Beronda Montgomery's *From Deficits to Possibilities* essay: <https://career.grinnell.edu/blog/2022/08/26/from-deficits-to-possibilities-mentoring-lessons-from-plants-on-cultivating-individual-growth-through-environmental-assessment-and-optimization/>

Prepare an essay, based on your own area of study, that illuminates one (or more) of the responsible conduct of research topics we have studied over the semester, in the same vein as Beronda Montgomery's *From Deficits to Possibilities* essay, which was expanded to create her book, *Lessons from Plants*. The essay should be between about 1000-2000 words. Feel free to include figures or illustrations for interest and clarity. The thesis of the essay should represent an interesting approach to the responsible conduct of research, and should illustrate an effective way to communicate or teach about that approach based on some aspect of your area of study. You should give examples that support your thesis, and your writing should be clear and concise.

Essay Topic: Week 7: Data Acquisition and Management

Writing on this topic should in some way be about my failure to truly follow good data practices because we didn’t really learn them. So thinking of a way to make it easy to teach about good data practices, AND a lot of the fun for it could be put into ideas that I have about it in the future for a potential future lab, but more realistically and closer to now:

my basketball stats website:

* What are tools that will help me stay organized when making it?
* What are the things that I feel like I’ve made mistakes on in the past?
* How can I make these things easier in the future?
* What are some punny/nice sounding titles for this idea?
* Good figures for it?
  + I think I could make a simple flowchart for ways that scientists can save their data:
    - What if it was possible to make a processing software that could instantly transform that data into a nice figure? Kind of like the way powerpoint when you put an image in, it like gets creative in placing it and shit? Like what if you could have a powerpoint like system that will take any input figures or data, and descriptions of the data, and come up with a nice visual way of seeing that data? Like something that essentially creates paper like figures for you: If you have three pieces of data in figure form and their corresponding legends, it will automatically have templates setup for how those figures could look on a paper/powerpoint and essentially double as a way of keeping notes for your project?
    - The Methods about how code would work could be interesting if I can think of clever titles for how to do it/how it overall works? Or maybe if I just have clever titles for the above idea, then that’s probably good enough without going to in depth into how the methods work (make sure that the essay doesn’t have that in depth detail into the methodology)

Lessons from Data Acquisition and Management during my PhD

Abstract

Gathering Data

During my graduate career, I have been exposed to a variety of methods for saving and managing data. (Include those options here and describe them with sentences: IDP, labarchives, lab notebooks, github, ppt, etc.) However, having so many options has led my data to be scattered and stored in many different ways, sometimes making it difficult to know where a particular set of data is found. Although I have found a variety of ways to manage and store my data, passing it on to the next generation of students is proven difficult because of how many resources they will have to search through if they desire to find my data.

(Highlight the importance of data management here). This essay focuses on describing a potential future method to centralize data management by focusing on three key sources: raw data, analyzed data, and interpreted data. This proposed method will focus on consolidation of input datasets and summarizing given information into simple figures that can be used in powerpoint presentations or transitioned to a professional figure for a paper. By developing this method, anyone who needs to present data in any format will be able to better organize their data for the future.

Data Storage and management

Data lesson 1

Defining a naming scheme helps keep datasets organized

Management implication 1

By defining a consistent and searchable naming scheme for datasets, we are better able to keep data organized and more easily find them. For example, naming a dataset of wild type fluorescence experiments as 2023-4-30\_wt\_fluorescence will allow you to search by three key words: date, experiment type, and experiment output. In following a naming scheme, we are more easily able to find the data that we’re interested in.

Data lesson 2

Separating data by project is intuitive and easy to follow.

Management implication 2

By separating the raw, analyzed, and interpreted data in these folders, we will easily be able to find data related to a particular project. This will mean we can find all the data for a particular experiment related to that project with a quick and simple search. With the …(should I talk about the final data method here? Allude to it?)

Data lesson 3

Coding is a powerful tool for data analysis of organized data

Manage implication 3

Using a coding language such as python, it is relatively simple to create script that navigates to a folder full of data and run analysis on it. With well organized folders,