilities. Other capabilities to consider are audio input and monitoring, sensor size (APS vs full frame), and the rise of mirrorless cameras.

Currently, most of the additional gear we have for check out including lenses and small system strobe are compatible with Nikon and Canon.

Using these brands allows for more opportunity to work with additional gear from our checkout system, but they are not the only professional quality cameras on the market.

### Mirrorless Cameras

Mirrorless cameras generally offer lighter weight, and often superior low-light performance. But those features come at a price. Regardless of brand, suitable cameras come in two basic categories:

#### APS Sensor Cameras

The following are good and economical examples for APS sensor cameras. Because these cameras are more for amateurs than professionals, they can lack certain functionality like custom white balance and audio connectivity or monitoring. Canon, Sony and Nikon offer many options in this range:

##### **Nikon D3500 (DSLR):**

<https://www.dpreview.com/reviews/nikon-d3500-review>

##### **Nikon Z50 (Mirrorless):**

<https://www.dpreview.com/reviews/nikon-z50-review>

##### **Canon EOS Rebel SL3 (DSLR):**

<https://www.dpreview.com/reviews/canon-eos-rebel-sl3-250d>

##### **Canon M200 (DSLR):**

<https://www.dpreview.com/reviews/canon-eos-m200-review>

##### **Sony a6100 (Mirrorless):**

<https://www.dpreview.com/reviews/sony-a6100-review>

#### Full-Frame Sensor Cameras

Full-Frame Sensor cameras are generally more expensive than APS Sensor cameras, but offer additional features. These are good examples of full-frame sensor cameras:

##### **Nikon D850 (DSLR):**

<https://www.dpreview.com/reviews/nikon-d850>

##### **Nikon D780 (DSLR):**

<https://www.dpreview.com/reviews/nikon-d780-review>

##### **Nikon Z6ii (Mirrorless):**

<https://www.dpreview.com/reviews/nikon-z6-ii-review>

##### **Canon 6D Mark II (DSLR):**

<https://www.dpreview.com/reviews/canon-eos-6d-mark-ii-review>

##### **Canon 5D Mark IV (DSLR):**

<https://www.dpreview.com/reviews/canon-eos-5d-mark-iv>

##### **Canon EOS R6 (Mirrorless):**

<https://www.dpreview.com/reviews/canon-eos-r6-initial-review>

##### **Sony A7R IV (Mirrorless):**

<https://www.dpreview.com/reviews/sony-a7r-iv-review>

### Camera research resources:

DP Review is one of the most informative websites for digital photography and camera reviews. For an excellent side-by-side comparison of camera features see dpreview.com's feature at this link:

<http://www.dpreview.com/products/compare/cameras>

## Camera Lenses

Digital SLR cameras can be used with a variety of interchangeable lenses. There are several factors that need to be considered when purchasing a lens, including: lens speed; glass quality; focusing technology; image stabilization and vibration reduction; what size sensor it is manufactured for; focal length; zoom vs. prime lenses.



As a result, it can be an overwhelming task to choose an appropriate lens when first getting started in photography. We are recommending that first year students buy one lens to begin and wait until they better understand lens technology before buying any additional lenses. We will thoroughly cover lenses as part of the first semester, after which point a more educated purchase will be possible. We simply cannot adequately cover all of the factors that need to be considered in this document.

The preferred lens to start the program is one that provides close to a normal angle of view — and this will depend on the size of the sensor in your camera. For a full-frame sensor it is approximately 50mm. For a smaller cropped APS sensor it is approximately 28mm. **The lens MUST be an f/2.8 or faster lens** (smaller f#), so that students can complete assignments that teach shallow depth of field.

We recommend that you avoid buying a camera with a “kit” lens as these lenses are typically not very fast (have a small minimum aperture) and inferior glass quality. **This recommendation is particularly important for students in the Professional Photography program.**

The following are direct links to some lenses that would work well. These links are to B&H Photo in New York City, which is not the only source of these lenses.

### Example Nikon Lenses:

#### **Nikon 35mm f/1.8DX- \$240**

(for APS crop sensor cameras)

[http://www.bhphotovideo.com/c/product/606792-USA/Nikon\\_2183\\_AF\\_S\\_Nikkor\\_35mm\\_f\\_1\\_8G.html](http://www.bhphotovideo.com/c/product/606792-USA/Nikon_2183_AF_S_Nikkor_35mm_f_1_8G.html)

#### **Nikon 50mm 1.8D- \$162**

(for full frame DSLR cameras)

[https://www.bhphotovideo.com/c/product/766516-USA/Nikon\\_2199\\_AF\\_S\\_Nikkor\\_50mm\\_f\\_1\\_8G.html](https://www.bhphotovideo.com/c/product/766516-USA/Nikon_2199_AF_S_Nikkor_50mm_f_1_8G.html)

#### **Nikon NIKKOR Z 50mm f/1.8 S-\$596**

(for mirrorless cameras only)

[https://www.bhphotovideo.com/c/product/1431710-REG/nikon\\_20083\\_nikkor\\_z\\_50mm\\_f\\_1\\_8.html](https://www.bhphotovideo.com/c/product/1431710-REG/nikon_20083_nikkor_z_50mm_f_1_8.html)

### Example Canon Lenses:

#### **Canon EF-S 24mm f/2.8 STM-\$149**

(for APS crop sensor DSLR cameras)

[https://www.bhphotovideo.com/c/product/1081812-REG/canon\\_9522b002\\_ef\\_s\\_24mm\\_f\\_2\\_8\\_is.html](https://www.bhphotovideo.com/c/product/1081812-REG/canon_9522b002_ef_s_24mm_f_2_8_is.html)

### Canon EF 50mm 1.8 - \$125.00

(for full frame DSLR cameras)

[https://www.bhphotovideo.com/c/product/1143786-REG/canon\\_0570c002\\_ef\\_50mm\\_f\\_1\\_8\\_stm.html](https://www.bhphotovideo.com/c/product/1143786-REG/canon_0570c002_ef_50mm_f_1_8_stm.html)

### Canon RF 50mm f/1.8 STM Lens-\$199

(for mirrorless cameras only)

[https://www.bhphotovideo.com/c/product/1601517-REG/canon\\_rf\\_50mm\\_f\\_1\\_8\\_lens.html](https://www.bhphotovideo.com/c/product/1601517-REG/canon_rf_50mm_f_1_8_lens.html)

### Example Sony Lenses

#### Sony E 35mm f/1.8 OSS Lens - \$473

(for APS crop sensor cameras)

[https://www.bhphotovideo.com/c/product/892387-REG/Sony\\_sel35f18\\_35mm\\_F\\_1\\_8\\_Optical\\_Steady.html](https://www.bhphotovideo.com/c/product/892387-REG/Sony_sel35f18_35mm_F_1_8_Optical_Steady.html)

#### Sony FE 50mm f/1.8 Lens - \$248

(for full frame DSLR cameras)

[https://www.bhphotovideo.com/c/product/1242613-REG/sony\\_sel50f18f\\_fe\\_50mm\\_f\\_1\\_8\\_lens.html](https://www.bhphotovideo.com/c/product/1242613-REG/sony_sel50f18f_fe_50mm_f_1_8_lens.html)

### Camera Lense research resources:

Please remember that it is our recommendation to wait before purchasing any additional lenses. Here is a link with a basic introduction to factors to consider when buying a lens:

<http://www.digital-slr-guide.com/focal-length.html>

## Tripod

A tripod rated for approximately 15 pounds is recommended in order to ensure that it is a quality and sturdy tripod. Inexpensive, lightweight tripods do more harm than good. One major thing to think about in this category is weight. There are very good quality aluminum tripods, but they can be heavy. There are also more expensive tripods made of carbon fiber that are great for those who need to be concerned about weight — a backcountry, landscape photographer, for example. *Induro* and *Bogen* are two companies that make very good tripods in both the aluminum and carbon fiber categories.

**Be aware that the head and legs of a tripod are TWO SEPARATE ITEMS unless they are specifically packaged together.**



## Extra Camera Battery

Your camera will come with a battery, but **it is necessary to have at least two camera batteries.**



Different cameras take different batteries, so be sure to have the correct battery for your camera when purchasing additional batteries. We recommend batteries from the camera's manufacturer. You will get what you pay for.

## Digital Media/Storage Cards

Digital cameras save images to storage cards.

The type of card needed depends on the camera. The two most common storage cards are CF and SD. The links provided in the camera section will provide this information. Two factors to consider



when purchasing a storage card are storage capacity and read/write speed. Cards with more storage capacity and faster read/write speeds will be more expensive. Be sure any card you purchase meets the minimum specifications of read/write speed for your camera. We recommend either Lexar or SanDisk cards. You will get what you pay for.

## Storage Card Reader



A card reader is needed to download your images to your hard drive. We don't use camera software to download images to the computer. Make sure the reader is compatible with the type

storage card your camera uses. *Connectivity* refers to how an external device connects to a computer. The storage card reader and the portable hard drives you will receive as part of the program fee are all external devices in which connectivity needs to be considered when purchasing. The most common connections currently in use are: USB III, USB C, and Thunderbolt 3. The computer(s) to which you will be connecting offer specific connectivity options. Adapters may be required.

## Audio Recorder

Few things can ruin a video or digital film easier than bad audio, and the recording capabilities of many cameras are not ideal, or non-existent. While a variety of audio recording gear is available through our checkout system, it is no replacement for the certainty and convenience of having your own audio recorder. Many of our students use Zoom brand recorders, as they offer a range of proven, rugged products at a variety of price/capability points. **ANY of these models meet our requirements:**

The **Zoom H1n** (approx. \$100) is a lightweight recorder small enough to fit in your pocket, but powerful enough to record up to 24-bit broadcast-quality .WAV files with the built in XY Stereo microphone. Or pair the H1 through its 1/8-inch input to a range of non-condenser microphones. You can even connect it to record audio straight into your computer.



The **Zoom H2n** (approx. \$150) features the option to switch between five built-in mic capsules for different recording scenarios, and gives you four recording modes: Mid-Side (MS) stereo, 90 degree X/Y stereo, 2-channel and 4-channel. Designed for use with non-condenser microphones.



The **Zoom H4n** (approx. \$240) is used by video producers and journalists worldwide. The H4n adds two XLR inputs with phantom power to support condenser microphones. **This means it will support nearly every microphone available. We recommend this audio recorder because of its versatility and capability make it a strong value for the price.**





The **Zoom H5** (approx. \$275) adds the ability to use the stereo line out (with dedicated volume control) along with the separate headphone out, to route audio to your camera while monitoring over headphones – a feature that’s not available with the Zoom H4n.

The legendary **Zoom H6** (approx. \$325) adds two more 4 XLR/TRS inputs (four total), and interchangeable mic capsules that let you optimize your recording setup for any situation. ***The Zoom H6 is the main recording platform for our programs and the recorder most popular in our checkout system.***

All inputs have dedicated gain input control knobs with -20dB pads to prevent unwanted distortion, and you can connect either external microphones or line-level devices to record up to six tracks at once.

#### Recommended Audio Recorder Package:

This H4n package (\$340) offers, synced on-camera audio capture for HD/SLR video, and some very useful accessories such as attenuation cable and windscreens:

[https://www.bhphotovideo.com/c/product/1501680-REG/zoom\\_h4n-pro\\_4\\_channel\\_recorder\\_and.html](https://www.bhphotovideo.com/c/product/1501680-REG/zoom_h4n-pro_4_channel_recorder_and.html)

## Over-the-Ear Stereo Headphones

Headphones are needed for video and audio editing work. Look for a wide tonal range and comfort — you’ll be wearing these headphones a LOT. ***Do not purchase in-the-ear or earbud type headphones.***

These are not good for editing in a group lab environment or for making critical audio decisions.

## Camera/Gear Bag

There are many, many options here and this is a very personal choice. We recommend you purchase a bag that works well with how you work. For example, If you have a laptop computer, you might consider a bag that will accommodate it. If you’re interested in outdoor and adventure photography, you might want to purchase a backpack style of bag.



## Insurance

All Professional Photography students, and Digital Media /Graphic Design students who wish to check out equipment must show evidence that they have at least \$10,000 worth of insurance that specifically states it covers equipment that is checked out from the school.

This insurance enables students to take advantage of our extensive checkout equipment

and access specialized studio areas. Our recommended insurance will also cover personal equipment including computers and mobile devices. If students wish to



purchase the insurance through riders on homeowners’ insurance or other means, the key is they demonstrate:

- The insurance is for at least \$10,000 coverage for photography and photography related equipment rented or borrowed
- The insurance states a date range of coverage for the time-frame during which equipment will be used

For the convenience of students we have identified a vendor that meets these requirements. Their policies include \$25,000 coverage for checkout (rental) equipment, plus your choice of \$5,000 or \$10,000 coverage for your “personal equipment” like laptops or camera equipment. Please note: while we do provide a link to this vendor, they are the only option available.

*Please see Addendum A for more information.*

## Optional (but Highly Recommended) Additional Equipment:

### Filters



**UV** - ultra-violet filters should be put on all camera lenses to provide protection against dust and scratches to the lens. Note that the quality of a filter can affect image quality. More expensive filters use higher quality glass

and are less likely to compromise the image quality of your lens. Filter sizes are measured in millimeters, but are not the same as the focal length of the lens. See your lens specifications for correct filter size.

**Neutral Density** - A neutral density filter is a critical tool for managing exposure and depth of field while shooting video in bright lighting conditions. You will need to purchase the filter based on your lens thread size.

**Polarizing** - A polarizing filter reduces glare and reflections. It also produces more saturated colors in a capture.

## Flash

Small system flash is a critical professional skill for location and event photography. Instruction in this technology begins in the second semester of the program. Although there are flashes that can be checked out, it is highly recommended that students consider purchasing a flash so that they can really learn how to use it. Integrated small system flash technology has improved greatly in the past several years. In order to take full advantage of instruction on this integrated technology, it is recommended that you buy the flash on the list that matches your camera system:



## Canon Flash:

Speedlite 600EX II-RT (\$499.00)

[https://www.bhphotovideo.com/c/product/1250646-REG/canon\\_speedlite\\_600ex\\_ii\\_rt.html](https://www.bhphotovideo.com/c/product/1250646-REG/canon_speedlite_600ex_ii_rt.html)

## Nikon Flash:

SB5000 (\$596.00)

[https://www.bhphotovideo.com/c/product/1214170-REG/nikon\\_4815\\_sb\\_5000\\_af\\_speedlight.html](https://www.bhphotovideo.com/c/product/1214170-REG/nikon_4815_sb_5000_af_speedlight.html)

## Mini Color Checker



Color checkers are used to create custom camera profiles and for color management in a variety of capture situations. ***This gear is required for second year Professional Photography students in Color Management class.***

<http://www.xrite.com/categories/calibration-profiling/colorchecker-passport-photo>

## Remote Trigger

Prevents camera shake when releasing the shutter on long exposures. More expensive ones have additional features, such as the ability to program time-lapse exposures. Classes include a variety of motion and time-based capture assignments and a trigger capable of doing time-based capture such as time-lapse is highly recommended.



## Sensor Cleaning Supplies



Digital cameras can accumulate dust on the sensor where the capture occurs. This dust needs to be cleaned off or blemishes will appear in the capture. This topic is covered in the first semester. Cleaning a sensor can

cause permanent damage to the sensor and void a camera's warranty. Here is a link to an excellent source of sensor cleaning supplies:

<http://visibledust.com/>

## Computer: Hardware / Software

Many times we are asked to recommend a computer for use in the program. Mac is the platform used by many courses in the Isaacson School at Colorado Mountain College's Roaring Fork Campuses.



Many students make extensive use of the campus facilities rather than investing in a personal computer. ***The on-campus computer labs are generally open: 7am – 10pm Monday–Thursday / 7am – 4pm Friday Saturday and Sunday hours vary each semester.***

If you are going to purchase a computer we recommend buying a Mac for your convenience, but it is possible to use either platform provided you have the appropriate

software. A laptop would also be a good choice because of its portability. You should consider the computer's storage capacity (hard drive or SSD drive) expressed in GB, the amount of RAM (random access memory — the more the better) and GHz, which refers to processing speed. A good computer salesperson will be able to help you choose a computer based on your needs.

Be sure to discuss the fact that you will be using it for: digital imaging; video editing; running Adobe Creative Cloud applications. You will often be running multiple software applications at once.

The monitor is another important consideration. Laptop screens are not acceptable for much digital imaging work. Many creative professionals do a lot of work on laptops, but connect the laptop to an external monitor for critical digital imaging work. If purchasing a laptop, make sure it can connect an external monitor. This is another item that would be better to purchase after getting further into the program and better understanding color management and the calibration of monitors.



Whatever computer you choose, the computer doesn't help if you don't have the software. ***An Adobe Creative Cloud subscription is provided free to every Isaacson School student.***

This subscription will work on a personal home or laptop computer. Students will also be using Microsoft Office products like Word, Excel, and PowerPoint. ***All CMC students have a free Office365 account,*** accessible through Basecamp. Students should use this rather than relying upon solutions like Google Docs.

Of particular interest to Digital Media and Graphic Design students will be the ***free education software account provided by AutoDesk.*** AutoDesk is the publisher of both Maya and Fusion360, which are 3D applications used in those degree programs. Your free AutoDesk student account will also give you access to many other AutoDesk products.

## Web Hosting Account

A web address (.com, .biz, or .net) is the ongoing home of your professional portfolio. It provides a robust email account that presents a professional tone. It enables .ftp file transfers of the large files very common in the professional arena.

When shopping for web hosting it is tempting to prioritize price, but there are several factors that affect the value proposition, including: number of email accounts; total storage limit; transfer limit; domain registration fees; control panel ease of use. Plan on spending at least \$100/year to maintain a suitable web hosting account.

**FREE SOFTWARE  
FOR OUR STUDENTS:**



# Additional Information

## Software Tutorials



Classes in the programs give excellent lab training on a variety of software. Classes that instruct in software will also use online tutorials by LinkedIn Learning instead

of software manuals. **An unlimited LinkedIn Learning subscription is provided free to CMC students.**

Your LinkedIn Learning account provides unlimited access to the resource, not just the lessons used in a particular class. You can use LinkedIn Learning for other courses or simply for personal/professional development.

## Books for Classes

**All PHO and MGD-prefix classes are exempt from the CMC**

**Textbook Program.** Most of these courses use open-source resources or LinkedIn Learning (provided free to students).

For the small number of courses that require a textbook, purchases of textbooks are eligible for financial aid reimbursement. However, reimbursement can take time (sometimes several months), so book costs need to be considered when budgeting. All general education (math, English, communication, humanities, etc.) courses will require a textbook. The cost for books can add up. There are not specifics to list, but definitely a category to consider when budgeting for expenses. You can easily spend \$50-100 on books for a class.



You might consider utilizing the CMC Textbook Program for those classes. In particular, mathematics and "hard" sciences\* courses in particular often require expensive books, so the CMC Textbook Program can often provide savings in those instances. Even if the Textbook Program isn't going to provide a costs savings, many students find the certainty and convenience of the CMC Textbook worth the cost, and the cost is applied directly to your account making financial aid coverage immediate rather than you waiting for reimbursement.

## Program Fee



All students in the Digital Media, Graphic Design, and Professional Photography programs are charged a \$255 per semester Program Fee. This fee was approved by the college's Board of Trustees and covers expenses for equipment, facilities and supplies that only students in those programs have

access to. This includes: two portable hard drives to meet the asset management protocols of student image libraries; access to network and stand-alone Epson inkjet printers; access to the digital photography studio with digital view camera systems and Profoto lighting;

access to multimedia studio with recording booth and control room; access to the checkout library. If you have any questions regarding this program fee, please ask.

## Sources for Equipment

There are numerous sources for computers, video, audio, and photographic equipment around the country and on the web. Many regions have excellent pro-level suppliers and allow money to remain in the community. Where you purchase your supplies is up to you, but here are some vendors we trust:

**Adorama:** <https://www.adorama.com/edu>

**B & H Photo Video:** <https://www.bhphotovideo.com/edu>

**Apple:** <http://store.apple.com/us>

In addition to online sales, you can use the site to locate an Apple Store near you and find expertise in choosing the right Mac for you. Apple does offer a small educational discount.

**Think Tank / Mind Shift Gear:**

[https://www.thinktankphoto.com/?rfsn=140965.1cb672 -](https://www.thinktankphoto.com/?rfsn=140965.1cb672-)

Outdoor backpacks for camera gear including: camera cases, bags and modular belt systems.

**PhotoVideoEDU**

There are substantial student discounts on photo accessories through The MAC Group (Mamiya America Corporation). Proof of enrollment in a photography program is required. The class registration confirmation that you will receive after registering for your classes will serve as proof of enrollment and qualify you for these discounts. This is the place to buy your tripod, filters, camera bag and color checker chart at a substantial discount. Register for these student discounts at:

<http://www.photovideoedu.com/>.

Some sellers (B&H and Adorama, for example) will offer a discount off of their normal price to students, but you'll need to speak with a salesperson rather than purchase online.

## Special Note

We make a great effort to provide students with a thorough and complete supply list, but perfection is difficult to achieve. Information contained herein is subject to change without notice and additional items are likely. This list does not include miscellaneous items such as matting supplies, printing charges and course fees. Prices, where included, are only approximate. Prices vary considerably from location to location, dealer to dealer, and whether the items are new or used. Consumable supply expenses also vary with each individual and are dependent upon how conservative each student is and how much work is produced.

These supplies, though expensive, are professional quality items that a successful student will be able to employ in a career in the fields of photography, digital media, and graphic design.

\* Courses like Biology, Chemistry, and Geology as opposed to social sciences (Psychology, Sociology, Anthropology, etc.).