Intermediate Photoshop for Images and Print

What you need to know to produce consistent, accurate, and predictable results.

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Outline

- Introduction
- What are Color Spaces?
- What is a Color Model?
- Printers.
- WYSIWYG
  (what you see isn't always what you get)
- Tips for successful Photoshop document manipulation- with emphasis on a printed product.
Goals of this workshop

- Give you a basic understanding of electronically reproduced color.
- Show you the basics of how to set up your computer properly for consistent color.
- Show you some valuable Photoshop tips.
So what is color in regards to this Workshop? Color in Photoshop is an electronic (digital) approximation of color we see with our eyes (analog).
Different devices reproduce different gamuts of color.

Monitors can be set via your Operating System (Windows, Mac, Linux/Unix) to a variety of Color Spaces, each approximating a slightly different range of colors.

Good quality CRT monitors produce a wider range of visible color than a comparable LCD.

LCDs are, at the moment, largely incapable of reproducing true black.
This is a representation of the approximate range of colors the human eye can process.
The reproduction of color onscreen is limited. Monitors can only reproduce part of the full gamut of color seen by the human eye.

sRGB is one of the two most popular Color Spaces used for viewing color electronically.

It is often referred to as a Web Safe color range. All web browsers and monitors should be able to reproduce the colors within the sRGB Color Space.
Adobe1998 RGB contains colors that sometimes go beyond what a web browser and/or monitor can display.

Many printers (mostly inkjet and laser) are capable of reproducing the extra color provided by the Adobe1998 RGB Color Space.

Many digital cameras store images in this color space.

Use this Color Space if you need every ounce of color in your images/graphics, with an eye towards a printed product.
Problems with Viewing

• You may not be able to ‘see’ the full gamut of colors in your image.
• Perception is a flawed method of color correction and selection.
• Color is relative.
This animation shows how color is relative to the tones, gradients, contrast, and color around it.

With the gradient behind our solid grey bar, the end closest to the white gradient appears darker than the end closest to the black gradient.

Your eyes cannot be trusted when trying to match colors electronically. For example: Trying to reproduce WVU’s official colors by what you see can be almost impossible. Differences in displays, Color Spaces, and your own perceptions can fool you into thinking you have a match.
LCDs are popular, but by no means the best for proofing color.

CRTs are still the best at reproducing a wide range of colors and tones.

OLEDs, if the technology pans out, could be the Holy Grail of displays that reproduce the full gamut of color the human eye can perceive.

PDP: Fantastic contrast, but losing ground to larger LCDs.
Bit-depth is a way to measure the density of color information within a file.

The higher the bit-depth, the more colors and smooth gradations are contained within the image/graphic.

Digital cameras taking color pictures should be set to capture at the highest bit-depth available.
When you limit the number of colors an image/graphic contains, the gradations between different shades of the same color become more pronounced.

The 8-bit image here is far rougher than the 16-bit image. Lower bit rates affect not only the continuity of color and changes in color, but the overall sharpness of the objects within your image.
Different printing devices reproduce different gamuts of color.

Most commercial printing applications use the CMYK color model.

Inkjets, Dye-sublimation, and chemical process printers have a wider range of reproducible colors than traditional printing presses. Most inkjet printers for the home contain no fewer than 4 colors, and some more than 8.
To get the highest quality output from an image/graphic, send your work to a professional printer. There are many websites that offer these services far cheaper than the cost of owning and maintaining your own equipment.

The computer lab at the Evansdale Library offers a service called Big Prints for large jobs. The rates are fantastic, and poster-sized output of a full color document can run as little as $6.50!

http://oit.wvu.edu/labs/bigprints/
CMYK approximates colors by blending Cyan, Magenta, Yellow, and Key (Black).
This method of blending means colors created in an RGB environment will not necessarily translate directly from screen to print with some kind of color shift.

You can set your Color Space output to mimic CMYK in Photoshop. This will help you get the results you are expecting from your printed product.
Halftoning, called Rasterizing, is a pointillation printing process where gradations of color, light and dark areas, and detail are created by using dots of various sizes to fool the eye in to seeing a coherent image at distance. Most commonly used for LARGE images (think billboards).

Continuous toning is a chemical process used in reproducing digital images on photographic paper. It involves using lasers to expose photo paper to the digital image. Colors, gradations, detail are all maintained as well as the data contained in the original image allows.
The following pages show how I set Photoshop’s preferences. These are good starting points until you’re comfortable enough to make changes yourself.
I leave the Image Interpolation at Bicubic.

When I re-size images, I change the Interpolation in the Resize Image window to either Bicubic Sharper (for images with a lot of detail and well-defined lines) or Bicubic Smoother (for images with a lot of gradation and smooth transitions).
If you’re not dealing with other users who have older versions of Photoshop, disable the Maximize PSD and PSB File Compatibility option. Your PSD (Photoshop Document) files will be smaller.

Adjust the Recent File List to remember as many recent files as you want.
I prefer the Full Size Brush Tip and Show Crosshair in Brush Tip options. This allows me to be more precise.

I also use the Precise cursor for the same reason.
I prefer a Small grid to show my empty backgrounds.
Set Rulers to inches and Type to pixels for most web and print work.

Default Print Resolution is 300 ppi (pixels per inch).

Screen Resolution should be set to 72 ppi. Most monitors can not display much more information than this.
Very important to use a 2\textsuperscript{nd} hard drive as a Scratch Disk. If you are doing a lot of work with large files, working with only the drive your Operating System resides on will slow things down dramatically.

It’s also safer to work with these large files away from your main drive.
The more memory you can allocate specifically for Photoshop the faster and more stable your machine will be when working with large files or multiple projects.

Machines with XP should have 1GB of memory for heavy Photoshop use.

Machines with Vista should have 1.5GB of memory for heavy Photoshop use.
If you are working in a professional environment where sending files off to the printer is a necessity, Pantone color-matching cards are a must have.

Every color reproduced electronically has a ‘name’ comprised of numbers and/or letters in combination. This name is essentially an instruction to display the color associated with it.

By assigning the colors you want to use in this way, you can produce colors that look the same each and every time you use them. It also helps track down color problems if your printed output does not match your on-screen version.

For a complete set-up, buy a hardware monitor calibrator. These devices help you set your monitor to display color as accurately as possible.
Activities for these items are forthcoming.
Thank You for Attending!

Photoshop for Images and Print (PS4IP)

Please complete an evaluation:

http://oit.wvu.edu/training/cval.html

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