# **A Week of R at UNL**

Register at <https://forms.gle/KXeetJvppY9uFuJv9>

Schedule is tentative and subject to change due to enrollment and lab availability

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| **Date** | **Time** | **Course** |
| **January 10** | **9am – 4pm** | **Introduction to R** |
| Learn the basics of R & Rstudio, how to write your own R scripts and get an introduction to the tidyverse. We’ll start with the beginning and quickly get you up to speed with the basic tools of data exploration. You will learn how to import and manage data sets, create R objects, install and load R packages, and how to ask for help in R. | | |
| **January 11** | **9am – 4pm** | **Graphics with ggplot2** |
| ggplot2 provides a framework to produce elegant, high-end graphical displays using the Grammar of Graphics. You will learn how to create a wide variety of graphical displays in R. We will use lots of data examples to wok through the basic plots as well as more advanced tools, such as facetting, colors, themes and more. | | |
| **January 12** | **9am – 4pm** | **Data Wrangling** |
| This workshop will to prepare you for dealing with messy data by walking you through real-life examples. We will help you to automate cleaning your data, fixing spelling errors, transforming variables, and generating data summaries using the split-apply-combine paradigm. We will also talk about wide and long format data and help you to convert between these formats and to know when each format is useful. | | |
| **January 13** | **9am – 12pm** | **Dynamic Documents with knitr and Rmarkdown** |
| Create reports and write papers using R! Let R do the heavy lifting so that you can focus on the content - use R to assemble your data and `knitr` or `rmarkdown` to produce reports which integrate graphs and conclusions from your data automatically. Whether you are writing business reports or journal articles, knitr and rmarkdown are extremely valuable tools to use to make your life easier! | | |
| **January 13** | **1pm – 4pm** | **Web Scraping** |
| Read data in from the internet using packages like `rvest`. Learn to navigate HTML and XML structured data files, and convert data stored in these files into tabular data more commonly used in statistical analyses. | | |
| **January 14** | **9am – 12pm** | **Interactive web applets with Shiny** |
| Learn how to create interactive, web-based applets entirely within R! The shiny package allows us to create interactive applets for teaching, data analysis, or publication, without requiring knowledge of HTML or JavaScript!. See some of the fantastic applets in the Shiny showcase (https://shiny.rstudio.com/gallery/), and learn how to create applets of your own in our workshop.  This session is designed as a workshop, so bring your data and analysis code, and leave with a Shiny applet! (If you don't have data you'd like to use for this, we'll provide you with some data to play with!) | | |

These workshops are developed and hosted by graduate students in the Statistics department at University of Nebraska-Lincoln, primarily to assist UNL students and staff with developing R skills necessary for research and data analysis. Individuals from outside the university are welcome to participate. Proceeds from the workshops directly fund graduate student activities.

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| **Workshop Type** | **Student** | **UNL Affiliate (Faculty/Staff/Extension)** | **Corporate** |
| **Full Day** | $25 | $50 | $200 |
| **Half Day** | $15 | $25 | $100 |
| **Full Week** | $100 | $200 | $1000 |

If you are anticipating registering several people as a group, please feel free to contact Susan Vanderplas (svanderplas2@unl.edu) for a group rate.

First Day Setup!

You will need to bring a laptop with the following software installed:

* R: https://cloud.r-project.org/ (version 4.0.0 or greater)
* RStudio: https://www.rstudio.com/products/rstudio/download/ (version 2021.09 or greater)
* [Windows only] Rtools: https://cloud.r-project.org/bin/windows/Rtools/

In R, please run the following code:

> # this will take a LONG time...

> install.packages(c("knitr", "rmarkdown", "tidyverse", "rvest", "xml2", "tinytex"))

> tinytex::install\_tinytex()

You will need to make sure that you have sufficient permissions on your machine to install R packages from CRAN. If you do not have admin access to your own machine, please work with your administrator to ensure that you can install R packages during the workshop if necessary, as this is an important skill to learn.