

Lecture 21 – Preparing Figures for Publication

Learning Objectives:

6. Learn how to document your work and prepare scientific publications.

6.3 Learn how to plot with ggplot2.

Final Project

- **Final project will be a write-up of your midterm project.** This should include any table, analysis, data, and figures.
- **Should be as reproducible as possible.** Ideally, anyone would be able to reproduce the entire project running a single markdown document. (This probably won't happen, but it's a good ideal to strive towards.)
- **There should be some improvement in the code from the midterm.** Some type of refactoring, optimization, additional analyses, and/or visualizations.
- **Due Monday December 14th by 7 pm PT.**

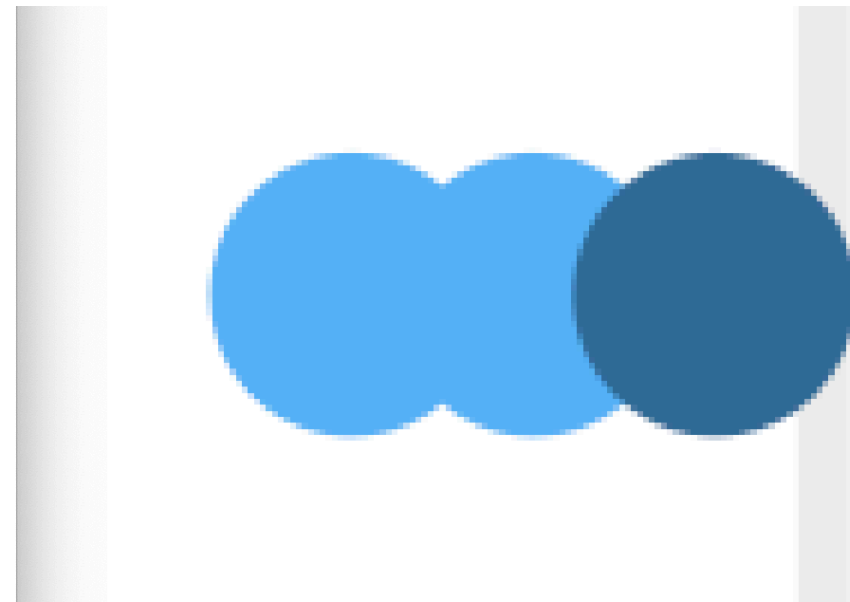
Reproducibility and transparency starts with figures

- **If there is a problem with your data, it will be most apparent in your figures.** Patterns and problems will stand out in the figures, so use them to double check your own ideas. Make them transparent so that others can find problems as well.
- **Reproducibility and transparency starts with your figures.** Visualizations make a strong case for your interpretation of your data, you have a responsibility to make them both reproducible and transparent.
- **Wherever possible, complete figures should be reproducible from raw data.** Ethical and legal concerns can limit release full data sets. Large raw files can also limit accessibility, but making raw data openly available is a best practice.

Figures should be saved when created

Options in R:

- **Vector graphics:** PDF, EPS, SVG, AI
 - `pdf()`
 - `setEPS()` and `postscript()`
 - **Don't worry about resolution!**
 - **Worry about color maps!**
- **Raster graphics:** JPEG, PNG, GIF, TIFF, BMP
 - **png package:** `png()`, `bmp()`, `jpeg()`, `tiff()`
 - **jpeg package:** `readJPEG()`, `writeJPEG()`
 - **Worry about resolution!**
 - **Don't worry about color maps!**



- `ggsave()` has many device options

For additional figure changes

Use an image editor such as GiMP, Adobe Photoshope, or Adobe Illustrator.

Gnu Image Manipulation Program (GIMP)

<https://www.gimp.org/>



Additional Resources

<http://www.christoph-scherber.de/content/PDF%20Files/Scherber%202012%20Using%20R%20in%20combination%20with%20Adobe%20Illustrator%20CS6.pdf> – Using R in combination with Adobe Illustrator for professional graphics

<https://ggplot2.tidyverse.org/reference/ggsave.html> – ggsave() reference guide