

4 Week Online Photography Course

# Michael Freeman's Perfect Exposure MasterClass

A MasterClass based on his best selling book 'Perfect Exposure'

## Lesson 1 Course Notes

With  
Michael Freeman



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# Introduction

Hi, I'm Michael Freeman. Exposure is one of those basic things that you might think ought to be almost automatic by now. Obviously you need to be able to get the exposure right before you even start to think about composition, capturing the moment, creativity.

And as the camera can do most things automatically these days, surely it ought to be able to get every image looking just bright enough—not too dark, not over-exposed?

What could be simpler? After all, everyone knows instantly when a picture looks too dark or too light—or just right. And there are only three settings to adjust, all of them straightforward: the shutter speed, the aperture of the lens, and the sensitivity of the sensor, measured as ISO. So, what's the fuss?

Well, logical though all of that sounds, those are the wrong questions. The real questions are all clustered around 'what do you want the picture to look like when you shoot it?' Automatic exposure worked out by the camera 100 percent of the time isn't possible, for the simple but essential reason that exposure is part of the CREATIVE process of photography.

It is designed to be the basis for further courses of any kind in photography. There is one course books to accompany this, my revised & updated edition Perfect Exposure: The Professional Guide to Capturing Perfect Digital Photographs.

You will need to have access to this either with your own copies or from a library. There is also an e-book version of Perfect Exposure available from the publisher [by clicking here](#)

*Michael Freeman*



Michael Freeman's Perfect Exposure Second addition

Book Ref: PE

# Course Curriculum

## Week 1: Basic Metering



Cameras offer an increasingly sophisticated range of methods for getting the exposure in some way 'correct', but though the result is a wonderful choice, there's also a chaotic array of methods and jargon. My job here is to cut through this nonsense, and my model is, as always, the way professionals like myself think and work..

## Week 2: The Exposure Triangle.



There are three camera settings that each control the brightness of the image you capture—aperture, shutter speed and ISO—and this lets you choose a combination to get any particular exposure, hence the expression exposure triangle. Using it efficiently means knowing clearly what your priorities are for any shot. Apart from controlling the light, the aperture and shutter speed each do another job

for the image. Aperture affects depth of field while shutter speed affects motion blur, and you may want less or more of either in any specific shooting situation. ISO raises the sensitivity when you need it, but the result is noise, which has no redeeming qualities, so this just increases the compromises you need to make when light levels are low..

## Week 3: The Twelve Exposure Situations



Regardless of subject, there are just 12 basic lighting situations in photography, and each one needs a particular set of techniques. Become familiar with them and you will quickly be able to assign any scene in front of you to one of these—and know what technique to apply.

## Week 4: Exposure and Style



In the last two lessons we looked at finding the exposure that essentially best suits the situation. Now I want to move things on to the next level, which is to take all of this and temper it with judgment and creativity. In exposure, there is no wrong and there is no right. If you embrace this, you can start to experiment with different styles of imagery that go beyond the obvious and average. Like any artist, you then have to rely on your judgment. Style in exposure depends heavily on deciding what the most important tones are in the picture—and then choosing how you want them to appear.

# Michael Freeman's Perfect Exposure

## MasterClass: Basic Metering

Look at this picture. It depends for its impact on being mainly dark, the wall of rainforest behind the girl mysterious, shadowy, only just visible. Against this, the glowing, golden edge of the girl—and that glittering fishing line—give it a special, fleeting atmosphere.

The sun is about to set and is just catching her. A scene gone in an instant, caught just like this. How different it would have been if the camera had set the exposure; it would have been lighter, to make more of it visible. I didn't let the camera do that, because I knew what I wanted—this.

Or the opposite—a light, bright, softly pale image, full of a different kind of atmosphere...

I wanted that glow, almost ethereal, and with the background more or less washed out. Again, I wanted an atmosphere to the shot rather than delivering detailed information.

For me it was an image more about sensation, which is why I gave it an exposure that for other people might

Exposure is about choice. It's about knowing what's important in a shot and how it should look. It's about not losing details that you feel are essential. It's not mechanical. It's not boring.

It's all about knowing how to get a scene, an event, a moment looking just the way you want it to. And we all have different ideas, so you'll have a different sense of the appearance of things than I do.

And certainly a different sense from that of the camera manufacturer. That's why exposure can never, ever be fully automated. Partly automated OK. But to get it right—right for you—you have to make it do what YOU want.

In this first lesson I want to go through all the basic operational stuff, and that's going to mean becoming thoroughly familiar with how your camera measures exposure and sets it—how its controls work.





**B**ut first, a warning. Cameras offer an increasingly sophisticated range of methods for getting the exposure in some way 'correct'....but though the result is a wonderful choice, there's also a chaotic array of methods and jargon.

My job here is to cut through this nonsense, and my model is, as always, the way professionals like myself think and work. Let's start with one of the fundamentals of exposure—the idea of average brightness. The way the eye and brain work—what's called the human vision system—we're hardwired to expect things to look 'normally' bright.

That's a simple, but actually quite deep thought. When we look, our eye and brain try to NORMALISE the view so that we see it as 'averagely' bright. They're really good at this, to the point where we hardly ever notice. But camera technology is WAY behind, not so sophisticated.

If the main subject in an ordinary scene is halfway in brightness between black and white, it looks right. And that, simple though it sounds, is the basis of camera exposure—making sure that a normal scene has average brightness. 50 per cent. Here's an example...



Let's see how it would look exposed one stop darker. To most people that looks darker than we'd expect



...and one stop lighter...

Again, to most people it looks lighter than we'd expect it to. back to original That's the fundamental principle of metering.



Let's take another image and pixellate it until we get the average of all the tones...It's exactly a mid-tone. 50% brightness. Of course, I've just fudged an important thing. I said 'ordinary' and 'normal', and that's a very big assumption. This is an example of what I meant by ordinary and normal. Hard to argue with that. Here's another..

Let's remove the distraction of colour and treat it as a black-and-white image. We'll do the same pixellation pixellates etc

...until we get to the average of everything and yes, it's exactly a mid-grey, 50% brightness.





**B**ut what about this? It's really contrasty, and you might start thinking, if you were actually shooting it, 'I don't want those highlights so bright' and 'I don't want it the background near as dark.'

It's quite likely that, if you don't have a lot of experience of this kind of high contrast, you might be very uncertain about how it should look in the final image. We'll come on to that shortly.

Anyway, basically that's how a camera meter works. It tries to measure the brightness and suggest a shutter speed, aperture and ISO sensitivity that will get it looking averagely bright.



Now, one of the special things about a camera sensor is that it's made up of millions of light wells—receptors, one per pixel, and when these fill up to the top with light, they simply deliver no image information whatsoever.

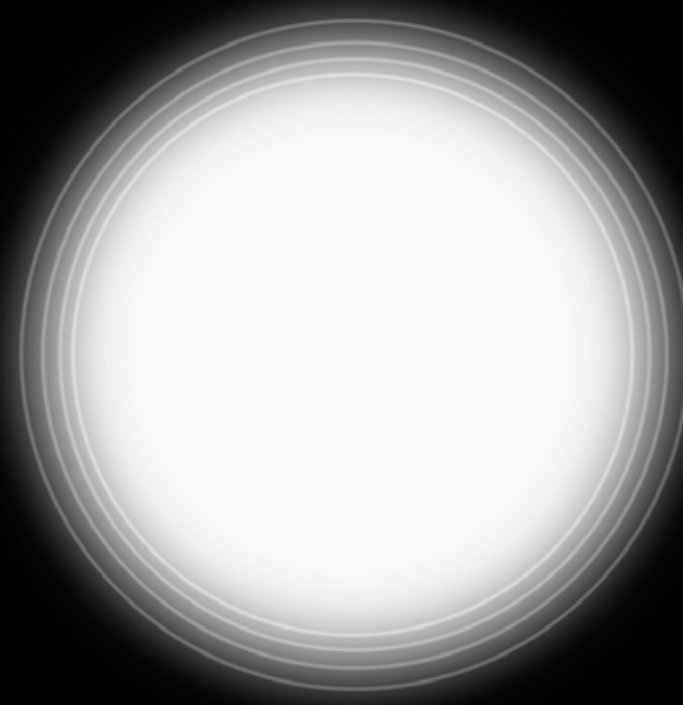
That means, when you overexpose something in an image, you get a blank, featureless white, like this... That's important to avoid, and most cameras have a warning system to help you. This is what's called the highlight clipping warning...

Overexposure to the point where parts of the image go blank, featureless white are shown like this, flashing between black and white.



You see it only after you've shot, but in a lot of situations that means you can re-adjust and shoot again. It's called clipping, by the way, because the highlights have been cut out and removed—clipped.

If your camera has this feature, I strongly urge you to keep it switched on. It may look irritating, but that's because it's an alarm.



Let's look now at how cameras measure the light in practice. They all have a built-in meter. The most basic metering methods—which are actually being used less and less in favour of a newer one—are centre circle, spot and weighted.

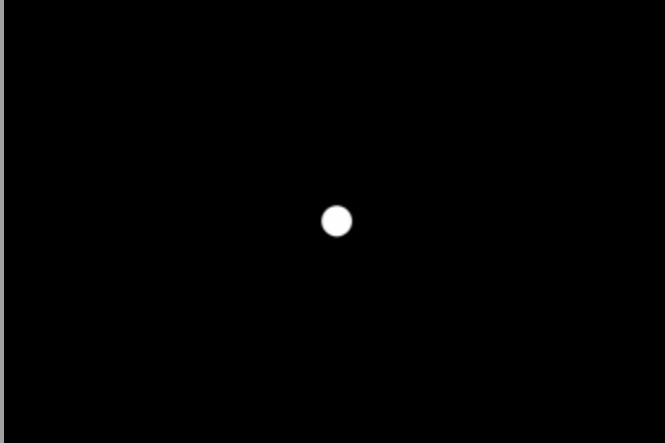
You'll tend to find them on higher end DSLRs as alternative choices, but I'm starting with them because this is how camera metering began. Not all of these may be available on your camera.

The simplest takes its measurement from a large centre circle, like this...

Whatever is in there is averaged to be exposed as what's called a mid-tone. Here's a neutral grey mid-tone: 50% brightness. It's basic, but it works most of the time.



A much, much smaller circle can be used for what's known as spot metering. If you have lots of time, such as with a still life or an interior, and want to take great care, this is useful. You can measure very precise parts of the scene, and then decide what to do with them. And then there's a weighted reading, where the area measured looks pretty much like this...



basically, a reading is taken from many points all over the image, and the pattern of light and dark is then analysed by the camera's processor. In this Nikon, for example... the metering sensor has over a thousand segments... and this is what it sees...



subject is the man in the red boat, and I want the upper two thirds of the picture very bright—but not completely washed out with clipped highlights. I'd hope that the metering sensor, which sees it like this and the camera's

You see this less and less these days, because more and more cameras now use by default smart metering. This goes by different brand names as individual manufactures try to make theirs sound special, but basically, a reading is taken from many points all over the image, and the pattern of light and dark is then analysed by the camera's processor. In this Nikon, for example... the metering sensor has over a thousand segments... and this is what it sees...

The resulting pattern is then very rapidly compared with a database of more than 30 thousand actual images, and when the one you're about to shoot is matched to one in the database, the camera applies the necessary adjustment to make it look similar in brightness.

This is pretty sophisticated, so, for example, in this case my main



smart programming will understand it's that kind of picture and needs that kind of exposure. Well, most of the time they do, but not always.

What's the subject here? The camera doesn't know. It just sees this pattern, and then tries to compare it to its database. What stands out the most is that there's a small patch in the lower right that's much brighter than the rest. Well, this is the real scene...

...I would want that sailing boat to be exposed so that it stays just UNDER white. For me that's the key subject, so I wouldn't want it over-exposed and the white blown out. With luck, the smart metering will work that out the same way. I say...with luck!

Now, with that kind of choice in a sophisticated camera, you'd be right in wondering which you should use—and even more so, how much you could rely on the smart metering to take the same decisions that you would. The answer is whichever you feel comfortable with, as long as you make yourself completely familiar with how it works and what its shortcomings are.

For most people it means using the smart metering most of the time, but with the BIG proviso that you get to know it well enough in different lighting situations that you can predict fairly well when you may need to override it or adjust it. And how do you do that? With one of the most important little controls on the camera: the exposure compensation.

It varies from camera to camera, of course, but it allows you to raise or lower the exposure from what the camera is automatically doing. This is dead simple, but very useful.

It allows you to retain the camera's valuable automatic metering and then say, 'a little lighter than that', or, 'a lot darker'. I'm using a Nikon, and the control is here... And for fine control, I make the adjustments in steps of just a third of a stop. We'll come onto knowing how to judge what the compensation should be a little later, but for now, make this a control to think about using regularly.

There's another set of choices, which is the exposure modes, and that's all to do with priorities between shutter speed, aperture and the ISO setting. We'll look at all of this exposure triangle in detail in the next lesson, but it's good to introduce it here, because most camera manufacturers make a lot of it. Maybe too much.

Basically, there's Aperture Priority, Shutter Priority, and Program (which means you work it out the way you want). Different camera manufacturers call them slightly different things. Aperture Priority means you choose the aperture—the *f*stop—and the camera adjusts the shutter speed accordingly—like, according to its metering judgment. As it happens, this is what I use almost all the time, but that's just because of MY priorities.

Shutter Priority is a kind of opposite. You choose the shutter speed, which you'd do if you were shooting some action that needed, say, 1/500th of a second to freeze it—and the camera changes the aperture to suit.

Then there's Program, where you can set limits like change the aperture up to a certain limit of shutter speed, and only then start to change that.

I don't use this, and I don't particularly recommend this, because at the moment of shooting, when things are about to happen that need super-fast decisions, it can get in the way—do things you hadn't intended. It's another layer of complication, and complicated is not what we need when the going gets fast.

And now the bit some of you may have been waiting for...when's he going to get off this automatic stuff and talk about manual metering? Hand-crafted exposure! For some reason, some people get quite partisan about this.

little bars—up or down—mean for the image.

So, if we take auto as the default these days, manual uses the same camera tools and judgment, but you have to work the dials yourself. To me, that makes it not so different, just slower but more under my control.

Now on to what used to be a professional's dirty solution—bracketing.

What do you do if you're still not certain—BUT have some time, like with a landscape?

You take the cheap option and shoot a range of exposures to make sure one is right. Not elegant, that's for sure, and this course (and my book) are designed

**A**nd opinionated. For some, it separates the men from the boys—don't be a wimp, do it by hand! For others, it's the opposite—just hankering after something old-fashioned and failing to take advantage of technology.

Well, I don't have either view particularly strongly. It can be really useful sometimes, and yes, I'm a believer in taking charge! But in a fast-moving situation? Never. The technology is good, and if what

I'm going to say sounds like heresy, well....I wouldn't want to lose a shot and a moment for the sake of perfect exposure! So, manual metering has its place, definitely.

It's just slower, but you can improve that with practice. And you need to be looking all the time at that exposure scale in the viewfinder. Here's what it looks like through mine. You need to get a feel for what the number of those



to stop you having to do this, but as always, the shot comes first.



So if you need to, you do. Bracketing means taking the same shot very rapidly at different exposure settings... You can do it manually, such as by changing the the Exposure Compensation between shots, or some cameras have a mode for doing this. The only problem with clever bracketing modes is the time it takes to set it up. If there's no urgency, fine, but then if there's no urgency, you can work the exposure compensation yourself. Or switch to Manual.

Here's another example where there was some uncertainty. These were three exposures one stop apart—I'm just showing them all together here.

But with all the digital programming improvements, there's another side to bracketing. If you do a bracket, you'll have covered a much larger range of brightness from the image than you could hope to have done with a single exposure, and if it's a high dynamic range scene like this...you'll have captured all the information.

You'll have, in technical terms, ARCHIVED the light. Its all captured. And then, you can process it in so many ways, to produce an image that has all the details you want.

This is an advanced but very valuable solution for extreme contrast, which is what we'll be looking at in the last lesson, number 4. Now, having said that, it's time to talk about processing. About processing and exposure. The ways in which digital images can be processed improve constantly.

There are some very clever methods of pulling information out of an image file, and increasingly they're being built into the camera. Now, it's worth

thinking about this—a camera's processor is basically a mini-computer, and the emphasis is on mini. A lot of marketing goes on in this industry, and your camera will offer you all kinds of processing styles. There's Vivid, for example.

Or Portrait, which my camera's manual says is a way of processing "portraits for skin with natural texture and a rounded feel." Or Landscape, which the manual says "produces vibrant landscapes and cityscapes." But this has nothing to do with exposure. Nothing to do with getting it right—for you—in the first place. In fact, almost the opposite—it's to do with enhancing colours and getting pre-packaged effects.

A sort of way of saying, 'don't worry too much when you shoot; we'll take care of it and make the image look great.' Well, sorry, that's exactly what this course is NOT about. Get it right and you won't need any of that.

There's another important reason. If you care about the shots you take, you'll be shooting Raw, and the word means what it sounds like—the raw information from the shot, much more than can be displayed on a screen or in a print.

If you let the camera process it into a JPEG or TIFF, it will throw away more image information than it keeps. Why would you want to do that? You can do that slowly and carefully yourself on a computer later.

All this means: please don't confuse processing with exposure. Processing is another course I might do, and I think I'd call it Perfect Processing! Here, let's stick to exposure. Let's stay with the moment of shooting.



So, to summarise. This is a practical, hands-on first lesson, and for the rest of the course I have to assume that you've made yourself thoroughly familiar with everything I've just been talking about.

You may have been already right from the start, but if there were any gaps, now's the time, this week, to put that right. The camera's just a working tool, and you need to be able to use it as if by second nature.

So to summarise:

1. The fundamental principle is that metering, meaning exposure measurement, works by converting what it looks at into a mid-tone, a 50% brightness, because that's what our eyes see as normal.
2. The trend in camera metering has been towards trying to predict the kind of picture you're trying to take, But the camera's doing that without knowing what the subject is, and importantly, without knowing what you personally want from the image.
3. Use the exposure compensation control to stay in charge of what the camera's doing.
4. You'll need to choose an exposure mode, meaning priority, and the basic choice is between aperture and shutter. Meaning you set one and the camera adjusts the other.
5. The dirty, sloppy, but nevertheless professional solution, is bracketing—taking a range of exposures from dark to bright. A form of insurance.
6. All those intriguing styles and modes that the camera offers are really just about how it will process the image you just shot. You can do that yourself, better, later on the computer, provided you shoot Raw. And anyway, it's not to do with exposure.

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