Day 1: Set Up Your Camera for Success

Setting up your camera

- RAW + JPEG
  - RAW is the best file, preserve all your data, but the files are large and they come out looking flat.
  - JPEGs are shareable, small files, and look nice, but they are inferior quality.
  - No need to choose - data is cheap!
- Focus
  - Set the focus point (generally use the one in the middle)
  - Set stationary focus for most things (One Shot or AF-S)
  - Set continuous focus (Continuous or AF-C) when you have a fast moving subject.
- Metering
  - Go with Evaluative/Matrix/Multi-Segment.
  - The camera will get it right more than you!
- White balance
  - Remember that all light has color, and your camera needs to offset that.
  - If you are on the move a lot, just go with Auto.
  - You might just set Auto and never change it.
- Picture Styles
  - This setting is for the processing of JPEGs - which we don't care much about.
  - Go with Standard and forget about it.

Lens Controls

- Focal length
  - Focal length is measured in millimeters.
  - Wide angle lenses show a lot of the scene in front of you and have small numbers (usual range of 16 - 30 mm)
  - Normal or standard focal lengths are 40-60 mm.
  - Portrait lengths are usually 80 - 100 mm
  - Telephoto lenses allow you to zoom in on a subject and have large numbers (usually 200 mm +)
- Auto Focus
  - Turn it on and leave it on, unless the camera has difficulty focusing.
- Stabilization
  - Turn it on and leave it on, unless using a tripod.

Additional Commentary

If you just pull your camera out of the box and start using it, you will not be poised to get the best pictures. The camera will not give you the best type of files. It will not give you the control you need over the process. And you won't understand how to use it to its maximum potential.

Therefore, the first thing we need to do is get your camera set up properly. That's what we are doing today. First I will explain the best settings so you will be able to set your own camera up properly. At the same time, I will show you how to go about making the settings.

The good news is that many of these settings are the sort of thing you can set once and then forget about them. When they do need to be changed, I will let you know. For some of the settings, you will actually have options, and I will explain the advantages and disadvantages of each.

RAW+JPEG

Let's get started by setting up your camera to create the absolute best file type. This is one of the most important settings you will make on your camera. Let me explain that.

When you take a picture, the camera saves the picture data by creating a file. Your camera is capable of creating a few different types of files. It can create smaller files that don't use as much data and it can create larger files that preserve more information and image detail. What you will do now is tell your camera what type of file to make.

JPEGs

If you just pulled your camera out of the box and started taking pictures, the camera would create JPEG files for your pictures. A JPEG is a fairly universal file format. It stands for Joint Photographic Exploratory Group, which is the group that came up with the format in the early days of digital. It is a compressed file format, meaning that the camera applies an algorithm to store all the pixel data in as little space as possible. At the same time, the camera will apply a little processing to the picture.

This brief bit about how JPEGs work tell you a lot about their strengths and weaknesses. There advantages and disadvantages to JPEGs are:

Advantages of JPEGs:

- The files are easily read and shared among different computers,
- The compressed JPEG file takes up a minimum of space on your memory card or hard drive,

- During the conversion process, saturation and sharpness is automatically added to your picture.

Disadvantages of JPEGs:

- Compression of the file means that some data is discarded,
- Compression means fewer colors, which makes the transitions between colors not as smooth,
- Compression means less highlight and shadow detail will be preserved,
- Processing is automatically added to the picture, so you have little control over it.

The RAW Advantage

Because of the disadvantages I just mentioned, most photographers set the camera to create what are called RAW files. A RAW file is pretty much the straight camera data bundled into a file. There is no standard format, and each camera manufacturer does it differently (often different between cameras as well). RAW files are not compressed. This leads to the advantages and disadvantages of RAW files, which are:

Advantages of RAW files

- They preserve highlight and shadow detail,
- They preserve colors to keep transitions between colors as smooth as possible,
- There is no processing added to your picture, leaving you in complete control.

Disadvantages of RAW files

- The file sizes are much larger (usually about 3-4 times as large as a JPEG),
- They are not shareable among different cameras and computers.

Deciding Between RAW files and JPEGs

So which do you choose? RAW or JPEG? Actually, you don't need to decide. Pick both. Your camera will make both RAW and JPEG files if you set it that way. That will give you the best of both worlds. You will have the best available file (the RAW file) and the processed, compressed, easily transferred file (the JPEG). You won't notice it when you take the picture – but you will end up with two files for every shot you take.

You may be tempted to just shoot JPEGs on the premise that you don't process your photos. That would be a mistake because you might decide to use the RAW files at some point in the future. You want to have the best data possible if you decide to edit your pictures in, say, five years or even longer.

You might also be tempted to forego the JPEG on the premise that you only use the RAW file. On occasion, however, you will be happy that you have a smaller file that you can easily share via email or on the web. The only downside to taking the additional JPEG is that it uses more data, but these days that really isn't a problem since memory is now pretty cheap.

How to Set RAW+JPEG

To set the file type, you will need to go into your camera's menu to Image Quality. Set the camera to take a *RAW file* and the *largest JPEG* the camera is capable of making. Your camera might say something like RAW+L.

Canon Setting RAW + JPEG Nikon

The graphic above shows you the menu settings for Canon and Nikon settings. If your camera is different, just check the menu (and that won't be the last time you hear me say that). But once you make this setting, you can leave this setting alone and forget about the whole issue of file type.

Focus

The next thing you need to set on your camera is the focus. Don't worry – you are going to use the autofocus so your camera will do a lot of the work for you. But you need to tell the camera which part of the frame to use to set the focus. You also need to tell the camera whether to focus on a stationary point or attempt to track a moving subject.

Setting the Focus Point

First, you should tell the camera what part of the frame it should use to focus. You can have the camera automatically pick the focus points for you or pick them yourself.

If you choose to let the camera automatically set the focus points, you need do nothing. The camera is probably already set up that way.

As good as the automatic mode is, the camera will not focus on what you want *all* the time. The camera cannot anticipate every circumstance you will encounter. As a result, while automatic selection is a viable option for setting the autofocus points, you might want to set the point yourself. To do so, there may be an Autofocus Area button on your camera, or you might have to do into the menu. Either way, just go to that setting and move it to manual, then select the center point. After doing so, you will likely find that this is another setting you can forget about.

Canon Setting the AutoFocus Point Nikon

You may have noticed that I recommend you use the center point as your autofocus point. But what do you do if the thing you want to focus on isn't in the center of your picture. We'll talk more about this later, but for now just set your focus by pressing the shutter button partway down. Once your focus is set, move your camera around to get the exact composition you want and take the picture.

Focus Operation

There is one other setting you need to make with respect to focus. That is whether the camera should focus on one stationary point, or if it should try to track a moving subject. The choices in this regard are as follows:

- **Stationary Focus**: This is called "One Shot" by Canon and "AF-S" by Nikon and Sony. It means that the camera focuses on a thing, and that's it. The focus does not change. It is great when things are not moving in your frame, which frankly is the vast majority of the time for most people.
- **Continuous Focus**: This is called "AI Servo" by Canon or "AF-C" by Nikon and Sony. It means that the camera is tracking a moving subject to attempt to keep it in focus. The focus is continually changing. It is obviously used when your subject is moving, running, flying, etc.

Nikon Setting the AutoFocus Mode Canon

Default to using the stationary focus mode (One Shot/AF-S). This obviously works best for unmoving subjects and scenes. I think you will find that it works best when your subject is moving a little bit as well. You just need to be quick with the focus, compose, and shoot process. On those occasions when you are tracking a subject that is moving quickly, switch over to AI Servo/AF-C to get the shot, but then switch back.

Metering Mode

The next thing you need to set on your camera is how it should meter light. Specifically, you get to tell the camera what portion of the picture it should look at when determining the proper exposure level. We are going to talk a lot more about this shortly, so all we're going to do here is get your camera set up.

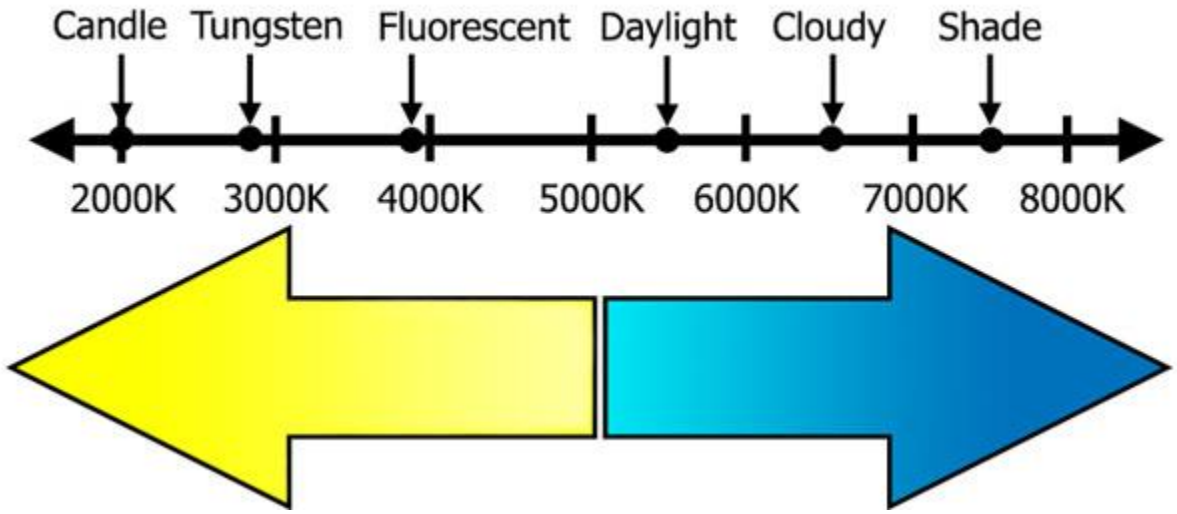
Your choices are that you can have your camera decide what part of the frame to us, or you can tell the camera to use a lot of the frame, or you can just use the very center of the frame.

Nikon Setting the Metering Mode Canon

When you are just starting out, go with the automatic mode and forget about it. This automatic mode is called Evaluative Metering by Canon, Matrix Metering by Nikon, and Multi-Segment Metering by Sony. Either way, it really is just automatic metering of the entire scene pursuant to some algorithm of the manufacturer.

White Balance

All light has a color to it. Your eyes are constantly adjusting to the color of light, so you probably don't notice it very often. Your camera will pick it up though. If you don't do anything to correct it, your pictures will have strange color casts.



Your camera has a setting called White Balance, which allows you to offset the color of the light to make it a more neutral tone. Your camera will do it automatically if you want. In fact, that is what I recommend. Your camera will do a pretty good job of setting the right white balance. In addition, if you decide you don't like the white balance that has been applied, it is an extremely simple thing to fix it later.

Nikon Setting White Balance Canon

I personally almost never take my camera out of Auto White Balance. You can just set the white balance to auto and forget it.

Picture Styles

Picture styles are the processing that the camera applies to the picture when it converts a file to a JPEG. The camera will apply more or less saturation and sharpening to your JPEG files depending on which one you choose. Since you will be creating a RAW file, this setting doesn't really matter. At least, it is not worth worrying about. Although you will be creating a JPEG file, most likely you will be using the RAW file, so the processing applied to the JPEG shouldn't matter. In any case, the standard setting is a good default option.

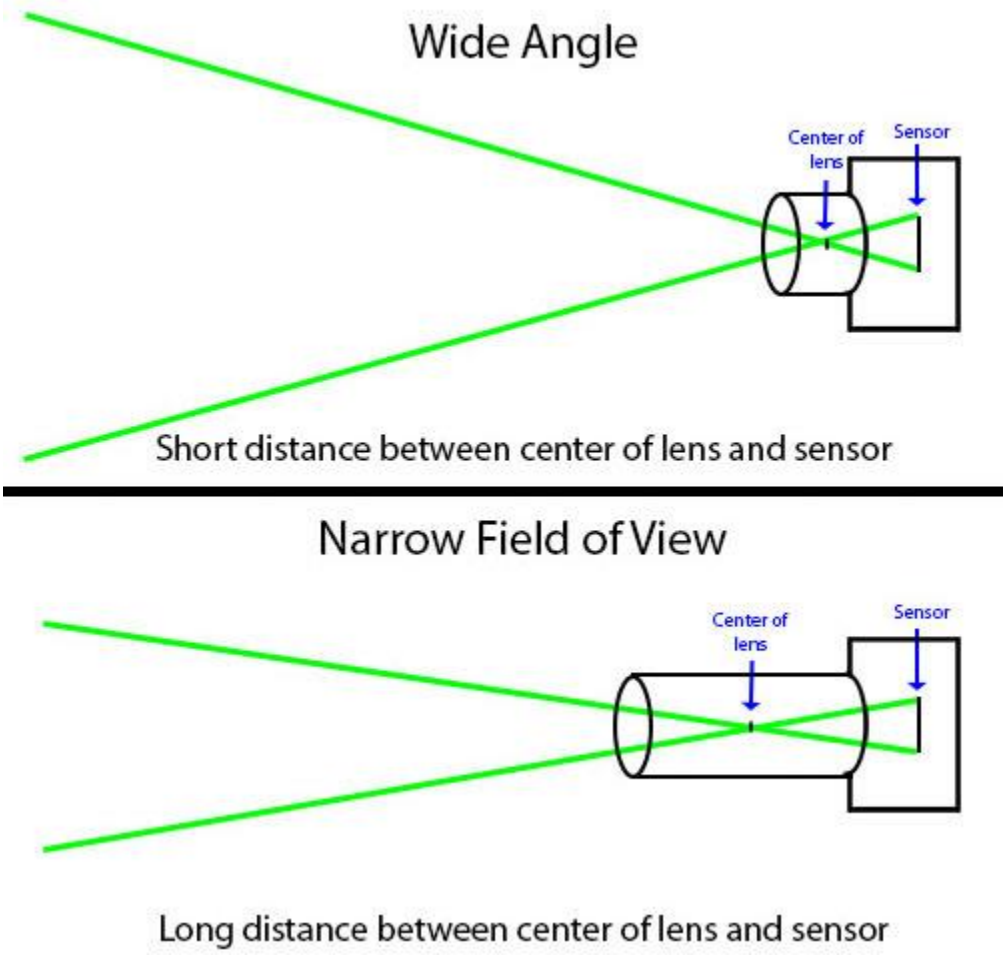
Lens Controls

Your lens is pretty simple to use. There are a few things to be aware of though, which we'll walk though now.

Focal Length

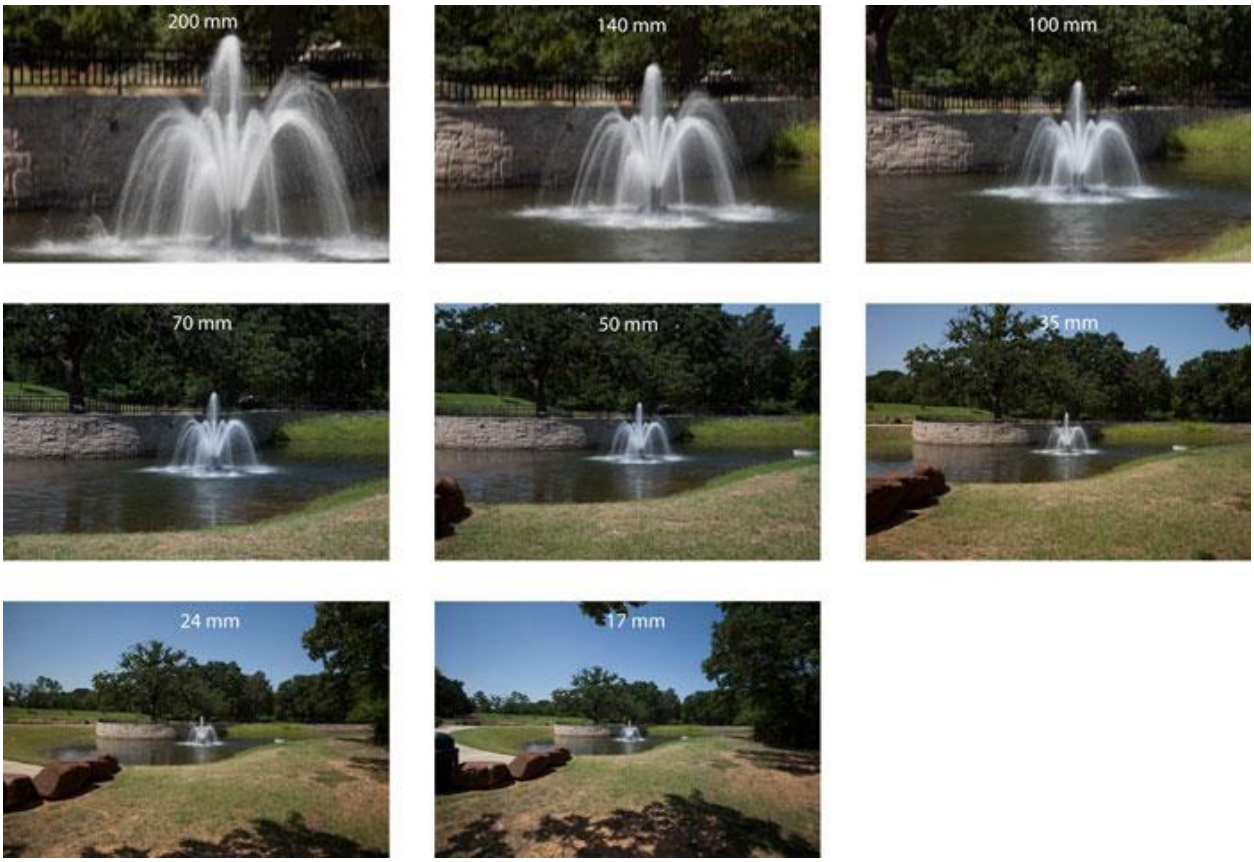
First, I want to talk about focal length, even though this isn't really a setting on your camera or lens. It is, however, something that you should be familiar with as it will be mentioned many times throughout this course.

You are no doubt already generally familiar with the notion that you can zoom in on subjects to make them appear closer to you or zoom out to take in a wider view of a scene. Doing so is a function of something called focal length. Focal length is technically the distance in millimeters from the center of the lens to the image sensor when focused at infinity. This chart will show you how it works:



The smaller the number, the wider or more zoomed out, the view. The larger the number, the more restricted or zoomed in the view.

To give you an idea of how these focal lengths will appear, here are some pictures taken at various focal lengths from wide angle to telephoto.



I should mention that your focal lengths may be slightly different because of something called a "crop factor." The focal lengths in the chart above apply to "full-frame" cameras, or those with digital image sensors that are the same size as a 35-mm piece of film. Many cameras have smaller image sensors, and cameras with smaller sensors show less of the image. In other words, lenses are designed to reflect light onto a 35-mm sensor, and if the sensor is smaller, some of the reflection will spill over the sides and be lost. It is referred to as a "crop factor." The smaller the sensor is, the more dramatic the crop factor.

It is very likely that you are using a camera with an APS-C sized sensor, which is somewhat smaller than a full-frame camera. An APS-C sensor will result in a 50% crop factor (actually 60% on Canon cameras since their APS-C sensors are a tiny bit smaller) versus the numbers on the lens itself. That will make a 24-mm lens look like a 36-mm lens.

Auto Focus

On the side of your lens will be a switch for using Auto Focus or Manual Focus. Usually these modes are designated with an AF and an MF. Almost all the time, you want your lens to be in autofocus mode.

The only times you will ever want your lens in manual focus mode is when the lens is having a difficult time focusing (as in very low light situations) or if you are spending a lot of time on a particular exposure to make sure you have focus exactly right. In those situations, switch the lens to manual focus and use the live view feature on your camera to check the focus. Zoom in to make sure it is spot on.

When you are done with that, switch back to autofocus.

Image Stabilization or Vibration Reduction

Modern lenses are often enabled with a feature called image stabilization or vibration reduction. This is a feature in the lens that counteracts any shaking or vibration of the lens to keep the picture looking sharp. If there is a small amount of shake to the picture when you are taking it, this feature will eliminate it.

In general, you should enable this feature and leave it on. It is great. Even if you don't need it in a particular circumstance, having it on will not hurt anything. There is one caveat to this though: if you have your camera on a tripod, you should turn it off as leaving it on will create a little bit of blur in your images.

Day 1: Checklist of Initial Camera Settings

Camera Settings:

Image Quality:	RAW + JPEG
Picture Style:	Standard
Auto Focus Operation:	One Shot or AF-S
Metering Mode:	Evaluative, Matrix, or Multi-Segment
White Balance:	Auto
Drive Mode:	Single Shooting
Color Space:	sRGB
Live View:	Enable
Exposure Simulation:	Enable
Bracketing/AEB:	Off
Long Exposure Noise Red.:	Off

Lens Controls:

Auto Focus Switch:	AF
Image Stabilization:	On

Day 1 Assignment:
Set Up Your Camera

Description:

Apply all the settings that we worked through in the lesson to your own camera.

Keys to Success:

- Make all the settings on the checklist provided.
- Consult your camera manual for any settings your are not sure of.
- Get a 3rd party book on your camera model (if needed).
- Get comfortable with the camera controls.

If Your Camera Is Already Set Up:

- Create custom menu items for your camera.
- Master your camera controls so you can operate it without looking.

You want to get beyond thinking about camera controls as soon as possible!

Upon Completion of this Assignment:

Your camera is now set up and ready to go. You are ready to dive into the meat of this course and tackle exposure.