

Homework 1

- 1) (5 points) Turn in this homework using some form of RMarkdown with knitr. knitr <http://yihui.name/knitr/> should be your parsing engine in the Rstudio settings (it might be set to sweave). You may turn in this homework as an HTML file or a pdf. I would recommend pdf, but you may need to install some form of LaTeX on your computer. <http://miktex.org/> for pcs and <https://tug.org/mactex/> for OSX. I'd recommend it, as you'll find it makes your life much easier in the future.
- 2) (10 pts) You are co-ordinating a team of biologists sampling ponds around the state to look at the impact of food (as measured by Chlorophyll A) and turbidity (measured as Secchi Depth) on zooplankton abundance (measured as individuals per milliliter). You have the data. It's time to analyze it. But first, it's time to Quality Control it. So load it in (oh, and did I mention it's space delimited – see `read.table!`) and get fixing.
 - a) Read the data in, and note which values are missing, if any.
 - b) One of your team reported that their instrument may have been failing and produced anomalous Chlorophyll readings. Fix this.
 - c) One of your team misread your meta-data, and entered zooplankton values in the wrong concentrations – numbers per liter instead of milliliter. So, they're off by a factor of 1000. Fix this.
- 3) Extra credit (5 pts more): One of your team members thought their site was called “EE” instead of “E”. Sure, you could find and replace this in the original data, but who knows what you might accidentally mess up. Change the names back to “E”. Note that this is going to lead you down the path of factors versus numeric vectors, which we'll touch on in the coming weeks. Look at the help pages for the following functions: `factor`, `levels`, `as.character`, `as.factor`, and `as.numeric` (depending on what route you take). Good luck!