

Low Light Photography – by Drew Loker. Assisted by Dwain Cox.

Portions adapted from “*Shooting Fireworks with a Digital Camera*”, By Jim Barthman, and other handouts.

Variations of Low Light Photography: Few areas of photography offer as much excitement as experimenting with low light. And fortunately, digital camera help eliminate the guess work once associated with such images. This topic can cover a lot of area: Long Exposure (with or without light trails), Slow Shutter Flash Sync (balanced fill flash), Astronomy, Painting with Light (lighting a scene with multiple flashes), Zooming Long Exp (moving the zoom ring during exposure), Twilight scenes, Fireworks, etc. So let's get started so we can have some fun! ☺

General Guidelines and Tips:

Camera – Many cameras are capable of taking good low light photographs. Even many P&S cameras come equipped with “Night Scene” modes. But in order to achieve the best results, you will need a camera with full manual exposure mode and “B” shutter speed setting. Bottom line, it is time to buy a DSLR which are now no more expensive than a good quality film camera was a few years ago. Commit your Digital P&S for the glove box so you always have a camera available.

Camera Options - Lowest Cost Option: Pentax *ist D w/ 18-55mm (\$500). Or, consider Sony's Alpha 100 w/18-70 (\$1,000) with built in Anti Shake. Or, a Pentax K100d, also with Shake Reduction and 18-55 (\$700). If you already have a film SLR, consider a Canon Rebel XT (\$700 body) with 28-135 IS (\$400) or a Nikon N50 (\$550 body) with 18-200 VR (\$700). For really long exposure work (3-4 mins, ie. Astro), the Canon D60 is regarded as one of the best options...available used on eBay ~\$400.

Tripod - Long exposure times require camera support to ensure sharp exposures. Use a sturdy tripod. Avoid the CHEAPOs at retail outlets. Get at least a Bogen 3001. Approx \$100...but WAY sturdier than the most expensive at BB or CC (also \$100).

Cable release - If your camera does not accept a cable release or have a remote, you will be able to use the Self Timer or the “Black Wallet Trick”. Check eBay for inexpensive alternatives to the OEM option.

Flashlight - You will need to see your camera in the dark...plus, you can use flashlight (or candles, lighters, etc.) to illuminate and/or trace your subject.

Notepad - Even with EXIF information recorded with each image, it is helpful to make notes of what is going on. Also, write down the names of anybody who appears in your images...and get a model release.

Batteries - Digital cameras can drain batteries quickly, especially long exposure work. Be sure you have plenty of backup. Check your camera for AC adapter options (if electricity will be available). **Note:** Walmart – Duracell 2650 MAH...8 pack for \$15.83!!

Focusing – Autofocus may not work...and will use valuable battery power. Switch to Manual Focus...and ZONE focus using your distance scale. (RIP Depth of Field Scale). If your camera does not have MF, set your camera to Landscape mode, typically designated by an icon that looks like a small mountain range. It's the same as setting the lens on a film camera to Infinity. If you are going to want use flash, you will need to use the “Night Scene” mode...frequently indicated with a person with a star behind them.

Compression - Use the “Highest Quality”, “Super Fine” or as many stars as possible to reduce the amount of compression applied to your images. This is a particular problem for night photos because compression artifacts are typically found in areas of high contrast, like the bright lights against a black sky. You can always compress it at home to suit your needs (email, web, etc.).

Exposure: For many types of night photography, the fancy matrix meter is useless. Refer to the handout: *Calculating Time Exposures*. This chart will work with cameras that allow you to set shutter speed and aperture. (see my first tip)

ISO - DSLR cameras have an ISO speed range of 100 or 200 to 3200. Many P&S digital cameras have even slower ISOs of 50 and 80 to 400 or maybe 800. Generally, you should use the SLOWEST (low number) ISO, especially on P&S cameras. Definitely make sure the camera is not set to Auto ISO. HIGH ISO results in HIGH noise. In regard to P&S cameras, they have smaller chips than their bigger cousins, and result in higher noise for a similar ISO. If you know that your camera provides low noise at higher ISOs, use the ISO to work with your equivalent exposures (ie. Different shutter speeds and aperture combinations...same results). When using higher ISOs, you will want to turn any automatic sharpening off in the camera. You will also want to check for any Noise Reduction settings that your camera may have.

Shutter - You'll need to be able to control how long the shutter is open. If you have a B (Bulb) shutter speed setting you can use it to control exactly how long your shutter is open. If you don't have a cable release, use a black wallet (or similar item) to cover the lens, trip the shutter (on Bulb), remove the wallet, count out your exposure, put the wallet back in front of the lens, and then release the shutter.

Aperture - Will be based on the ISO setting of your camera. You'll want to figure out how to use these controls. Vary the ISO to control the shutter for longer/shorter exposures to show or stop motion, or to allow more time to run around in your own picture painting your image.

Bracketing/Exposure Latitude – “Bracketing is for photographers how have failed to master the craft.” – Ansel Adams. Adams may have been correct, but he didn't have Photoshop to blend two exposures. ;) Also, keep in mind that digital images have very little latitude in the exposure. If you're not careful, you can overexpose and lose detail in the highlights. Since night time pictures have highlights against dark backgrounds, using a digital camera to capture them can be tricky, even with a spot meter. Fortunately, most cameras have a histogram to determine the quality of the exposure with the amount of blown highlights. Review the picture and adjust...but you also do not want to underexpose the picture due to increased noise in the shadows. While always possible, the newest versions of Photoshop allow you to more easily combine two identical pictures of different exposures to blend together for the best dynamic range. When bracketing, try to take at least three pictures, one stop over, one stop under and one stop based. More bracketing is certainly useful.

Noise Reduction (NR): Long exposures, higher ISO settings, and even higher temperatures can introduce noise into your digital photographs; literally, the hotter your camera, the noisier the image. Noise is typically visible in dark or black areas evidenced by colored pixel artifacts. If you are using a tripod, and the exact length of exposure doesn't matter, choose a lower ISO setting. Many advanced cameras will have a Noise Reduction setting that will kick in automatically at longer exposures. If your camera doesn't have that setting, you will want to learn how to do a black frame (see the July BCC Bulletin...or search Google).

Composition: Zoom in. Don't rely on cropping later. Crop, crop crop. Crop in the viewfinder first, then in the computer, and...when you get ready to frame it. Watch out for artificial light sources such as streetlights that are too close to you to avoid the possibility of light flare. Watch out for tree branches that can sneak into your composition too as they will overexpose.

IS/VR/AS/OR – What do all these have in common? Counteract your movement. These are image stabilization techniques. Two new cameras have hit the market recently with the VR built into the body (first introduced by Minolta...recently acquired by Sony). VR is IDEALLY suited for digital photography and happens to be my favorite aspect of low light photography. The ability to turn off the flash and change the WB and even ISO in the matter of seconds is very powerful. And the ability to shoot pictures with slow curtain sync (flash with slow shutter) is even more dramatic. You will want to turn the VR off when using a tripod, and VR will not keep the subject from moving...but VR sure does open up a while new dimension of photography. To me, it's the reason to GET a digital camera if you haven't already.

Conclusion: Photography is “Writing with Light”. Natural light photography (no flash) allows you to capture authentic moments frequently not possible with flash photography. Low Light photography is the natural extension to taking daytime ambient lit scenes. Learning to work with ambient light as well as fill flash will all you to take some of the most dramatic pictures. It will take a bit of practice and trial & error, but the rewards of a beautiful picture will be so worth it.

Exercises:

1. For tonight, in the BAL parking lot, put a subject in front of the sunset.
 - a. Take a picture with **out** the flash.
 - b. Now turn on your flash on and set your camera to Program or Aperture Priority. Compare the results. Experiment with your metering mode to Center or Spot.
 - c. Now turn your camera to Night Scene Mode, and expose the subject again. For those with full manual control, start at 1/60 @ 5.6, then slow the shutter down to 1/4 in several stops.

2. If time permits, or later, when it is completely dark, adjust your camera settings to correctly expose an image using
 - a. ISO 400 and:
 - i. 1/60 of a second shutter speed.
 - ii. 1/30 of a second shutter speed.
 - iii. 1 second shutter speed.
 - b. ISO 100 and:
 - i. 1 second shutter speed
 - ii. 5 seconds shutter speed.
 - iii. 10 seconds shutter speed.
 - iv. 30 seconds shutter speed.