

Final independent project
Computer Modeling
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You will create and present one final independent project that will be due on **May 9th at 1pm** and your presentations will be on the 9th and 11th. The goal of the independent project is to *tell a story* with your data. You will have multiple possible options on how you plan to tell that story, listed below. Regardless of which option you choose the code for your final project with its associated data and output must be pushed onto GitHub in a **new stand-alone public repository on the BIOL551 organization**. You must also have **at least 3 outputs** associated with your project. The term output is used loosely: it can be a plot, table, animation, unique useful functions, etc. I want you to be creative and communicate your results in an informative way.

You will give a 10-minute presentation to the class explaining your dataset, the questions that you intended to answer with your data, and walk your classmates through the steps you took to get to your final set of visualizations/outputs. Your visuals should be publication quality and easy to understand. You can use any platform for your presentation (i.e., you do not need to use powerpoint).

Choose one of the options listed below or feel free to make a suggestion. I have added some associated resources to get you started.

You will need to propose an idea and dataset to me by **March 7th** via slack, email, or office hours. Let me know what data you would like to use and any preliminary ideas that you have for your project. Use this as an opportunity to get advice on how to move forward. If you do not have your own dataset to work with you can use any public dataset available (there are hundreds of data sets in TidyTuesday).

----- Everything below we learned in class -----

Rmarkdown or Quarto document (will need to add a bit of “flair” if using Rmarkdown to advance it slightly past what we did in class).

- You could use multiple data sources
- Make animations with your plots
- Make a map
- Include a function
- You can use package *flair* <https://github.com/r-for-educators/flair>
- Or other more advanced coding techniques of your choosing

Shiny app

- <https://shiny.rstudio.com/tutorial/written-tutorial/lesson1/>
- <https://deanattali.com/blog/building-shiny-apps-tutorial/>

----- Everything below is one step up from what we did in class -----

Create a Package with your own set of canned functions specific to your research needs (at least 5 functions). Your package must include a test dataset with examples on how to use the different functions.

- <https://r-pkgs.org/index.html>
- https://kbroman.org/pkg_primer

Xaringan presentation – This package is what I use to make the slides for lectures in class.

- <https://slides.yihui.org/xaringan/>
- http://www.favstats.eu/post/xaringan_tut/

Bookdown document – This is a compilation of multiple markdown files into a book.

- <https://bookdown.org/yihui/bookdown/>

Github pages website – Free version-controlled website through GitHub.

- <https://guides.github.com/features/pages/>
- https://www.youtube.com/watch?v=BA_c3bGQXIQ

Other ideas are welcome, just let me know!

Grading rubric on next page.

You grade will be determined based on the criteria below:

1 – poor job

10 – excellent job

Do your datasheets follow best practices?

1 2 3 4 5 6 7 8 9 10

Do you have appropriate metadata and data dictionaries in your repository?

1 2 3 4 5 6 7 8 9 10

Is the file structured appropriately for your project?

1 2 3 4 5 6 7 8 9 10

Does it have a readme file with relevant information?

1 2 3 4 5 6 7 8 9 10

Is your code commented appropriately?

1 2 3 4 5 6 7 8 9 10

Is your code clean and easy to understand?

1 2 3 4 5 6 7 8 9 10

Are your graphics clear and easy to follow?

1 2 3 4 5 6 7 8 9 10

Is your presentation clear and easy to follow?

1 2 3 4 5 6 7 8 9 10

Did you answer questions from the audience appropriately?

1 2 3 4 5 6 7 8 9 10

How creative is your set of visuals/platform used to communicate your data?

1 2 3 4 5 6 7 8 9 10