**Module 4 Cinematography**

CINEMATOGRAPHY

Probably the second most important person on the set behind the Director is Cinematographer or “DP”, the Director of Photography. This person is charged with the task of visually helping the Director create the look that he or she wants for the film. This person must have strong skills as both an artist and a technical expert. Remember to differentiate this person from the Camera Operator, whose job it is to actually shoot the footage. One person could do both jobs on a smaller production, but larger productions today typically have many camera operators, but only one DP. Lighting is a key component of Cinematography. For artistic reasons, it is also an important quality of mise-en-scene, but it is also a critical component of cinematography because of how it is used to create contrast and exposure.



Cinematography depends on three primary things:

1: The composition of the objects and people within the frame

2: The photographic quality of the image

3: The movement of the camera

The very first Cinematographers were all accomplished Still Photographers, and thus it is not surprising to find some very well composed shots in some of the very earliest Lumiere films in 1895:

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One of the first things we teach students of either video or still photography is not to frame the main subject in the dead center of the screen; instead, we teach them the “rule of thirds” in terms of where to place the main subject, at one of the four points of intersection: (you draw imaginary lines, and separate the vertical parts of the picture into thirds, and the horizontal picture into thirds)



(The shot on the left positions the main object in the center of the frame, and is not as well composed as the same image on the right, which balances the objects better.)

A well composed shot positions everything in the frame with a sense of appropriate balance. In the shower scene in *Psycho,* Marion is in the right foreground taking a shower, while the left background contains the door that opens, and the murderer coming in with the knife.



The Photographic Aspects of the shot have a lot to do with the **tonal range**, the contrast range between the lightest and darkest areas within the image. One of the reasons film was preferred over video until the recent development of 4K and 6K cameras( like the RED cameras) was the ability of film to record a much greater contrast range than video, but these recent developments in digital video have eliminated this gap. It used to be that video cameras would lose definition at both ends of the tonal range; the darker areas would be a muddy grey, and the lighter areas would burn out and look overexposed. The industry has been rapidly shifting to HD Digital Video in recent years, but some directors (like Quentin Tarantino) still prefer to shoot on 35MM film, despite the high costs and declining availability of stock.



(Above is the RED 6K Digital Video Camera, with its accessories. The first 4K version of this camera came out in 2007 and cost $20,000, vs. the Panavision 35MM Film Camera, which costs $500,000)

In the past, Directors and Cinematographers also relied on different kinds of film stocks to achieve certain looks in their films – some “slow” stocks gave an incredible richness to the color, while “fast” stocks increased the “grainy” look desired for documentaries or other “realistic” films. Today’s sophisticated post-production software tools have changed this situation too – you can pretty much completely alter what is shot in the field to look like whatever you want to in the digital environment.

DP’s also used to have to use certain color or diffusion “gels” over the lights to create effects on the set, but that too is largely unnecessary today; these effects can be created by using digital filters in post-production.

For video, the key term is lines of resolution. When we speak of 6K, we mean 6000 vertical lines of pixels in the frame. Most of you have wide-screen televisions with either 720 or 1080 vertical lines of resolution. 6K packs more than five times as many lines into the frame. The older, more square format televisions and older camcorders typically only had 300-400 lines of resolution, so you can see how much this quality has improved in recent years. The ASPECT RATIO (the width vs the height) also changed with the newer flat screens, from 4X3 to 16X9, which is much closer to what we have always seen in movie theaters. We thus no longer have to cut off the side parts of the images to make a film viewable on television.

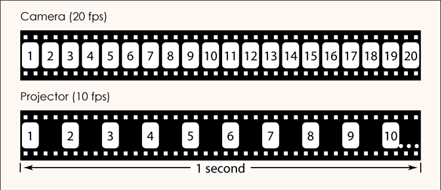


CAMERA FILTERS (a ring filter that screws onto the lens, like the one below) can be used to add color or to soften the image. I was taught to use Vaseline on a clear camera filter to create the dreamy look. We also used a blue filter to make an overcast day look like a clear, blue sky day.



**SPEED OF MOTION** also has an impact on how we perceive a shot. Many of the earliest film cameras were hand cranked to move the film past the shutter. A camera person could intentionally **overcrank** the film when recording it; when it was played back at the normal speed, it created the first “slow” motion effects. Similarly, they could **undercrank** the film when recording, and that would create the comic effect of speeding up time, like in the Keystone Cop movies.

### Overcranking

[](https://en.wikipedia.org/wiki/File:OvercrankingTimeline.png)

<http://www.youtube.com/watch?v=mZBdxvego1E>

The “Keystone Kops”

“Slow” motion often is used for fantasy or dream-like sequences, to showcase special powers, or to express a lyrical quality (think of the shots of butterflies or birds in flight). These types of effects look better if created “in-camera” rather than in post-production, because of what we call the **“rasterized”** look in digital, which involves duplicating the frames to create slow motion, which does not look as clean as a slow motion shot created “in-camera”. Newer cameras have the ability to shift into recording at higher or lower frame rates on the fly (in the middle of recording), and this is what brought what is called “bullet time” into defined cinematic terms today because of the famous scenes in *The Matrix:*

<https://www.youtube.com/watch?v=ZQaBYT4MxWU>

The Lobby Shootout from *The Matrix*

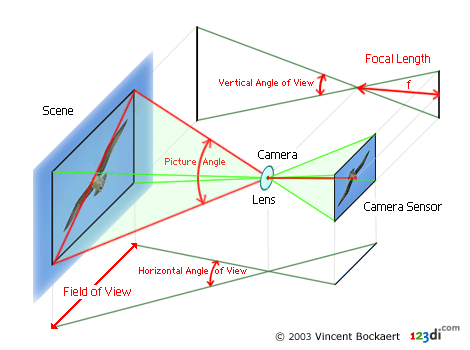
Every person in my generation also thinks of this scene from the movie “10” with Dudley Moore and Bo Derek, when they think of “slow-motion” shots:

<http://www.youtube.com/watch?v=p8TUWilKb6M>

Running on the Beach scene

**LENSES** change the scale and depth of an image, and they can distort images, flatten space, and exaggerate depth. The cinematographer has the ability to change lenses, which gives them the power to dictate the perspective of the viewer.

The distance from the center of the lens to the camera sensor is what we call the focal length. For 35MM cinematography, a 50MM lens is considered to be “normal”, since it essentially duplicates what our eyes can see, without either reducing or enlarging the image. Wide Angle Lenses vary between 20MM and 35MM, and Telephoto Lenses range from 80MM-300MM.



Before the time when zoom lenses became available, there was usually a turret of three lenses on the front of many cameras, with a normal lens, a telephoto lens, and a wide angle lens. If there was just a single lens mount, then these 3 lenses were available and interchangeable; the cinematographer would choose the one deemed appropriate for the shot. Below is a shot of the wide array of available lenses for the Panavision 35MM film camera:



**ZOOM Lenses** (lenses that can change focal length in the middle of a shot) were a dramatic addition to the art of filmmaking. The history of the zoom lens dates back to the development of the telescope, but the modern zoom lens was developed by Pierre Angenieux in the 1950’s, and was first used in the late 1950’s. This zoom lens allowed for precise focusing while physically zooming in or out from a shot.



The image below, left, is an example of wide-angle focus and the image on the right is an example of close-up with a telephoto lens. Note the clear background and sense of depth the wide-angle lens gives. Typical of a close-up with a telephoto lens, the background is blurred out and the depth is flat.



**DEPTH OF FIELD AND FOCUS**:

Depth of field refers the distance between the closest objects in the frame and the furthest objects. Normally, if the camera person focuses on someone with objects in the foreground and deep in the background, the foreground and background objects will be out of focus. One of the revelations of the great cinematography by Gregg Toland in *Citizen Kane* was how he kept all of these objects in focus by using a wide angle lens, good lighting, and a very fast film stock.

In the scene you can link to below, notice how the image of young Charles Kane playing in the snow stays in focus even as the camera is moving backwards:

<http://www.youtube.com/watch?v=xbGbqRWwC_Q>

Here is a still shot from the above Citizen Kane scene:



Keeping a camera in focus used to be done manually in the many years before we had cameras with **automatic focus** – in fact, on some of the more complicated shots, this was the job of the “Focus Puller”, whose name you would see in the film credits. Take another look at the famous shot from *Psycho,* which was incredibly ambitious for 1959. The camera was on a dolly; it had to be pushed from the bathroom into the bedroom, and the camera person had to pan to first get the newspaper on the night stand, and then pan up to show the house on the hill through the window. The focus puller had to practice and change the setting on the fly, after having practiced.

<https://www.youtube.com/watch?v=8VP5jEAP3K4>

(the above clip has most, but not all of the scene I refer to. You can also go online to the GPC licensed copy of this film at this url: <http://digitalcampus.swank.com/gpc313757/SDC/Watch.aspx?v=53cec478afc84df0a6d44b74527d3334>) Go about 45 minutes into the film to see the entire clip

Rack Focus is used to direct the audience’s attention, by changing the object of focus between a background object and a foreground object. Notice how this is used in a scene from Pan’s Labyrinth:

<http://www.youtube.com/watch?v=EqYiSlkvRuw> (about one minute in)



**CAMERA ANGLES AND THEIR MEANING**

**High Angle** shots imply smallness or submissiveness; if you are shooting from the perspective of a tall building down on your subject at street level, you make your subject look smaller and less significant.

**Low Angle** shots imply superiority or dominance; looking up at someone makes them appear to tower over you and gives them more power.

Think of our courts; typically, the Judge is on a platform looking down at all of the participants. A King or Queen similarly sits on a throne and looks down at the people, while they look up at him or her. Looking up at a tall mountain or imposing building can give the feeling of taking on a big challenge.

**Eye-level** shots often can indicate confidence, comfort, and normalcy.

The **Canted Angle** or **Dutch Angle** shot is when the camera is intentionally held on its side to accent some kind of drama, like when a panicked person is running away from someone trying to kill them.



The comparative height of people in a frame influences how we perceive them; the comedian Jon Stewart is in reality a very short man, but on his talk show, when seated, he always appears to be of an equal height to his guests, because he understandably wants to be seen as being on an equal footing with the guest.

**TRIPODS VS HAND HELD**

The heavy weight of initial cameras meant they had to be on tripods to achieve a steady image

Hand held shots were first seen in the French New Wave films that took advantage of films cameras like the Arriflex and the Éclair that could be hand held with a shoulder mount to give the camera person more freedom.



MOB: ways of moving the camera during the shot

**Panning**: is moving the camera on a tripod from right to left, or left to right

**Tilting**: is moving the camera on a tripod up or down

**Tracking**: is moving the camera on a rolling dolly or on a set of railroad tracks to follow two people down the street who are talking to each other. On some of my shoots, we used a “poor man’s dolly” – a shopping cart (!) to achieve the same idea, by sticking the cameraperson in the cart and having someone else push it.

**Crane** **Shots:** have been around since the days of DW Griffith. The last shot in Citizen Kane is a great example of a crane shot:

<https://www.youtube.com/watch?v=eP0O1BKu3zk>

**STEADICAMS**

**Steadicams**: dominate shooting today. These are harness devices that let the camera be suspended on a floating tripod head that does not pick up the jarring impact of the walking of the cameraperson, and thus achieving dramatic smoothness in tracking shots. Steadicams are widely used today --- it used to be that a production could only use one camera because of the expense, but today it is common to use multiple cameras, which by definition make continuity editing automatic (the action is GUARANTEED to match because it was shot at the exact same time).

Here is a dramatic product demo that shows you how these harness systems operate:  
<https://www.youtube.com/watch?v=6UjWsy7oGqs>

This shot from Hugo gives you the perspective of how the camera moves while doing the shot. Notice also the green chroma key areas you see during the shot; these will be filled in with other images during post production to create the final scene that you see up on the screen:

<https://www.youtube.com/watch?v=qVdD2WfmlFc>

One of my favorite examples of a steadicam shot is in a 2014 music video from Kiesza; the entire video is one take, and involves over 10 performers coming in and out of the moving camera shots. Watch this, and let it inspire you to think of your own favorite steadicam shots from a recent film or music video.



Kiesza’s “Hideaway”: <https://www.youtube.com/watch?v=Vnoz5uBEWOA>

**TYPES OF SHOTS**

**Long Shot or Establishing Shot**: shows all of the space and all of the people in a particular scene. This is “establishes” the location and gives the audience that sense of grounding

**Medium Long Shots:** This shot is from the knees up; good for conversations between 3 people where there may be some action going on in the background

**Two-Shots**: show the relationship of the characters. These are usually done in parallel, and also “over the shoulder” of each of the characters; combined with close-ups and cutaways, this can give the editor enough footage to put together the scene.

**Medium Close-Ups, Close-Ups, Extreme Close-Ups**: the closer you get, the more emotions can be conveyed by the actors. I have always thought that this was a significant advantage that film has over the traditional theater, where it is very difficult to see the actors and actresses close up. MCU’s are from the chest up, CU’s are just the face, and ECU’s are of aspects like the eyes or the mouth.