Photoshop!
Intro to Web Design & Computer Principles
Class 2 – September 10, 2012
Adobe Photoshop!

• Software for manipulating and creating digital images
• Tools and metaphors from darkroom photography
• Uses raster or bitmap graphics (mostly)
• It’s all about the pixels (and layers)
• Fun (and dangerous)!
Let’s look at some examples....
Strategies for Displaying Graphics

- Vector
- Raster or bitmap
Pixel?
Pixels!

• Pixel (picture element) is the smallest unit of information in a raster graphic

• Each pixel has an address (can be identified/located) in the grid of the graphic
Every Bitmapped Image has:

- Dimensions (width/height)
- Resolution (number of pixels per inch)
- Bit Depth
Each pixel is a sample of the original image. More pixels = more accurate image.

Images can be “bitmappy”
Color Depth/Bit Depth

- A bit (short for binary digit) is the basic unit of information used in computing (0 or 1).
- Bit depth is the number of bits used to describe a single pixel.
- More bits, more colors.
- 8-bit = 256 colors, 24-bit = 16.7 million colors.
- More info, bigger file size.
Memory Problems?
Compression

• Compression algorithms minimize file size
• Lossy — some data is discarded and approximated: smaller file size
• Lossless — original data is reconstructed from compressed file: most accurate
File Types

- TIFF
- GIF
- JPG
- PNG
- camera raw file types
Image types: TIFF

• Stands for Tagged Image File Format
• .tif
• Bitmap or raster graphics
• Good for high-color depth images
• Lossless compression (large files)
• Originally designed for scan and print output
• Preserves layers
Image Types: GIF

- stands for “Graphic Information Format”
- .gif
- only 256 colors
- “lossless”
- great for flat, simple graphics
- transparency (limited)
- supports animation
Image Types: JPEG

• stands for: Joint Photographic Experts Group

• .jpg or .jpeg

• lots of colors

• “lossy” ~ compression trade off

• great for photos
Image Types: PNG

- Stands for Professional Network Graphics
- .png
- lots of colors
- “lossless”
- preserves transparency, gradients
- newest format, some limited browser problems
File Size

- File size is determined by:
  - bit depth,
  - image dimensions
  - image resolution (number of pixels per inch)
  - file type
Best Resolution? (it depends...)

- For web and screen: 72 ppi
- For documents: 300 ppi acceptable print output for photos, word processing, and other documents
- 600 dpi for high quality print output
- >600 ppi for archival quality storage
Saving

• If saved as a .psd, will save all layers and extra Photoshop info

• IF YOU WANT TO REWORK YOUR IMAGE, SAVE AS A PSD

• Can save for web or device output using File>Save for web...
Color!
Representing Color

- RGB
- CMYK
- HSV
- LAB
CMYK: *subtractive color*

colors (ink) applied to white surface (paper) reduce the light that would normally be emitted by the surface.
RGB: *additive color*

Red, green, and blue light mixed (added) together to make a color: 100% of each makes white, 0% of each makes black.

Values for R, G, and B are often each specified as a number between 0 and 255.
RGB colorspace as a book (Tanya Auerbach)
HSB color: more intuitive mixing

- Also called HSV ($v =$ value)
- **Hue**: the similarity to a perceived color (RYBG) or combination of these colors (in degrees)
- **Saturation**: colorfulness or purity of color relative to brightness (in %)
- **Brightness**: the appearance of emitting more or less light (in %)
Lab color

- L : Lightness
- a : magentas and greens
- b: yellows and blues
Name your color!

hex code
Hex Codes

• a pair of digits/letters each for R, G, and B
• each pair of digits represents a number between 0 and 255
• hex codes are based on 16 digit system (0 to F), not 10 digits (0–9)
Converting Hex Codes

start with the left number, multiply by 16:
12 * 16 = 192

then add the right number....
192 + 12 = 204

# CC 66 00
R G B

204 102 0
Let’s try out some photoshop

- New documents
- Toolbars, panels, and windows; zoom and navigation
- Browse in Bridge
- Image size
- Various tools for selecting pixels, refining edges
- Using your history panel
- Layers, layer order
- Making adjustments