Visual Studies II: Arch 1291
Fall 2012

Assignment Number: 3: Colorspace and Raster/Vector
Computer Program(s): Rhino, Photoshop, Illustrator

Student Learning Objectives:
To export vector and raster images from Rhino to be used as an underlay in other graphics packages.
To gain an understanding of RGB, HSB, additive/subtractive mixing.

Assessment:
To evaluate the student's achievement of the learning objectives, the professor will do the following:
1. Evaluate the student's understanding of Rhino's export functions
2. Evaluate the Munsell diagrams produced for understanding of the original color chart
3. Evaluate student generated InDesign layouts for completeness

Project Description:
Color is the way that human beings perceive the wavelengths of light between 400 (near ultraviolet) and 700 (near infrared) with different colors corresponding to different wavelengths in this range. The shorter the wavelength, the more energetic the light.

While it may not be crucial to understand the exact physics of light, we do need an understanding of how light works to understand color. Electronic displays, for instance, generate very specific wavelengths or colors of light. They "mix" these very precisely to create the image you see on screen. Displays that emit light often are called RGB, or red, green, blue displays. This is the case because the primary colors (the colors requires to generate every other visible color) for light are red, green, and blue. If you combine RG and B light, the result is white.

Inks, paints, and other physical media are subtractive methods. Unlike light, mixing these will yield a darker and darker result. You may remember the primary colors of physical media to be red, yellow, and blue. Scientifically the best "primary" colors for subtractive colors are cyan (a bright blue), yellow, and magenta. Mixing these colors gives you black, and a gamut of other possibilities. Printers generally use this color space.

You might have identified a potential problem: monitors use RGB colors, and printers use CMYK colors. Thankfully, our computers will translate, but we do have to be aware that some colors will not handle the shift well, and make adjustments.

Requirements
You will create a digital model in Rhino that will become the base for a digital Munsell Color Chart. This chart will be exported as a vector and as a raster image. You will then add color to this chart in Adobe Illustrator (vector version), and Adobe Photoshop (raster version).

Process
Rhino
1. Review the terms listed in the following pages to re-familiarize yourself with the important distinctions between the tools and concepts you will be using to complete the assignment. Review the manual pages listed in the process below to re-familiarize yourself with the commands before beginning. **Read the complete assignment before beginning!**
2. Create a new Rhino file using the "Small Objects, Inches" template.
3. Create a 3D grid of shapes using the *array* command as a base for your color drawings. You should orient the drawing in the "Perspective" view such that you can read each shape as a 3D volume. Save the perspective view as a "Named View" with the name Illustrator View.
4. Place the geometry on its own layer named "Munsell Volumes."

5. Right click on "Perspective" in the viewport and choose "Display Options."
6. In the dialogue box, uncheck "Show Isocurves." Close the dialogue.
7. Click in the "Perspective" viewport. Select the objects you've created by pressing CTRL-A on your keyboard.
    a. Go to File> Export Selected. Please use the correct NAMING convention for your file, i.e. Valdez_F12_First-Last(P03.0) with each following file (P03.1), etc. For "Save as type" choose Adobe Illustrator.
8. Save your work. Name your file (ie Valdez_F12_First-Last(P03.1)

Illustrator
9. Open the file you exported in Illustrator. You may need to scale the image a bit, as the geometry was grabbed in a snapshot view of your Rhino viewport and is now scale-less.
10. Once you've scaled the image, go to File>Export. For "Save as type" choose .JPEG. Give your file a name (ie Valdez_F12_First-Last(P03.2) and save it.
11. Select all of your geometry and set the stroke weight to .5pt. Set the stroke color to black.
12. Delete or trim any lines you do not wish to show in your final design.
13. Go to *File>Document Color Mode>*choose *CMYK Color*
14. With all of the geometry still selected, go to Object>Live Paint>Make.
15. Using the "Live Paint Bucket" fill your objects with the proper Munsell Colors.

Photoshop
16. Create a new document in PhotoShop, 8.5x11, 300 dpi.
17. Open the .JPEG you created in step 9.
18. Copy the .JPEG image to the new document you created. Rename this layer "Underlay."
19. Go to *Image>Mode>*choose *RGB Color*
20. Create a new layer named "Fills" and make it the current layer.
21. Use the "Paint Bucket" tool to fill the shapes with the proper Munsell Colors.
22. Save your file with the standard name (ie Valdez_F12_First-Last(P03.3).

InDesign
23. Create a new 8.5"x11" InDesign document, no facing pages, landscape orientation
24. Create or insert a title block for your document
25. *File>Place* all your Munsell chart images into the document from 1210 and 1291, one on each page, adding pages as needed
26. Save your file with the standard name (ie Valdez_F12_First-Last(P03.4).
27. *File>Package* your document.

Submittal
Please submit to the project folder, within the first fifteen minutes of next week's class, your digital model, JPEG, Illustrator and Photoshop files.

P03.0: Rhino File (3DM)
P03.1: Illustrator File (AI)
P03.2: JPG Export from Illustrator
P03.3: Photoshop (PSD)
P03.4: InDesign Package Folder