Photzy

THE REAL REASON YOU SHOULD BE USING MANUAL MODE

Quick Guide

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If you do a Google search on using a camera's manual shooting mode, you will come up with a zillion articles and blog posts that state: **"You should use manual mode because it gives you complete control!"** (Or, some other terminology to that effect.)

Sure. Manual mode gives you complete control over the shutter speed, aperture, and potentially ISO, which is kind of a misnomer because the ISO setting is determined elsewhere, which in turn determines exposure, and ultimately helps you calculate depth of field, sensor noise, camera shake, and/or subject motion blur. That was a mouthful!

These are the facts. Yes, the manual shooting mode gives you complete control over these aspects of the picture shooting process, but so does aperture priority! And, so does shutter priority! Even the program mode has some control over these factors. ONLY, the full auto mode completely takes away the entire decision-making process. The difference between these shooting modes is how they handle the information given to them by the camera's metering system.

You will likely want to smack me upside the head about now because the previous statement rails against the most common wisdom regarding the use of shooting modes.

However, hear me out.

Image 001

When You Complete This Quick Guide...

- You will have a thorough understanding as to why shooting in the manual mode will actually benefit you as a photographer.
- You will have a better understanding of how each shooting mode works, including the benefits and the drawbacks.
- You will also have a better understanding of how each shooting mode physically works within your DSLR camera.
- Finally, you will know why the camera manufacturers include the various shooting modes on their cameras.

Image 002

THE TRUTH ABOUT SHOOTING MODES

"**Why do the camera manufacturers include the various shooting modes,** especially if the manual mode is the gift of nirvana that many claim it to be?"

Yes, all of this questioning and uncertainty can be nerve-racking and drive you crazy. To help you understand the shooting mode conundrum, let's look at some history.

Up until 1977, there were no automatic shooting modes; every camera was a manual mode camera. Minolta introduced the first automated shooting mode camera in 1977. However, the concept didn't really take a foothold until a year later in 1978, when Canon introduced the extremely popular Canon AE-1 camera.

Think about that… not so many years ago there was no debate about shooting modes because there were no shooting modes!

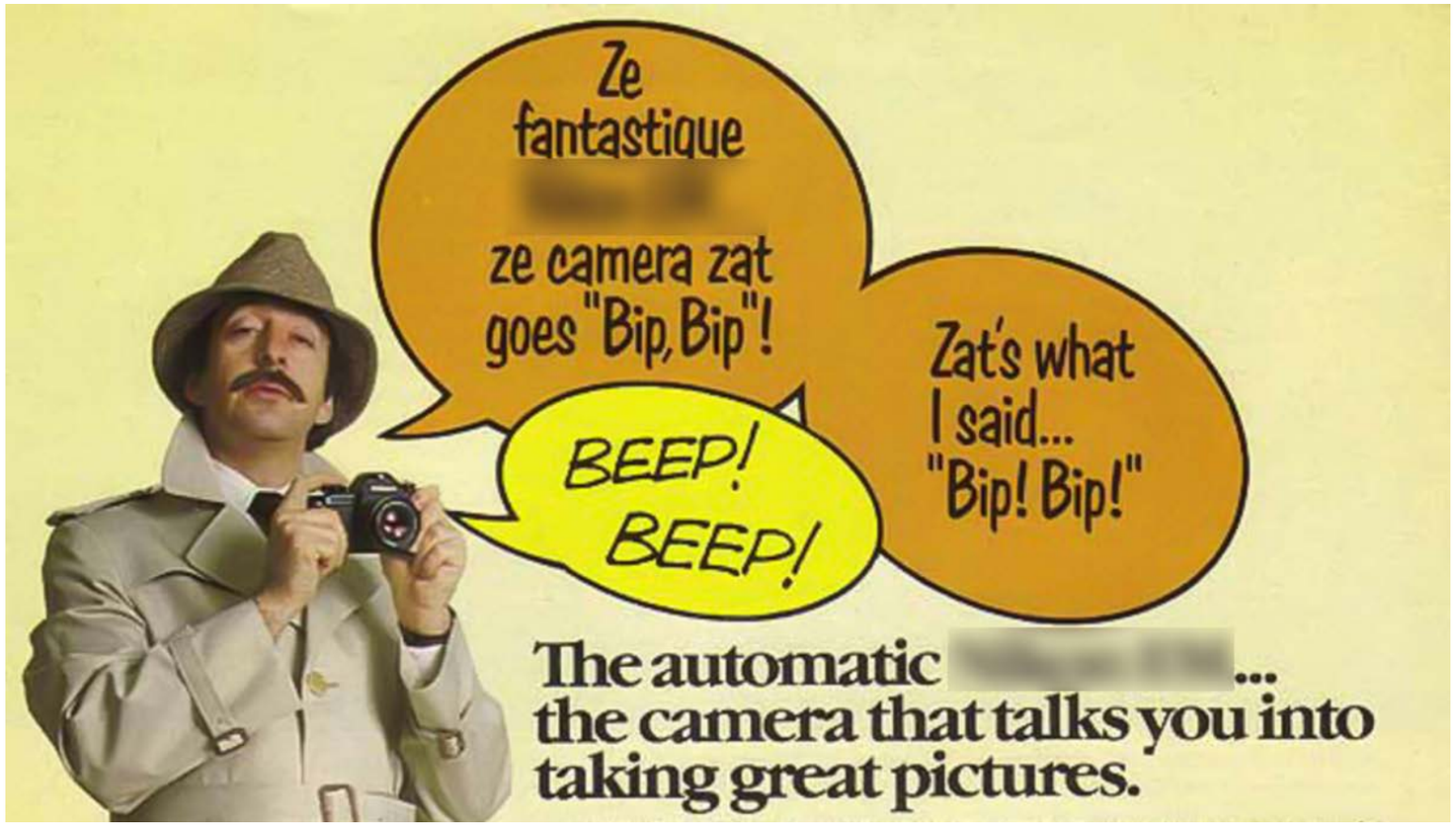


Image 003

Since that moment in history, with the acceptance of the Canon AE-1, camera manufacturers have done everything in their power to make it easier to create photographs. This has included all manner of automation, including the various shooting modes as well as the "scene modes" we now see on our cameras.

Originally, the "auto mode" was used to simply make creating photos easier. However, as the technology continued to improve, it was realized that the "automatic mode" really did have a place in the professional-level camera.

This places our history lesson into the late 1980s and 1990s. Interestingly enough back then, there was no big debate about the shooting modes like there is today. The debate fired up with the onslaught of inexpensive DSLR cameras that began to hit the market around 2003.

I believe that the reason for this is that most photographers who have entered the world of photography in the last 15 years or so never experienced the non-auto mode world.

There are two statements that are often made online that are as commonplace as the common cold:

Image 004

Statement One

"I only shoot manual mode because it is the only mode that gives me total control over my exposure."

I covered the above statement a little bit earlier in the guide. I've already indicated that the statement isn't exactly true. However, there is one tiny caveat…

You can make adjustments to the exposure settings in the automatic modes by using the "exposure compensation" adjustment. This option provides similar control to manual mode; however, it has limitations. Most exposure compensation dials limit the adjustment to somewhere between a 4-stop and a 10-stop range. **If you desire to override the camera meter reading beyond the 2- to 5-stop range in either direction, then manual mode is a must.**

Image 004 shows the location of the exposure compensation button on my Nikon D7100 camera. Honestly, it is just as easy to adjust the exposure using that button in auto mode as it is to change the aperture or shutter speed in manual mode!

Image 005

The Nikon D7100 has a 10-stop exposure compensation range. You can increase the exposure up to +5 stops or decrease the exposure down to -5 stops.

That kind of exposure adjustment range would cover just about any normal shooting situation.

Image 006 – Photograph by rohit gowaikar

The photo on the left depicts a scene in which manual mode is likely a must. Why?

💎 **Key Lesson:** When you are photographing a scene with extremely high contrast, manual mode is generally your best option. This is because the contrast range will likely put the exposure outside of the range of exposure compensation adjustment. In other words, using my Nikon D7100 as an example, if I were photographing the scene depicted in Image 006 and I was attempting to use auto mode, the -5 stops available on my exposure compensation dial would likely not be enough to bring the bright highlight areas into a proper exposure (visible detail).

📖 **Recommended Reading:** Learning black and white photography can help in understanding tones and dealing with high contrast scenes. These resources can help:

- Black and White Photography
- Better Black and White premium guide

Statement Two

"I ONLY shoot aperture priority mode! Aperture priority is the BEST automatic shooting mode."

This second statement, I truly do not understand. Yet, if you do some online research, you will find that as many as 75% of the photographers out there who declare an auto shooting mode preference will state that their preference is aperture priority mode.

Let me repeat this earlier statement:

"Sure. Manual mode gives you complete control over shutter speed, aperture, and potentially ISO, which in turn determines exposure, and ultimately helps you to calculate depth of field, sensor noise, camera shake, and/or subject motion blur."

Key Lesson: *The shooting mode has no effect on the determination of exposure.* Exposure determination is up to the camera's metering system. Aperture priority shooting mode will NOT give you better exposures. It's as simple as that. Countless times, I have read someone say the following online: "I prefer aperture priority mode because I get better exposures." No! Let me repeat this: The shooting mode makes no determination on exposure; the camera's metering system does that function. The shooting mode determines how the exposure information (supplied by the camera's metering system) is going to be utilized by the camera's shutter, lens aperture, and potentially the sensor sensitivity through the ISO setting.

Have you noticed that I keep mentioning shutter speed, aperture, and ISO? These are the points of the exposure triangle, and they play a significant role in my reasoning as to why you should REALLY be using manual mode.

We will discuss more about the exposure triangle in few minutes.

Another reason that I find the aperture priority preference baffling is that it controls the least important aspect of creating a photograph (at least in my mind, and under most circumstances).

Let me give you my reasoning.

Aperture priority allows you to set the f/stop manually. The camera in turn selects the appropriate shutter speed based on the information being provided by the camera's metering system, which is working in conjunction with the ISO setting. It's allowing you to decide the depth of field by determining your fixed aperture.

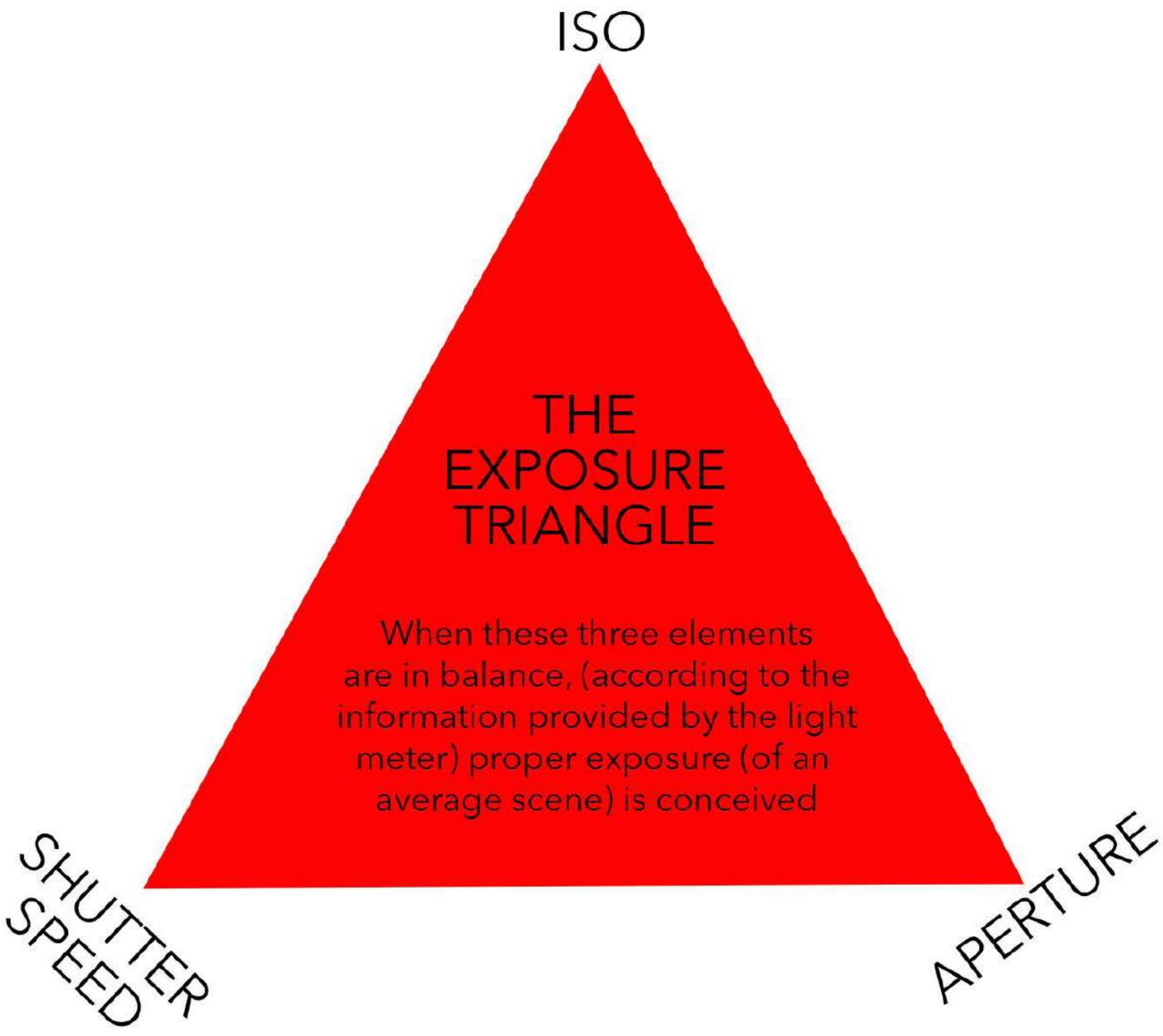


Image 007

I worked in a photography store for several years when digital photography was really taking off. My time there was the beginning of the inexperienced photographer boom.

Many customers would come in and spend thousands of dollars on camera equipment only to return at a later date complaining that their equipment was no good. They complained that they couldn't get decent pictures.

Their problem was ALWAYS blurry photographs.

It was never an issue about depth of field.

Do you see what I'm getting at here?

Depth of field is important sometimes. Having a sharp photograph is important most of the time. The only advantage to aperture priority mode is generally the least important aspect to a successful photograph.

I want to talk about the REAL reason that you should be using manual shooting mode.

Image 008

However, before I do, let me explain in detail what each shooting mode does, what the advantages of that mode are, and what the disadvantages of that mode are.

Remember: The shooting mode does NOT determine exposure. The camera metering system determines exposure. The shooting mode determines how the exposure information is going to be applied to the camera settings (shutter speed/aperture/ISO).

I hope a light bulb is going off in your head. It's really important to understand that your camera has shooting modes and metering modes. They accomplish two very distinctly different tasks. More on this in a minute.

Why do camera manufacturers include the automated shooting modes?

As I stated earlier, it began as a convenience. Later, it was observed as a benefit to even professional photographers. Why?

1. It took responsibility for one or more elements of the exposure triangle. This relieved the photographer from having to constantly monitor all the elements at once.

2. This proved to be extremely helpful for certain types of photography, such as sports, wildlife, or street photography, where the action is moving in and out of different light or perhaps the light source was being randomly altered, such as a cloud passing by the sun. It also helped when a camera was set up in a remote location and it was triggered from a distance (where the photographer simply could not monitor the three points of the exposure triangle from the camera position).

3. By having one or more camera settings determined by the camera, the photographer was able to work faster by only having to concentrate on what they perceived as the most important point of the exposure triangle. For a sports photographer, that would likely be the shutter speed. For a landscape photographer, it would likely be the aperture.

Image 009 (next page) is an example of when an automatic shooting mode might come in handy. The men might move. The sun might go in and out of the clouds. The photographer might change his or her position. There is a lot of potential for change as to what the metering system might determine as the correct exposure, and that change could occur quickly.

Now, you might be saying to yourself, "All of those things that you just mentioned would change the exposure, and you said shooting modes are not about exposure! Plus! You said high-contrast situations are best shot in manual mode! And, this is a high-contrast situation."

And, you would be correct. I did say that.

However, your growth as a photographer is directly related to your knowledge and decision-making. Nothing is an absolute in photography, including which shooting mode you should be using. That comes with experience.

Image 009

CHOOSING A SHOOTING MODE

Let's dissect the situation in Image 009 as it relates to choosing a shooting mode.

1. **Manual Mode –** This mode would give us the most versatility for dealing with the high contrast. However, it could slow down the shooting process, as we would have to be aware of our shutter speed, our aperture, and our meter reading as the situation potentially changes. Also, it is possible that we might have to change the ISO setting (if we weren't in an auto ISO setting), or manually reset the ISO if it was not giving us the appropriate camera settings that we desired. In other words, this mode demands maximum attention to the technical aspects of the camera settings.

2. **Aperture Priority Mode –** This mode assures us a determined depth of field by allowing us to preset the f/stop. However, that DOF window is subject to change based on the subject-to-camera distance or if we change the focal length of the lens by zooming it in or out. Plus, we must be cognizant to the shutter speed so that we don't get camera shake or subject blur if the men move. One element of the exposure triangle (shutter speed) is taken care of by the camera, relieving us of thinking about that one setting. We are placing our judgment onto the aperture.

3. **Shutter Priority Mode –** This mode assures us that we will be cognizant of the shutter speed. We will set the shutter speed high enough to freeze any camera shake and potential subject motion, or slow enough to blur parts of the image; or everything, if that's what we choose. We are relinquishing control of depth of field to the camera. However, **does this shot need DOF control?** I think not. I would be more worried about getting the image sharp, especially if I were working quickly.

4. **Program Mode –** This shooting mode could potentially work well in this situation, if the camera were set to an auto ISO mode. If the camera wasn't set to an auto ISO mode, the shutter speed might drop down too slow or the aperture might max out at the widest opening without us realizing it. Program mode is helpful for very fast shooting. However, I would only use it in conjunction with the auto ISO mode; otherwise, you must continually monitor both the shutter speed and aperture settings!

5. **Scene Modes –** I don't recommend the use of scene modes.

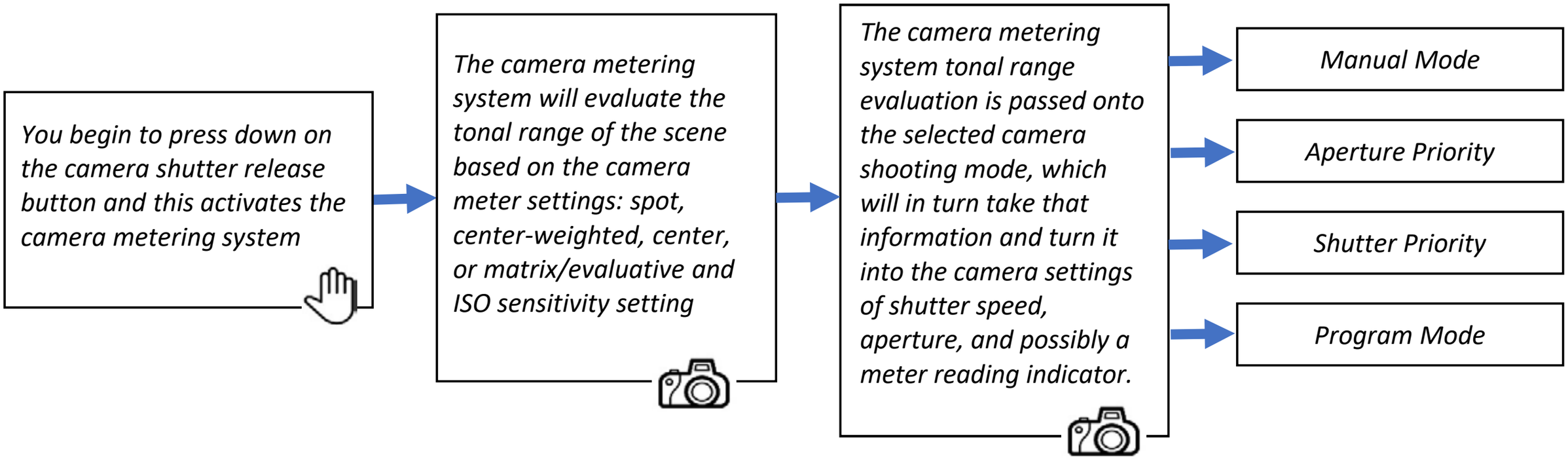
Based on the above, which shooting mode would I choose? I would choose shutter priority mode, program mode, or manual mode (shutter priority first, program mode only if I was using the auto ISO setting, and manual mode if I had the experience to compose the images while carefully monitoring the shutter speed and aperture setting while shooting).

Key Lesson: Your choice of shooting mode should be based on the situation at hand. Manual mode works well if you have lots of time to check your settings or if you have trained yourself to quickly analyze the settings while shooting. Shutter priority mode works well when camera shake or subject movement are your top concern. Aperture priority mode is best used when DOF is vital, the camera-to-subject distance is basically set, the focal length of the lens isn't likely to change, and the shutter speed is not a primary concern. Program mode works well when you must work extremely fast, such as at an event; however, make sure to set the ISO to auto.

SHOOTING MODES AND THE METERING SYSTEM

Let me give you a breakdown of what happens between the camera metering system and the selected camera shooting mode when you depress the shutter release button to take a picture.

My outline might look like Greek to you at first glance, but I want you to consider the following:
The information contained in that outline is the REAL REASON that you should be using your camera's manual shooting mode.

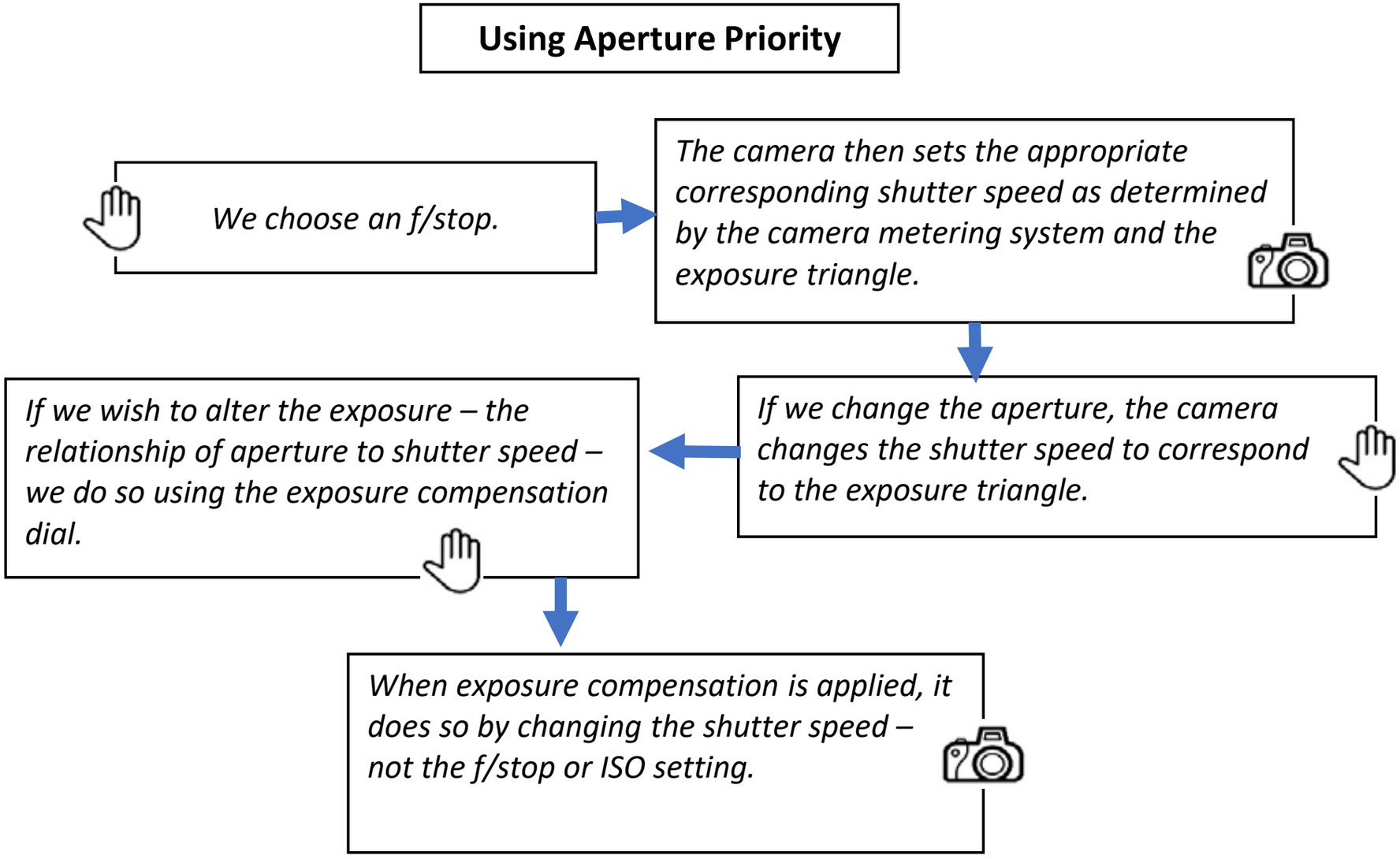


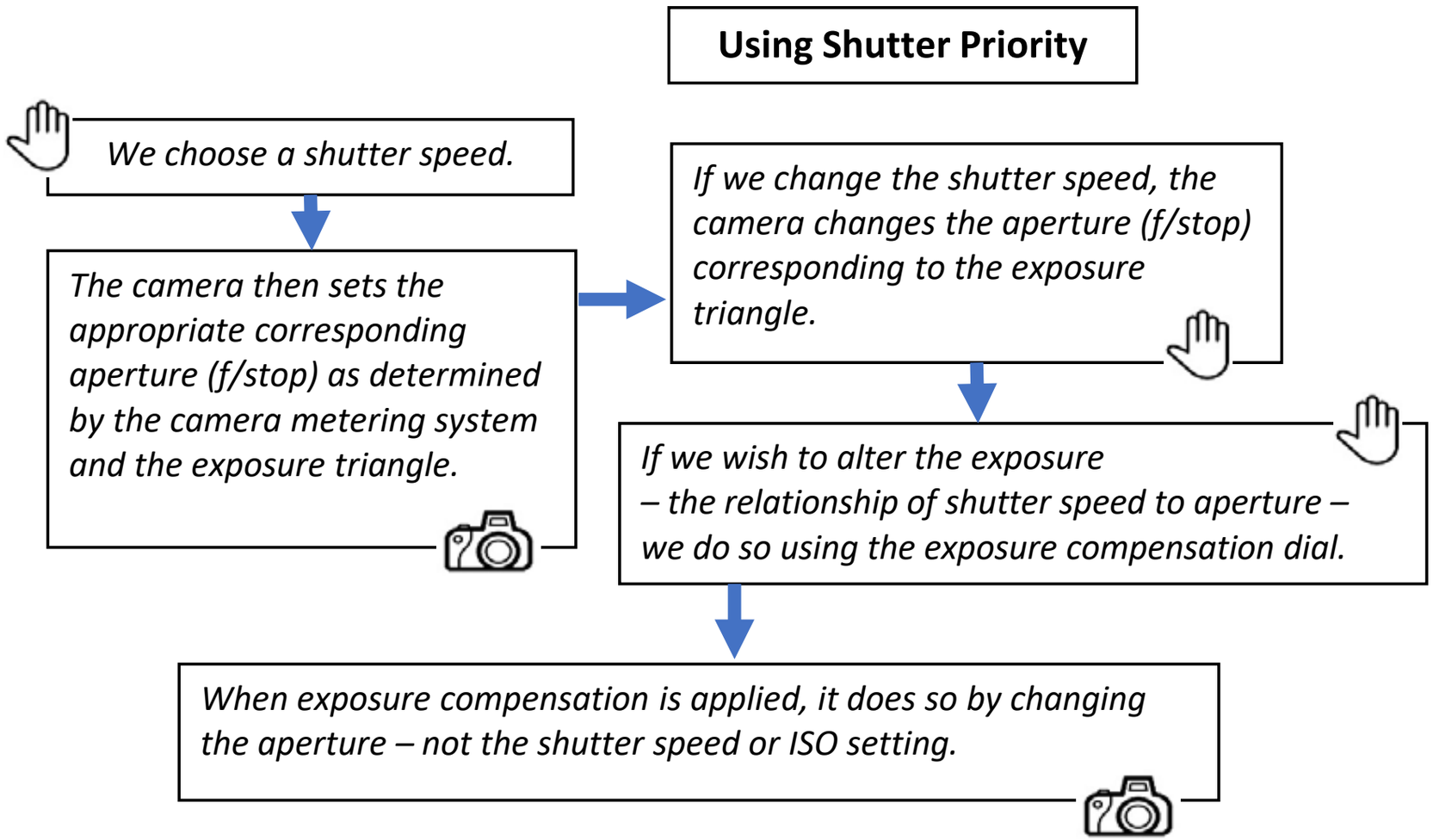
Using Manual Mode

The camera meter indicator tells us if the current shutter speed and aperture settings will provide an accurate exposure – or not – based on the evaluation of the camera's metering system.

We adjust the shutter speed and/or f/stop until we have a setting that will work best, and give the appropriate exposure, for the scene we are trying to photograph.

If we cannot achieve a combination of shutter speed and/or aperture that works for our scene, then we may have to adjust the ISO sensitivity, and the process starts over again


Using Aperture Priority
We choose an f/stop.
The camera then sets the appropriate corresponding shutter speed as determined by the camera metering system and the exposure triangle.
If we change the aperture, the camera changes the shutter speed to correspond to the exposure triangle.
If we wish to alter the exposure – the relationship of aperture to shutter speed – we do so using the exposure compensation dial.
When exposure compensation is applied, it does so by changing the shutter speed – not the f/stop or ISO setting.


Using Shutter Priority
We choose a shutter speed.
The camera then sets the appropriate corresponding aperture (f/stop) as determined by the camera metering system and the exposure triangle.
If we change the shutter speed, the camera changes the aperture (f/stop) corresponding to the exposure triangle.
If we wish to alter the exposure – the relationship of shutter speed to aperture – we do so using the exposure compensation dial.
When exposure compensation is applied, it does so by changing the aperture – not the shutter speed or ISO setting.

Using Program Mode

The camera chooses a shutter speed and aperture (f/stop) combination based on the camera metering system data.

The camera typically has a bias built into the software that attempts to keep both the shutter speed and aperture (f/stop) at a mid-level setting (for example, 1/125th second and f/4).

If the camera cannot maintain this mid-level bias, it will generally give some type of alert within the viewfinder (the aperture or shutter speed indicator will start to blink or change color)

If we attempt to change the shutter speed/aperture combination, the camera changes both the shutter speed/aperture (f/stop) corresponding to the exposure triangle. For example, if the current combination were 1/60th of a second at f/8 – and I rotate the adjustment switch one click – the new combination would be 1/125th of a second at f/5.6. Or if I move it one click the other way, the new combination would be 1/30th of a second at f/11.

However, if the adjustment cannot be applied (for example, the current setting is 1/60th of a second at f/2.8, and we change the exposure compensation to +2 stops, and the maximum aperture on our lens is f/2.8), then the +2 stops would be applied to the shutter speed only.

If we wish to alter the exposure, we do so using the exposure compensation dial.

When exposure compensation is applied, it does so by applying the adjustment equally to both the shutter speed and the aperture (f/stop). For example, if the current combination were 1/60th of a second at f/8, and we apply +2 stops of exposure adjustment, the camera would apply one stop to the aperture and one stop to the shutter speed – the new combination would be 1/30th of a second at f/5.6.

SHOOTING SITUATIONS

I will end this guide with several photographs. I will describe the shooting situation and potential choices that could be made regarding shooting mode.

See if you can answer these five questions.

1. My camera is set to 1/250th of a second at f/4. My lens has a maximum aperture of f/2.8. I want to add +3 stops of exposure. I want to make sure my image is sharp and depth of field is not important. What is my new shutter speed and aperture combination?

2. My camera is set to 1/250th of a second at f/4. My lens has a maximum aperture of f/2.8. My ISO setting is 100. I want to add +3 stops of exposure. I want to make sure my image is sharp but depth of field is not important. I do want to keep my shutter speed and aperture set exactly as they currently are. How do I accomplish this?

3. My camera is set to 1/250th of a second at f/4. My lens has a maximum aperture of f/2.8. I want to add +3 stops of exposure. I am using the aperture priority shooting mode. How do I accomplish this?

4. My camera is set to 1/250th of a second at f/4. My lens is a 200mm lens and has a maximum aperture of f/2.8. I want to add +3 stops of exposure. I am using the shutter priority shooting mode. My ISO is 100. Depth of field is not an issue. How do I accomplish this?

5. My camera is set to 1/250th of a second at f/4. My lens is a 50mm lens and has a maximum aperture of f/2.8. My ISO is set to 100. I want to add +3 stops of exposure. I am using the manual shooting mode. My scene is a broad landscape. I am concerned about depth of field. How do I accomplish this?

If you had any difficulty sorting out these five questions, then that is why you should be using the manual mode on your camera!

Manual mode forces a photographer to slow down and think about the process. Once the process becomes second nature, you won't have to slow down. It will become like any task that you've learned – riding a bike or reading a book. You won't think about it – you'll just do it.

However, you must train yourself to do it.

Let's look at a few photographs…

Image 010

For Image 010, what shooting mode would you choose and why? I would choose manual mode or shutter priority. In choosing my shutter speed, my goal would be to pick a shutter speed that is fast enough to stop any movement of the insect or the flower while still giving me a reasonable aperture for depth of field. When I say reasonable, I'm thinking f/8–f/16. When shooting a macro shot like this, the depth of field will always be at a minimum no matter what aperture you choose! (This is disregarding the technique of focus stacking.) You are more likely to have problems with motion blur. The key to a successful macro nature shot is focus placement. In this case, the critical focus was placed near the insect's head, which was the perfect location.

Shooting Assignment: Create a macro nature shot. Use manual mode. Determine what shutter speed that you need to keep the image sharp. Adjust your ISO setting and aperture for the best depth of field. Concentrate on focus placement.

Image 011

For Image 011, what shooting mode would you choose and why? This image presents an advanced level situation. It's a mixture of high contrast and low contrast with deep blacks and very white highlights. I would choose the manual shooting mode. I would immediately check my shutter speed to make sure that it is fast enough to stop camera shake. The man is not moving fast, so an extremely fast shutter speed isn't a concern. I would then set my aperture (f/stop) accordingly. Given the distance of the subject to camera, and the wide angle of view, depth of field is not a main concern. As long as the subject is in the depth of field window, it's a great shot!

Shooting Assignment: Take a model out into an outdoor situation. Shoot in the manual mode. Have your model walk slowly away from you. Start by having your camera down at your side. Practice bringing the camera up to your face, quickly choosing a shutter speed and aperture combination, focusing, and then creating the shot.

Image 012

For Image 012, what shooting mode would you choose and why? Remember, the shooting mode does not determine exposure. I bet many of you would say aperture priority because it's a landscape image. What is the benefit of aperture priority mode? Earlier, we learned that it is depth of field. Is depth of field critical to this image? I would say not. In fact, I would say that a maximum depth of field might even hurt this image. Why? The composition is trying to force the viewer's eyes to the rock where the sunlight is hitting and then move further into the picture toward the river. By limiting the depth of field to the rock area in the foreground, the image creates a stronger sense of perspective and expansiveness.

Shooting Assignment: Find a landscape location that you would like to photograph. Slow down. Use the manual shooting mode. Practice shooting the scene with different f/ stops. Learn how a change in aperture affects the shutter speed. Make drastic changes and try to predict what the new aperture/shutter speed combination will be.

Recommended Reading: For other pointers and lessons on how to improve your landscape shots, grab a copy of Photzy's Complete Landscape Photography premium guide.

Self Check Quiz

1. True or False: Manual mode is the only camera shooting mode that gives full control over the shutter speed.

2. True or False: Aperture priority mode gives the most accurate exposures.

3. Why did the camera manufacturers develop the automatic shooting mode concept?

4. Name one benefit to a professional photographer that is delivered by the automatic shooting mode feature.

5. What camera had the first widely accepted automatic shooting mode back in 1978?

6. Most exposure compensation dials limit the adjustment to somewhere between a ?-stop and up to a ?-stop range.

7. When you are photographing a scene with extremely high contrast, manual mode is your best option. This is because the contrast range will likely put the exposure _____ _____.

8. Which camera system determines exposure?

9. The exposure triangle includes shutter speed, aperture, and _____.

10. Name the #1 problem that newer photographers often have with their photographs.

11. The aperture priority mode eliminates the photographer's concern for the shutter speed. The shutter priority mode eliminates the photographer's concern for the aperture setting. What concerns are eliminated in the program mode?

12. Aperture priority mode is best used when depth of field is vital, the _____ is basically set, the focal length of the lens isn't _____, and the shutter speed is_____.

13. When you depress the shutter release button, which camera system goes into action first: the metering system or the shooting mode system?

14. What is the REAL reason that you should be using the manual mode on your camera?

Answer Key to the 5 Questions Asked Earlier on Page 21

Aperture Full Stops:
1, 1.4, 2, 2.8, 4, 5.6, 8, 11, 16, 22, 32, 45, 64

Shutter Full Stops:
1/1000s, 1/500s, 1/250s, 1/125s, 1/60s, 1/30s, 1/15s, 1/8s, 1/4s, 1/2s, 1s

ISO Full Stops:
100, 200, 400, 800, 1600, 3200, 6400, 12,800

1. Shutter Speed – 1/60th (+2 stops), Aperture – f/2.8 (+1 stop) = Total +3 stops

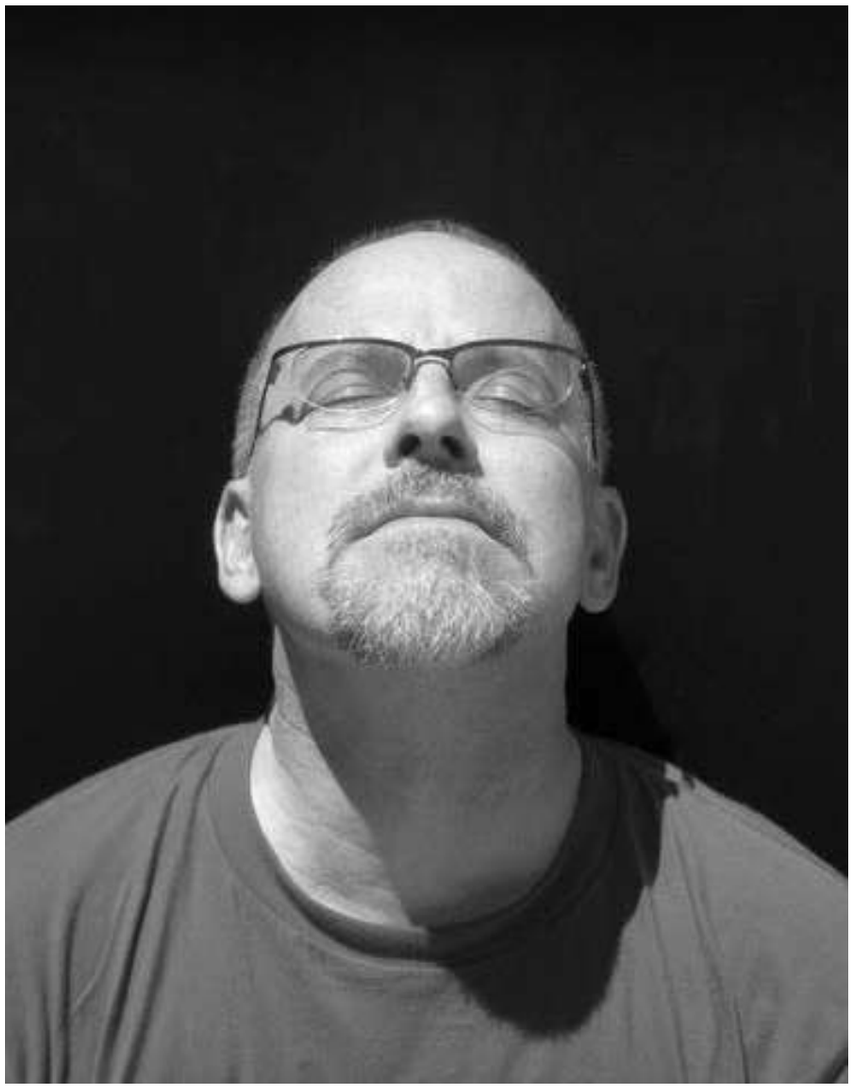
2. ISO Setting – 800 (+3 stops), Shutter and Aperture remain the same

3. Exposure Compensation Dial – (+3 stops), Shutter Speed becomes 1/30th of a second

4. Aperture – f/2.8 (+1 stop), ISO 400 (+2 stops), Shutter Speed remains the same = Total +3 stops

5. Shutter Speed – 1/60th (+2 stops), Aperture f/11 (-2 stops), ISO 800 (+3 stops) = Large depth of field window, minimum noise, reasonable handheld shutter speed with a 50mm lens

About the Author



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