Southern New Hampshire University

Color and Accessibility

Overview
Documents used in COCE courses should adhere to good practices in regard to the use of color and contrast. Improper use of color could pose problems for students who are blind or have low vision.

The main principle to keep in mind is that color should not be the *only* way the information is conveyed. This means that some color is allowable, but the text or graphic needs to be presented in a way that will also allow blind, color-blind, or low-vision students to access the information.

Consider the example below.

> **Inaccessible:**
> Define the terms in red: "Although random mutations are essential for natural selection to work, the overall process is cumulative and nondirectional."

Students using screen readers may not be able to determine which terms are colored red, and students who are color-blind or have low vision may have difficulty. To solve this problem, it can be restructured so the information is conveyed through text rather than color. Students with low vision will be able to read the text, and students using a screen reader will be able to hear the words read aloud.

> **Accessible:**
> Read the following sentence: "Although random mutations are essential for natural selection to work, the overall process is cumulative and nondirectional."
>
> Define these terms from the sentence:
>
> - Mutations
> - Natural selection
> - Cumulative
> - Nondirectional

With a restructuring like this, color becomes unnecessary. Given that there's little benefit to using color for such cases but there *is* a potential for problems, it is generally **safer to avoid colored text if possible**. If there's a need to highlight the terms within the context of the sentence, bold may be used in conjunction with a restructuring.

> **Also Accessible:**
> Read the following sentence: "Although random **mutations** are essential for **natural selection** to work, the overall process is **cumulative** and **nondirectional**."
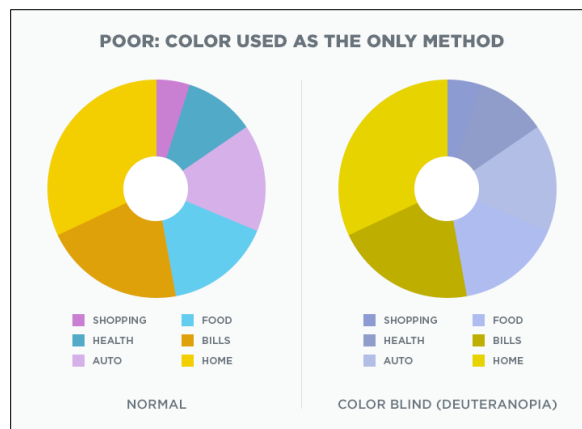>
> Define these terms from the sentence:
>
> - Mutations
> - Natural selection
> - Cumulative
> - Nondirectional

Some cases may demand the use of color. For example, colors are often used to indicate different elements of computer code. In such cases, consult with the OAC (Assistive Tech), as some accommodations may need to be made. The contrast level, for example, may need to be tested with a tool such as the Color Contrast Checker or the Colour Contrast Analyzer. It's possible to make colored text readable by adjusting the font size or using bold, but either way, textual clues would still be required for students using screen readers.

Note: For all the issues discussed in this document, changes should not be made to graphics or text without coordinating with the instructional designer or the OAC.
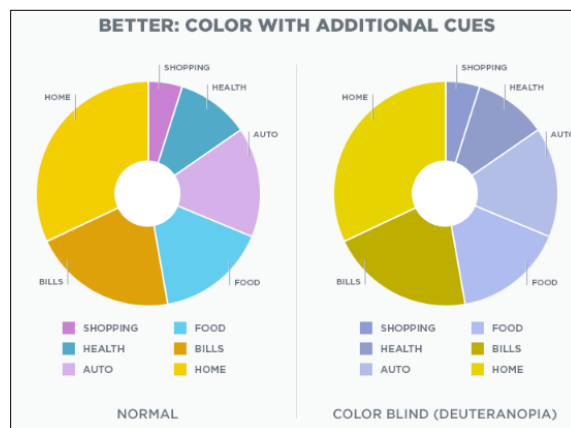
Graphics
Charts and other data visualizations used in COCE courses should follow the same principles outlined above—do not rely solely on color to convey meaning. The comparison below shows how a graph (left) may appear to someone who is color-blind (right).

Source: http://www.cruxcollaborative.com/understanding-color-blindness-guide-to-accessible-design/

In order to improve the accessibility, lines could be added to separate each segment, and labels could be added to point to each segment, as shown below. These changes make the graphic accessible for people with color blindness, but others can still take advantage of the color coding.

Source: http://www.cruxcollaborative.com/understanding-color-blindness-guide-to-accessible-design/

Note that in order to make this graphic accessible for people using screen readers, a textual alternative must also be provided. This can be achieved by using alt text within the image itself or, for more complex situations, by representing the same information in a table.

Text Contrast
Good contrast is important for people with low vision. Avoid low-contrast text.

> **Good Contrast:**
> Although random mutations are essential for natural selection to work, the overall process is cumulative and nondirectional.

> **Bad Contrast:**
> Although random mutations are essential for natural selection to work, the overall process is cumulative and nondirectional.

Generally avoid shaded cells in tables, but if shading must be used, the text should be 100% black and the shading should be no darker than 20%. Consult with the OAC if necessary.
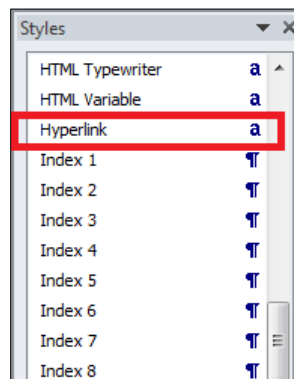
Hyperlink Style
The default style for hyperlinks in Word is often a pale blue color, which may be difficult for some people to see. To change the hyperlink style to a pure blue color, follow the steps below. (Note that these instructions apply to Word 2010. Some things may be different in later versions.)

1. Click the **Home** tab in the ribbon and then click the button in the lower right of the Styles group to show the Styles dialog box. (You can also use the shortcut **Alt + Ctrl + Shift + S**.)
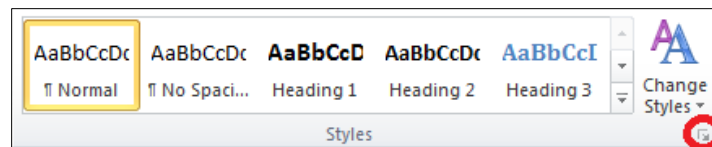
2. Find the hyperlink style in the list.

Note: If the hyperlink style does not appear in this list, you can add it by clicking the **Options** link in the lower right of the Styles dialog box. This will bring up the Style Pane Options dialog box (shown below). Select **All styles** from the first drop-down menu and **Alphabetical** from the second. Click **OK**. The hyperlink style should then be listed in the Styles dialog box.
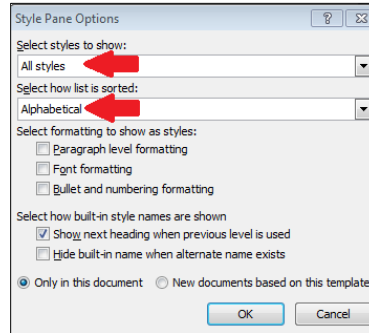

3. Once you have found the hyperlink style in the Styles menu, click the downward arrow to the right of the hyperlink style in the list. Select **Modify** from the drop-down menu.
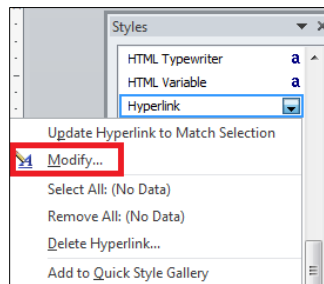
4. In the Modify Style dialog box, select the downward arrow next to the Font Color field. Then click the **More Colors** link at the bottom of the drop-down menu.
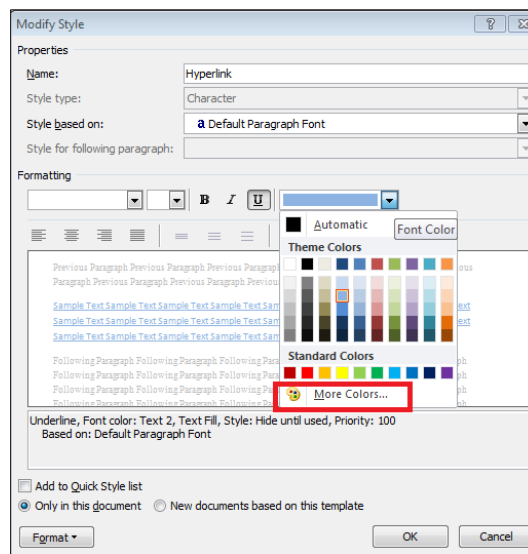
5. In the Colors dialog box, click the **Custom** tab and make sure the RGB values are set to 0, 0, 255 (no red, no green, full blue).
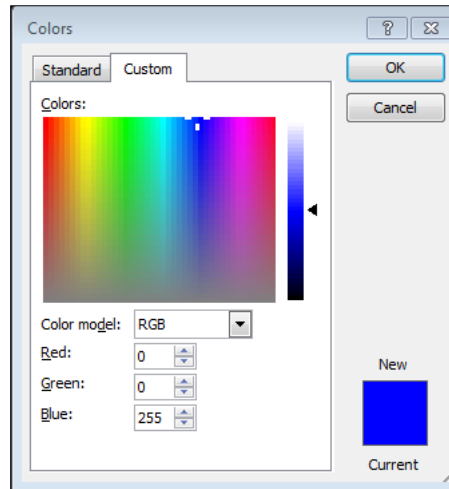
6. Click **OK** in the Colors dialog box and then **OK** in the Modify Style dialog box.

   Tips:
   - Record the actions above in a macro that you can run the next time you need to change the hyperlink style in a document. A keyboard shortcut or menu button can be assigned to the macro.
   - The process above can also be used to adjust the style for a visited hyperlink (purple). Simply find **FollowedHyperlink** in the list of styles and assign RGB values of 128, 0, 128.
   - It's better to generate the hyperlink color through a style than it is to manually change the font color. Making sure the style is correctly defined ensures that any subsequently inserted links use the right color, and it allows the link to change color once it's been visited.