**Helpful Data Visualization Tools**

Color

* Color palette/combination choosers!
  + <https://coolors.co/ee6352-067291-f4e8ef-57a773-484d6d>
  + <https://www.sessions.edu/color-calculator/>
    - **REALLY RECOMMEND THIS ONE**
* Color wheel/color categories
  + <http://www.colorsontheweb.com/Color-Theory/The-Color-Wheel>
* Move between hex codes, RGB, and CMYK
  + <https://www.rapidtables.com/convert/color/rgb-to-hex.html>
* Online Data Viz using [Viz Palette](https://d.docs.live.net/05c0592d48b909db/Documents/LAB%20Lab/o%09https:/projects.susielu.com/viz-palette?colors=%5b%22#c8b02d%22,%22)
  + <https://projects.susielu.com/viz-palette>
  + An article from a person that helped to create Viz Palette
    - <https://medium.com/@Elijah_Meeks/viz-palette-for-data-visualization-color-8e678d996077>
* ColorBrewer Scale
  + <https://bl.ocks.org/emeeks/8cdec64ed6daf955830fa723252a4ab3>

ggplot2 Code

* **Installing/Cheatsheet**
  + <https://ggplot2.tidyverse.org/>
* ggsave() – R
  + <https://ggplot2.tidyverse.org/reference/ggsave.html>
  + Making transparent backgrounds for plots/graphs:
    - <https://stackoverflow.com/questions/7455046/how-to-make-graphics-with-transparent-background-in-r-using-ggplot2>
  + Go with .png or .tiff: won’t lose information when compressed and expanded.
    - Information on why/examples: <http://fixthephoto.com/tech-tips/difference-between-jpeg-and-png.html>
    - Resolution:
      * Minimum = 300 PPI or 150 DPI
      * Ideal = 600 PPI or 300 DPI
* Setting colors/saturation in ggplot2
  + <http://www.cookbook-r.com/Graphs/Colors_(ggplot2)/>
* A list of sites about ggplot2 code with lots and lots of step-by-step instructions
  + <https://datacarpentry.org/R-ecology-lesson/04-visualization-ggplot2.html>
  + <https://www.r-graph-gallery.com/ggplot2-package.html>
  + <http://www.sthda.com/english/wiki/be-awesome-in-ggplot2-a-practical-guide-to-be-highly-effective-r-software-and-data-visualization>
  + <https://felixfan.github.io/ggplot2-remove-grid-background-margin/>
    - Specifically details how to adjust the background of your plot

Organization and Annotation

* cowplot: arranging plots in a grid; adding annotations
  + <https://cran.r-project.org/web/packages/cowplot/vignettes/introduction.html>
* ggthemes: use the theme that’s right for you (I’m a fan of theme\_few() – minimalist but still structured)
  + <https://yutannihilation.github.io/allYourFigureAreBelongToUs/ggthemes/>
* ggsignif: adding significance bars to your plots
  + <https://cran.r-project.org/web/packages/ggsignif/vignettes/intro.html>

Fonts

* Stay consistent: 2 fonts, I like a sans serif for headers and serif for body text
  + Don’t forget about the font in your plots/graphs! Here is how to change the font in ggplot2 (R): <https://www.andrewheiss.com/blog/2017/09/27/working-with-r-cairo-graphics-custom-fonts-and-ggplot/>
* A couple of sites on good font pairings
  + <https://inkbotdesign.com/font-combinations/>
  + <https://www.canva.com/learn/the-ultimate-guide-to-font-pairing/>

Other resources you may find interesting and/or useful:

* Nature Methods series on scientific data visualization guidelines for scientists
  + [https://www.nature.com/search?title=%22points%20of%20view%22&order=date asc&journal=nmeth](https://www.nature.com/search?title=%22points%20of%20view%22&order=date%20asc&journal=nmeth)
* Site on why scientists need to be better with data visualization. Has lots of good examples.
  + <https://www.knowablemagazine.org/article/mind/2019/science-data-visualization>
* Episode from a podcast called “Data Stories” – this one is by Karen Schloss at UW Madison discussing effective color in data viz
  + <https://datastori.es/119-color-with-karen-schloss/>