

Data Fundamentals in R

Creating a datasheet lab

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Objective: To create a field/lab datasheet to collect data, a spreadsheet to enter data to be used in R, and a data dictionary to accompany the spreadsheet.

Pick a research scenario (real or fake) to model your assignment after. You do not need to have real data for this assignment. Everything used today can be made up. But you must have a list of **at least 3 different types of variables** that you are measuring (you can have more) and **at least 20 replicates** (you can have more).

For example:

- You could measure the weight, heart rate, and length of a mouse in a treatment and a control group after being administered a drug.
- You could measure the percent cover of corals, macroalgae, and sand along multiple coral reef transects.
- You could measure soil chemistry (nitrate, phosphate, and pH) in shaded versus exposed areas.
- Or anything else that works for you.

Part 1: Make a lab/field data sheet. (10 points)

Use the guidelines discussed in lecture to create a field or lab data sheet that you would use to collect data (where you would fill in the sheet with a pencil). For full credit, your data sheet should consider the following:

- Font size matters (will you be able to see it in the field easily? Can you read it at 4am?)
- Bolding can be helpful.
- Have well defined lines.
- Have a space to for important metadata, like who took the data, the location, and the date.
- Does your sheet fit on one piece of paper? (You can have multiple sheets for your replicated data, but all the important information for one individual measurement needs to fit on one sheet).
- Does it make more sense to have your sheet in landscape or portrait?
- Print to PDF (or in ink if you have a printer) and check out how your datasheet looks before it is finalized. (In real life, you should always print and test your datasheet before starting your experiment or going into the field).
- Do you have enough space to write your data into the boxes?

You will turn in your final blank datasheet on Laulima as a PDF.

Part 2. Turn your collected data into a spreadsheet. (10 points)

You have now used your field/lab sheet to collect your data. Next step is to type it up into a spreadsheet that you can use for an analysis. Create a spreadsheet following all 12 of the requirements listed in

today's class for full credit. The data in the spreadsheet can be completely made up. **You will turn in a .csv file of your filled in spreadsheet on Laulima.**

Part 3. Make a data dictionary. (10 points)

A data dictionary is very important for your collaborators and readers to know what is in your datasheet. You need at least 3 columns (more if applicable to your research): **Name** (these are the header names at the top of your spreadsheet for every column), **plot_name** (this is the name that would be used in plots/figures: a "pretty name", if you will), **description** (a description of what the variable is, with units, and, possibly, how it was collected). **You will turn in a .csv file of your data dictionary on Laulima.**

I will be asking for some volunteers at the beginning of class on Tuesday to share their field and data sheets.

You are welcome to make changes as suggested by your classmates or work in groups before you turn in your final copy before Tuesday at 12:59 pm.