Chapter 9 - Filters
Filters for the digital age
FILTERS AND LENS ATTACHMENTS
What is a filter?

- Filters are simple lens attachments that screw into or fit over the front of a lens to alter the light coming through the lens.
- Filters can also be used to make the image that the camera sees into something that is not real.
- Filters are often used for special effects in digital imaging. (23-24)
Filters in a digital age

• Today some digital photographers feel that filters are not needed since you can alter an image after it has been taken by using a computer and software like Adobe Photoshop.
• Filters can still be used today on a digital SLR camera lens.
• There are many advantages of using a filter when the image is taken. (23-24)
Reasons for using filters (25)

• **Filters bring extremes into range:**
  - The digital camera sensor is only capable of capturing so much of a range of tones. Graduated filters, for example, allow you to shoot in situations that would challenge the sensor without.
Reasons for using filters

• **No computer needed:**
  – Filters allow you to control tones and colors at the camera rather than in the computer, allowing you to make better photographs from the camera or memory card at home, or from a lab. No editing is required on the computer.
Reasons for using filters

• **Less work:**
  – Filters affect tonality and color in the image so that less work is needed if you do bring the image into the computer. With the filter there is less editing on the computer after the image is taken.
Reasons for using filters

• **See what you are getting:**
  - With a filter, you can see the effect of the filter as you sheet. There is no guessing as to what you “might” be able to do later on the computer.
Reasons for using filters

• **Filters encourage an attitude of craft:**
  
  – The more you can get the photo right in the first place, while you there with the subject, the more likely you will have the best image possible when you work on it in the computer.

*IR Filter Differences and Sample Images*

- Normal Color Image (Non-Infrared)
- Black & White Filter - 830nm (No Adjustments)
- Standard Filter - 720nm (No Adjustments)
- Standard Filter - 720nm (Color Channels Adjusted)
- Standard Filter - 720nm (Desaturated in Photoshop)
- Amplified Filter - 665nm (No Adjustments)
- Amplified Filter - 665nm (Color Channels Adjusted)
- Amplified Filter - 665nm (Desaturated in Photoshop)

Infrared filter effects
What filters do you need for your digital camera?

• A polarizing filter-cut reflections and glare
• A UV filter-protect your lens from dust and scratches
• A Neutral Density filter-filter allows you to shoot at slower shutter speeds and smaller f/stops
• A graduated Neutral Density filter-special effects
• Filters for Infrared Effects-special effects
• Special Effect Filters
Top two filters for all photographers

• The polarizing filter—This filter changes the way light hits the sensor. It has an effect on colors and tones of your image.
  – Darken blue sky at certain angles and create contrast with clouds
  – Remove reflections
  – Enrich colors by removing glare
  – Cut through haze (26)(27)
  – Cannot be duplicated in Adobe Photoshop
The main reason to use a polarizing filter - To cut reflections

Without a polarizing filter

With a polarizing filter
Polarizing filter example images

Without Circular Polarizing Filter

With Circular Polarizing Filter
Some polarizing filter examples
Top two filters for all photographers

• Graduated filter (split ND-neutral density)
  – The graduated filter gets its name from a graduated tonality through its middle. Half of it is clear, the other half is dark, and it is blended in tone across the middle.
  – They help balance the light in a scene. They are used commonly by landscape photographers to moderate extremes in tonalities between bright skies and dark ground. (26)
Graduated filter (split ND-neutral density) images examples

Before

After
Other useful filters for digital imaging

- ND or neutral density filters
- Soft-focus filters
- Star filters (30)
Graduated Sunset
SOFT/FX AND WARM SOFT/FX

No Filter  Soft/FX 3  Warm Soft/FX 3
Fog Filters

NO FILTER

DOUBLE FOG FILTER 3

FOG FILTER 3
Tri-color

With Para
Infrared (IR) filters

- These can produce dramatic images
- Many cameras have a blocking filter over the sensor to limit infrared interference with normal photographs (31)

Camera sensor with IR blocking filter that has to be removed.
IR Filter Differences and Sample Images

Normal Color Image (Non-Infrared)  Black & White Filter - 830nm (No Adjustments)

Standard Filter - 720nm (No Adjustments)  Standard Filter - 720nm (Color Channels Adjusted)  Standard Filter - 720nm (Desaturated in Photoshop)

Amplified Filter - 665nm (No Adjustments)  Amplified Filter - 665nm (Color Channels Adjusted)  Amplified Filter - 665nm (Desaturated in Photoshop)
Protection: Do you need it?

1. Expensive lenses are highly corrected. An inexpensive filter can throw that corrected ion off and make the lens less sharp.

2. Every filter added to the front of a lens adds potentially reflective surfaces that can result in flare.

3. Stacking filters one on top of the other can decrease sharpness and cause flare problems.

4. A “protective” filter can give a false sense of security; photographers without a filter in front of the lens often take better care of those lenses. (32)
Lens hoods

• You should typically use a lens shade or hood on your lens all the time.
• The hood will protect the lens from stray light and also keep fingers, twigs and other things from even getting close to the front of the lens.
• To protect your lens get a good quality filters and use a lens hood.
• Remover the protective filter when you add other filters.
• Treat the filter as an important optical element and keep it clean at all times.
Experiment with filters

Try using yellow, red, orange and green filters for black and white images that you make on your digital cameras. (33)
Exposure with filters

• Most filters darken the scene
• Grad filters may need exposure adjustments
• Polarizing filters can give misleading exposure results
• Remember to always check all images in the LCD especially those images taken with a filter attached to the lens.
JUST LIKE SPICES USED IN COOKING, A LITTLE GOES A LONG WAY SO DON’T GO WILD USING FILTERS.
Polarizing and ND Filters used during the day with landscape photography
Digital filters using Adobe Photoshop CC

Click on Filter Gallery
You will then be able to try out many different digital filters that Adobe Photoshop CC has to offer.
Original image on the left with a Watercolor digital filter applied on the right.