Preamble

Artifact photography is an important element of museum work. It is a method of documenting artifacts without having to see the artifact itself. It can be used for academic, public, or educational purposes. It is important to be thorough, careful, and meticulous when photographing artifacts; if there are any mistakes, going back and taking the photographs again wastes time and energy. Goals of museum photography:

1. Identification
2. Conservation
3. Clearly show the artifact and its parts
4. Document the specific attributes of each artifact

1.0 Camera

It is recommended that a DSLR (digital single lens reflex) camera is used to take artifact photos. DSLR cameras use interchangeable lenses and have multiple shooting modes. Photos can be shot in several different modes:

- Automatic
- Shutter priority (Tv)
- Aperture Priority (Av)
- Manual (M)

It is recommended in artifact photography to take photos in manual setting in order to get the settings as specifically close to what you need as possible. If you are not familiar with shooting in manual mode, try to learn or take photos in automatic and work more on the post-processing phase.

1.1 How to Hold

There is a correct way to hold a camera. Always keep your hand underneath the lens when taking photos and hold the body of the camera in a sturdy manner. Place your feet firmly at a natural distance and keep your balance.
2.0 Scales

Scales must be made for artifact photography; each artifact must be placed next to a visible scale. It is easy to search on Google for scales.

Oftentimes the camera will wash out the small scale in order to focus on the artifact; if this happens, it is possible to place a properly exposed photo of the scale overtop of the old one on Photoshop. It is an extra step of work but makes all of the difference in making your photography useful to others. Oftentimes it is difficult to get both the artifact and the scale exposed properly.

Scales are placed at the bottom of an artifact photo. Be sure that there is a cm scale on it. Make sure to type the correct tripartite number on the scale for each artifact and that each correct scale is photographed with the correct artifact.

3.0 Testing the Light with a Grey Card

It is always a good idea to adjust the white balance on your photos so you can make sure they are all realistically colored; this is important particularly when photographing artifacts that may be painted or made of different colored material.

A grey card is the reference point for a photographer in order to adjust their white balance and exposure settings.

1. Place the grey card in the scene where you will be taking photographs with the grey side facing the camera. Change your WB (white balance) to what is most accurate for the lighting setting or leave AUTO.
2. Adjust settings for optimum exposure and take a test shot.
3. Continue taking your other photographs.
4. When you get to upload the photographs, use Lightroom or a similar program to adjust the white balance properly. Lightroom is what the SFU MAE uses.
5. In Lightroom under BASIC, go to white balance tool and select the dropper. Click the grey card from the test shot and it will adjust the white balance for the entire batch of photos.
   a. Make sure the grey card is the ACTIVE selected photo. Then CTRL select all. Then press the synch button. Sync the ‘white balance’ option. Click synchronize, and it will adjust the white balance for all of the images.
   b. Note: sometimes you may not have to use a grey card, only if you notice the color is off.
4.0 Resolution

Photographs should be taken in both RAW format and JPEG. This can be done through the camera menu. For Canon cameras, this is the general layout:

- Menu
- Shooting Settings 1 tab
- Click Image Quality (set button)
- Now choose both RAW and JPEG (large) as the format.

The JPEG format is to be used for editing. The RAW format is only backed up and not used for editing, only to hold the high quality image for future use. Both formats are saved onto a backup drive. RAW files are much too large to be used for any kind of upload or edit and that is when we use JPEG files. If editing JPEGs, be careful about how many times you save your changes; every time you save, the quality of the photo degrades. JPEGs are used for a website, Facebook, etc. RAW would be used for publications, archival purposes, etc.

5.0 Exposure triangle: (ISO, shutter speed, aperture)

There are three main elements of correct exposure to utilize when taking photographs of artifacts. Here we will have a section based on artifacts specifically, however it is highly recommended the photographer does their own reading, research, and practice to better understand the elements that go into exposure settings.

5.1 ISO

ISO stands for the International Standard of Organization, but basically when we say ISO we are talking about the camera’s sensitivity to light, based on its sensor (digital) or the type of film installed (film cameras). The best ISO sensitivity to use depends on the changing of light. For example: sunlit days outside are best exposed at ISO 200; if it is very dark with little light higher ISOs, like 1600+, can be used, but will be grainier in quality. For photographing an artifact in a well-lit photography lab, ISO 200-400 will work fine.

How to change ISO:

- Press the ISO button on the top of the camera (right side).
- Highlight the choice and then press the SET button.

5.2 Shutter Speed

Shutter speed refers to the length of time the camera’s sensor is exposed to light (how long the shutter is open when taking a photograph). Shutter speed is referred to in
fractions of a second (1/200) or whole seconds (30). The faster the shutter speed (the larger the fraction), the less light is exposed to your camera’s sensor, so it will be darker. The slower the shutter speed, the more light is exposed to your camera’s sensor.

The camera’s standard shutter speed is between 1/60 to 1/200 of a second. If you find that your photos are coming out too dark, try a slower shutter speed, usually by several stops. If your photos are coming out too bright, try a faster shutter speed.

When the camera is in Tv mode, it is in shutter speed priority, which means it is the only setting you can change and the camera will automatically find the according changes to create an exposed photograph.

How to change shutter speed:

- Use the scroll wheel on the top right hand side of the camera
- Use the quick menu to highlight the shutter speed and select your preferred speed.

Shutter speed is dependent on aperture size.

5.3 Aperture

Aperture is also referred to as depth of field, or more simply: the size of the hole that light comes in through. This is the final part of the exposure triangle; the three elements work together to create a properly exposed photograph.

Aperture is also more commonly known as f-stop. When you look on the quick view screen on the camera, you will see it listed as “F2.5” or a different number. F-stop works somewhat backwards; the smaller the f-stop number, the larger the hole, the more light comes in. The larger the f-stop number, the small the hole, and the less light comes in.

The larger the f-stop (smaller opening) naturally requires a slower shutter speed to allow more light in. A smaller f-stop number (larger opening) requires a faster shutter speed.

Depth of field refers to how in focus the rest of the photograph is. The smaller the f-stop number (larger opening) the blurrier the background of the subject. The larger the f-stop number (smaller opening) the background is more in focus. This happens because of how fast or slow the shutter speed moves in conjunction with the aperture size. Blurry backgrounds work well with artifact photography.

It is a lot to remember and the main thing to do is practice! If you are getting highlights and bright spots, adjust your lighting and change an element of your exposure triangle. The goal is to have a perfectly exposed photograph that will be in the museum’s records
for years to come or will be shown to the public; therefore, only the highest quality photographs must be taken.

6.0 Procedure

6.1 Lighting Set-Up

Setting up the lighting for your photos may differ between different artifacts and the lighting that is available. It is recommended to have several moveable lights with softboxes on them to lessen glare. These lights can be moved to be on the sides of the artifact, in front of the artifact, or behind it. Where you place these lights will depend on the artifact you have and what kind of detail you want to show in your photograph. There are also regular stand lights that can be adjusted as fill light, rim light, or more. These can be used in different combinations for lighting.

These are the different types of light when photography in a studio:

- **Main light**: the light that is pointed at the artifact. Usually in a softbox.
- **Background light**: pointed at the backdrop so it’s not too shadowed.
- **Fill light**: another light, usually placed at an angle from the main light. Usually in a softbox.
- **Rim light**: light that is behind the subject to accentuate the line between the artifact and the background. This may not be used too often in artifact photography but is helpful when you have a black artifact against the black backdrop.
When you need to get detail of smaller artifacts or aspects such as tool marks, placing a light lower will help to bring out these details. Be sure that the light does not wash out the artifact; remember, if it washes out the scale it is okay because you can replace it in the image in post-processing.

Reflectors can be utilized in order to get more light at the front of the artifact. They can be made with tinfoil wrapped over a piece of cardboard. However, it is also possible to just move one of the hanging lights in a softbox to the front of the artifact for added help.

6.2 Stage Set-Up

Be sure to use colored cloth as a backdrop for your artifact. Black or white is a popular choice for museums and repositories. Depending on your artifact, you may want a different color. A good standard is black, however it can catch dust and lint easily and it may be noticeable on the photograph (always have a lint roller handy!). If you have black or dark-colored artifacts, sometimes a different color must be used. Try different ones to see what works best for the artifacts you have.

Some artifacts will need a prop in order to get the best angle of the photograph. Some examples are sandbags and foam squares. Make sure they are not visible in the photograph. Projectile points can be laid on the background without anything. Remember that all objects should be facing the correct way “up” (such as projectile points). Be sure to turn off other lights.

Remember to straighten the cloth background. Wrinkles and cloth folds are incredibly distracting and make for an unprofessional photograph.

6.3 Accuracy

Be sure to check your photos periodically on a computer so you know that everything is in focus. Oftentimes a photo will look in focus on the camera but will actually be out of focus. It takes a larger screen to see this. Therefore, *check frequently* on a larger screen.

When you pull the photos up on the computer check for certain things: are the colors reasonably accurate? Are the important elements of the artifact visible? What is of note about it, and did you photograph it? Did you capture it from different sides? Is the scale in the proper place and straight? Is everything in focus? Is the background clean? These are all questions to ask yourself when looking through the photographs and especially while taking the photographs. If you do this process continually throughout taking the photographs you will be able to adjust and fix minor errors as you work instead of after the fact.
6.4 Small Artifact Photography

Artifacts will differ in size and it will take creativity to decide how you will photograph them. Small artifacts have several obstacles to overcome:

- Often focusing on the background instead of the artifact
- Unable to get the detail on small artifacts
- Dust, lint, etc. as a distraction

To solve these problems, start by taking photos with a Macro lens, if available. This may enable you to take better close up photos—in focus—than trying to use a standard lens. If the macro does not help, try switching it (or a regular lens) to manual focus, so that you can adjust the focus ring while you move around in order to get a focused shot.

If you are unable to get the detail on the artifact, it is an issue of exposure and light. You will have to think about your light set up and the exposure triangle (as written above) to try and bring these details out. If this still does not work, underexpose your photo and bring up the exposure, highlights/shadow, and contrast in post-processing; most issues can be solved (generally) if you have an underexposed photo. If it is overexposed, there is no saving the detail that is lost.

Continue to clean your background with a lint roller.

6.5 Large Artifact Photography

Large artifacts are often those that will not fit comfortably in the camera’s field of view with the background. This means you may have corners or sides of the photograph that pass outside of the backdrop and make your photograph look unprofessional. Sometimes this can be easily solved by cropping the photo in post-processing (stepping further back and at least getting a proper photo of the artifact). If this does not work, try some of these tips:

- Adjust the backdrop; it may be able to stretch further. This allows for a wider angle.
- Move the lighting around in case it is in the way of an angle that may allow you to fit everything in with the proper artifact backdrop cloth.
- If it is a tall artifact, get rid of the pedestal and lay the cloth on the floor and shoot it from the floor.
- If it is wide, get a table and drape the cloth lengthwise.
- Do not forget the scale!
If none of these work and you cannot come up with a creative answer, get a hold of the Director.

7.0 Post Processing

Many photographs can be touched up and adjusted in the post-processing phase. Once you have taken all of your photographs and placed the artifacts back into storage, it is a good idea to spend time going through each photograph and making sure it is suitable.

REMEMBER: do not edit the RAW version, only the JPEG. Do not edit it multiple times as that will degrade the quality.

The MAE uses Photoshop and Lightroom to edit photographs. The main things to check are exposure, that details show, that no details in the back are distracting (a good tool to fix this is the clone tool), and that color is accurate. These can all be adjusted with tools under “Image”. It is suggested if the photographer is not familiar with Photoshop, to watch tutorials and practice with the program.

8.0 Digital Storage

Be sure that your museum or repository has a digital backup system for photographs, both RAW and JPEG formats. It is suggested they are organized by accession number.

9.0 Camera Care

10.1 General

Keep the camera in a protective case when you are not using it. If it is not going to be used for an extended period of time, take the battery out (otherwise the camera body slowly drains it over time). If you notice that the battery is low when putting the camera away, place it in a charger and let someone know so they remember to take it out and place it back into the camera bag.

10.2 Cleaning

Never clean the camera with a tissue or cloth. Use an air puffer to get rid of dust and debris on the lens and inside the camera body, behind the lens (this is not needed all of the time but should be done periodically, especially if the lenses are switched out regularly and debris has the chance to get in behind the lens and attach to the mirror). Clean the lens glass with a lens cloth, otherwise it may get scratched. Be sure to clean filters as well.