



Module 5: **Correct Exposure**

Module overview

In this module you'll learn about the following:

- The Exposure Triangle
- Achieving The Correct Exposure
- Viewfinder vs. Live View
- Exposure Bracketing
- HDR Photography
- Correct Exposure Tips



“In photography there are no shadows that cannot be illuminated.”

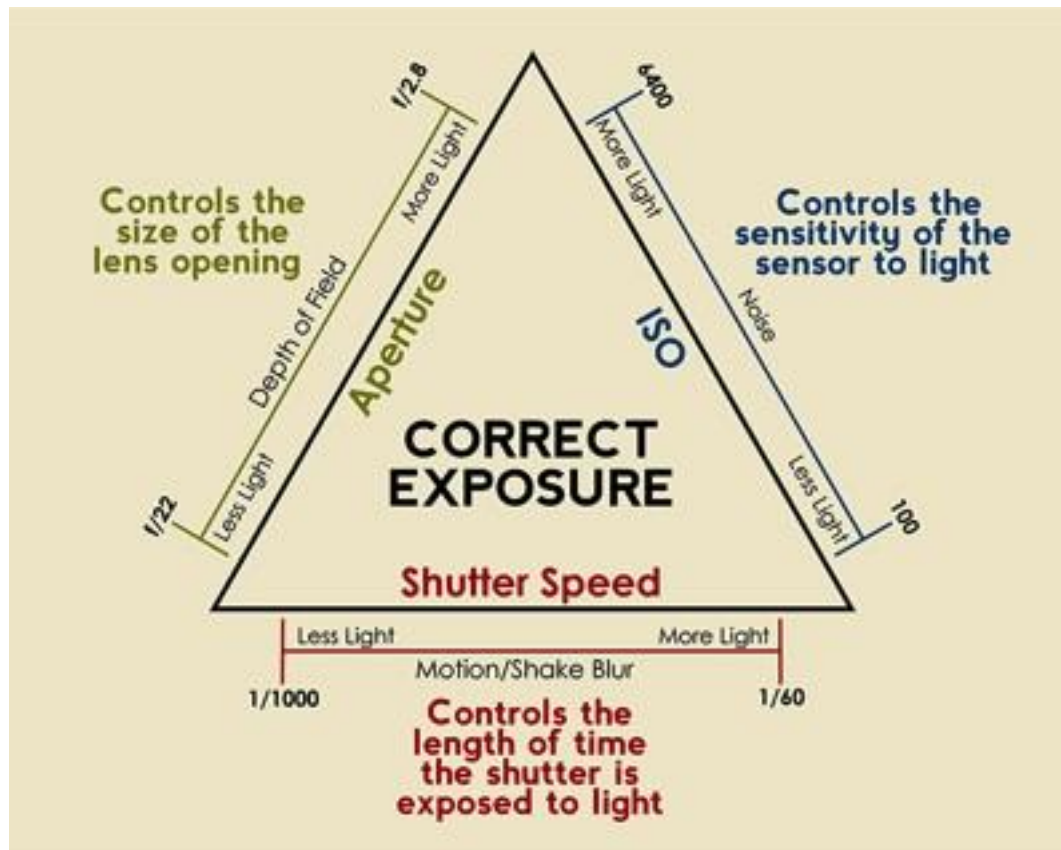
August Sander
(1876 – 1964)

5.1 The Exposure Triangle

Tip: using either a model (usually a patient friend or family member) or a still life (a vase of flowers, for example) try shooting the same thing many times but adjusting the exposure settings each time.

See how increasing and decreasing the ISO affects the noise levels, how the aperture settings affect the depth of field and how the shutter speed affects motion blur and/or camera shake.

Now that you're familiar with ISO, aperture and shutter speed, let's look at how those three elements are combined to create the correct exposure. Collectively referred to as the Exposure Triangle, each part of the triangle controls the amount of light that hits the sensor when opening the shutter.



Each individual part of the triangle has an effect on the other two and in many cases one or two of the parts of the triangle might have to be compromised to achieve the result you're looking for.

For example, if you're shooting in low light and need to capture images without camera shake and motion blur, you will have to increase the aperture and ISO to allow more light into the lens and give you a faster shutter speed. If the depth of field is too shallow, then you'll have to increase the ISO again to allow you to use a smaller aperture; however, this could lead to noise problems.

5.2 Achieving the Correct Exposure

Usually the best place to start is ISO. If you're shooting outdoors, then start with 100 ISO if it's sunny; if the sky is cloudy, try 400 ISO; and if it's night, then 800 ISO or higher.

Then you have to decide which of the two remaining sides of the triangle is more important. If you need to control the depth of field, then aperture should be the priority. For portraits, this will mean your shutter speed will be reasonably fast because you'll be using a large aperture.

If you're shooting landscapes, then you'll need a smaller aperture, which will slow down your shutter speed. This will probably mean using a tripod; but remember, if there's any wind this can cause motion blur, so you will have to increase the ISO to allow faster shutter speeds.

Tip: if you feel your exposures are not right, despite using the settings suggested by the exposure level indicator, try using a separate light meter.

A cheaper alternative to buying a light meter is to use a smart phone app. There are many available; some are free, but not the better ones; however, when compared to the price of a light meter, it's a far less expensive route.

5.3 Viewfinder v Live View

When you shoot in auto or one of the pre-programmed modes, your camera's light meter will set the exposure for you. When you shoot in manual mode, you set the exposure by adjusting the shutter speed, aperture and ISO.

So, how is this done? Well, there are two way of reading your camera's light meter: you can either use the viewfinder or the live view screen.



Viewfinder

When you look through your viewfinder to compose your shot, you'll see a readout. It varies from camera to camera, but usually you'll be able to see the exposure settings (shutter speed, aperture and ISO) and the shots remaining readout (how many shots you have left on your memory card); you will also see the exposure level indicator, which does exactly what it says, telling you if your exposure settings are at the correct level.

When the shutter button is pressed half-way down, the auto focus will begin and so will your light meter. The exposure level indicator should be in the centre. If your exposure settings are wrong, then the indicator will either be in the negative, meaning insufficient light which results in a dark image, or it will be in the positive, which means too much light.

Tip: some people use the Sunny 16 Rule to predict how to exposure on sunny day.

If you choose an aperture of f/16, an ISO setting of 100 and 1/100th of a second shutter speed, you should have a sharp image that is neither under nor over exposed.

Try it and see if it works.



The settings used here indicate that not enough light is hitting the sensor; this is what's known as an underexposure. The exposure time was too short and the resulting image is too dark.



To allow more light in, the shutter speed was increased; but in this case it was increased too much – the indicator is now in the positive and now we have an overexposure.

Tip: using a flash outdoors creates some interesting results, especially with portraits.

Try experimenting with your flash next time you shoot outdoors. If you're using your built-in flash, remember that it only has a short range.



1/250s was too fast and 1/13s was too slow. By gradually increasing or decreasing the exposure settings, you will see the indicator move; when it is in the centre, you will have the correct exposure.

Note that other settings could have been adjusted. Boosting the ISO would have increased the sensor's sensitivity to light and allowed for a faster shutter speed. Increasing the aperture size would also do the same.

So why adjust the shutter speed in this example?

Although the daylight available wasn't particularly strong, an ISO setting of 320 was sufficient. It wasn't possible to shoot parallel to the wall, so to be shot at an angle, to keep everything in focus a mid-sized aperture setting was required. The correct shutter speed at those settings was 1/60s, which is within the range for hand-held shots; any slower and a tripod (or very steady hand) would have been required.

So when setting your exposure, you have to take many factors into account. The amount of available light should always be the first consideration. If you're shooting in a studio with professional lighting equipment, this gives you much more control over your exposure settings, but mastering studio lighting can be difficult at first.

Let's look at a situation where the available light is poor and it's not possible to use a flash.

How do you adjust your exposure to compensate for this?

Tip: try to avoid using the pop-up flash indoors; it can often look too harsh.

Either increase the ISO or, if you're using an external flash unit, angle the head to reflect the flash off the ceiling; it will increase the illumination without the harshness.



In this example, the light available was low but, due to the reflective surfaces on the object, a flash could not be used.



A much slower shutter speed had to be used to compensate for the lack of flash.

Tip: using live view uses more battery power, so if you're on a long shoot and don't have the chance to recharge your battery, either bring a spare or use a battery grip, which has two batteries.

Live View

The other option is to use the live view screen. This offers some advantages, the main one being that it gives you a more accurate view of what you're shooting.



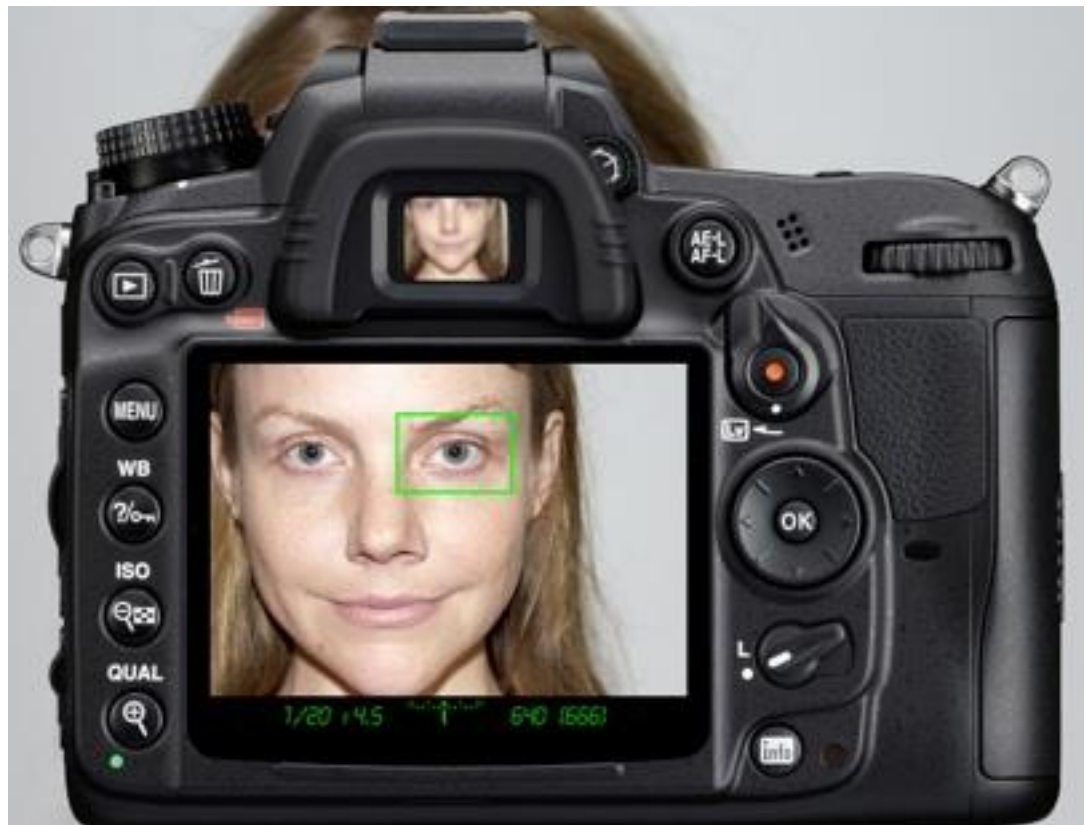
It also allows you to have greater control of focusing.



When in live view mode, you will see a rectangle that is used to select the area to focus on. Use the control pad to select the area and then half press the shutter button; when the image is out of focus, the rectangle will be red.

Tip: use the zoom-in button to magnify your subject and check the focus area. If the focus does not look sharp, switch to manual focus and make the necessary adjustments.

When the image is in focus, the rectangle will turn green.



5.4 Exposure Bracketing

If you're taking a photograph and you only have one chance to get the correct exposure, you can use exposure bracketing; this acts as a safety net when you only have one shot.

Bracketing is when you take more than one exposure at different settings. Based on the readings from your light meter, you can take one photo at the correct meter setting, one underexposed and one overexposed shot.

It sounds like a pain to do but your camera will probably have an automatic bracketing function. It's usually accessible through the menu button, but different cameras have different options, so you will have to consult your manual (or YouTube) to work out how to set it up on your camera.

Once that's done, switch your camera to continuous shooting mode and when you press the shutter down, your camera will take three shots (you can set it up to take more than three) at three different exposures by altering the shutter speed for each shot.

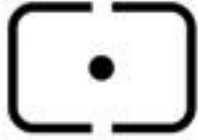
5.5 Metering

So how does the light meter measure light?

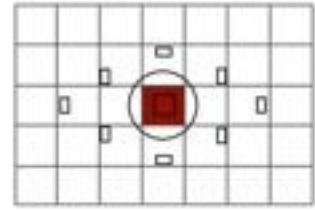
The reading the light meter takes will depend on the meter mode; and which one you use will depend on the situation. Most DSLR cameras have either three or four different metering modes.

Tip:
metering modes are not available in the pre-programmed modes.

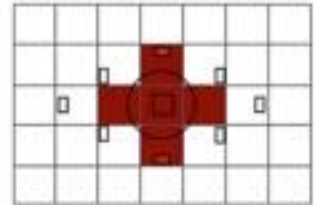
You will need to be using manual, aperture priority or shutter priority.



Spot Metering
Only takes a reading from a small central area.



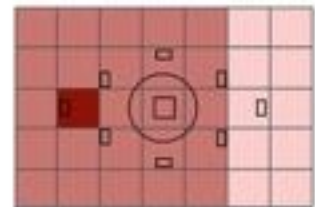
Partial Metering
Measures light over a slightly larger area.



Centre-weighted Average Metering
Measures light from the whole area but with an emphasis on the centre.



Evaluative Metering
Usually the default setting; the light is measured from the area that is in focus. Also known as matrix metering.



So which is the best one to use?

It depends but usually centre-weighted average or evaluative metering are the most commonly used. Spot and partial metering are used for more advanced techniques.

You'll have to check your manual to see how to change modes; but if you're not sure, stick to evaluative metering for now.

5.6 Histograms

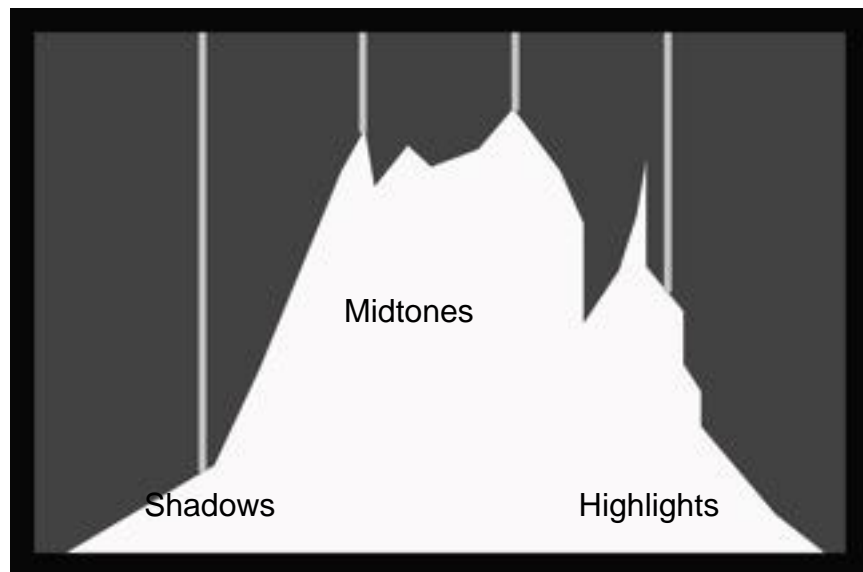
When you're new to DSLR cameras and you view your photographs in playback mode, sometimes you might press the wrong button or dial and you see a load of letters and numbers and something that looks like a digital mountain range – that's a histogram.

A histogram is a visual representation of the highlights, shadows and midtones.

Tip: most DSLR cameras will have a live histogram function; it will only be available when using live view mode.



Histograms can be difficult to read at first. The important thing to remember is what the peaks actually refer to.



Using the live histogram function will give you a good indication of the correct exposure.



Tip: some DSLR cameras have a built-in HDR function. If your camera does not, there are many photo-editing tools available to convert your bracketed images into a single HDR image.



Overexposed

Correct Exposure

Underexposed

Even though the correct exposure looks the best of the three, the underexposed image has captured the shadows and the overexposed image has captured the highlights. If you shoot bracketed exposures with a tripod, it's possible to combine all the exposure into one, creating what is known as a HDR image.

5.7 HDR Photography



Here we see the three bracketed exposures combined into an HDR image.

HDR (or high dynamic range) photography, as the name suggests, is a way of adding more dynamic range to your images. Dynamic range means the amount of light and dark. A normal exposure has a lesser dynamic range because it essentially captures the middle ground between highlights and shadows. By taking three or more exposures using the bracketing technique, you can capture a great range of highlights (in the overexposed image) and shadows (in the underexposed image).

A word of warning though: HDR should not be used for scenes with strong lighting or for capturing movement. Its best uses are for landscapes and in certain low-light situations where no movement is involved.

This is what happens when HDR is done badly.



The moving vehicles from the three different exposures create ghost images; and while that is something that can be used creatively, in this case it adds nothing of value to the photograph. Also, the overexposed image has been too overexposed, making the sky over-saturated.

5.8 Summary

- Remember the importance of the Exposure Triangle and how adjusting each element can affect the amount of light that enters through the lens.
- Decide what your priority is before you start shooting.
- Think about how changing one of your exposure settings can affect the other two.
- Always check the light meter.
- If in doubt, use exposure bracketing.
- HDR can be useful, but it's not the answer for everything, so try not to overuse it.

Assessment 5

- 1) Which three things make up the Exposure Triangle?
- 2) True or False? The light meter measures the amount of light that the sensor will be exposed to.
- 3) What does overexposure mean?
- 4) What does underexposure mean?
- 5) What is exposure bracketing?
- 6) When should you use exposure bracketing?
- 7) What does HDR mean?
- 8) True or False? Exposure bracketing is essential for HDR photography.
- 9) Give an example of when HDR photography is not recommended?
- 10) True or False? Using a tripod will give you more control over exposure settings.

5.10 Assignment

Choose a medium-sized object (of if you have someone willing, use a person) and use different locations to photograph it (or them) Shoot indoors using natural light, artificial light and a combination of the two, shot with flash and without flash. Try using different light sources – a computer monitor, smart phone or tablet, a lamp – basically anything that can generate light.

Try and keep your composition roughly the same for each shot. This will help you to understand how light (or the lack of light) can drastically affect the exposure settings; and if you're lucky, you may stumble upon a creative lighting setup.