R for Excel Users

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Chapter 1

Welcome

Deprecated draft matrials: please see http://rstd.io/r-for-excel for current teaching materials

Hello! These are materials for a pilot workshop that was taught by Julie Stewart Lowndes and Allison Horst in preparation for the RStudio Conference in San Francisco January 27-28.

We are environmental scientists who use and teach R in our daily work. We both work at the University of California Santa Barbara: Julie is based at the National Center for Ecological Analysis and Synthesis as part of the Ocean Health Index team and leads Openscapes, and Allison is based at the Bren School of Environmental Science and Management as a lecturer of data science & statistics — and is also an Artist in Residence at RStudio.

1.1 Agenda: pilot workshop

Time	Day 1	Day 2
9-10:30	Motivation, R & RStudio, RMarkdown	Charts with `ggplot2`
break		
11-12:30	Intro to GitHub	`dplyr` & Pivot Tables
lunch		
13:00-14:30	Importing data: `readxl`	`dplyr` & VLOOKUPs

From 14:30-15:00 each day we have time for additional help and feedback.

1.2 Prerequisites

Before the training, please make sure you have done the following:

1. Download and install **up-to-date versions** of:
   - R: https://cloud.r-project.org
   - RStudio: http://www.rstudio.com/download
2. Install the Tidyverse
3. Create a an account:
   - https://github.com

1. Get comfortable: if you're not in a physical workshop, be set up with two screens if possible. You will be following along in RStudio on your own computer while also watching a virtual training or following this tutorial on your own.

Chapter 2

Overview

2.1 Welcome!

In this workshop you will learn hands-on how to begin to interoperate between Excel and R. But this workshop is not only about learning R; we will learn R using additional software: RStudio and GitHub. These tools will help us develop good habits for working in a reproducible and collaborative way — critical attributes of the modern analyst.

It's going to be fun and empowering!

2.2 Why learn R if I know Excel?

Excel is a widely used and powerful tool for working with data, and it is great for a lot of things. This is convenient and familiar; most of us have had their first experiences with data through Excel or other spreadsheet programs. As Jenny Bryan has said, "Excel is how we learn that we love data analysis".

Excel is great for data entry. Can also be good for looking at data and feeling like you can touch it, and creating quick exploratory figures.

Excel can also become problematic with extending to analyses. This is because there aren't firm lines between what is data and what is analyses. For example, in this sheet:

```
knitr::include_graphics("img/excel-sheet-example.png")
#https://www.smartsheet.com/how-to-make-spreadsheets
```