**Instructor**: Tyson Barrett

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435-512-3384

**Class**: Tuesday 10:00 – 11:00 am

**Office Hours**: By appointment

**Optional Resources**:

* **R for Health, Behavioral, and Social Scientists**, Tyson Barrett, available for free at: <https://tysonstanley.github.io/Rstats> (currently not the final draft)
* **Reasoning with Data,** Jeffrey Stanton, Guilford Publishing
* **Websites**:
  + [www.r-bloggers.com](http://www.r-bloggers.com)
  + [www.statmethods.net](http://www.statmethods.net)
  + [www.stackoverflow.com](http://www.stackoverflow.com)

**Class Objective**: This seminar/workshop will address the major uses of R for Health, Behavioral, Educational, and Social Scientists at an early intermediate level. This includes: managing data, reshaping data, exploratory and advanced plotting, designing your own functions, modeling, and loops. All of these facets will be considered within RMarkdown. After taking this course, students will be able to produce beautiful documents easily, without the need for manual creation of tables and figures. Although the course is still at an early intermediate level, students will be able to work through errors and warnings effectively, thus becoming independent R users.

It is assumed that class members have a statistics background up to PSY 6600 or equivalent and are familiar with the R programming language. The class will follow the format of the *R for Health, Behavioral, and Social Scientists* book.

**Structure**: We will meet once a week for a hands-on, workshop style course, with most of class going through the R code together. The class will be divided into four main sections:

1. Review of R, Data Manipulation, ggplot2, and tables
2. Loops, Functions, and Packages
3. RMarkdown for Data Analysis, General Workflow, and Publication
4. Review of Class Material and Additional Topics

These sections will build on each other. If you feel behind, please come talk to me early and ask questions often.

**Grading**: This is a pass/fail course. A student will pass if 3 of the 4 homework assignments are turned in and attendance is high (75% of class periods attended). If passed, it will appear on your transcript as a completed workshop.

**Assignments**: There two types of homework assignments—Short feedback and RMarkdown files. The short feedback assignments generally show that you did something that we did together in class (like a screen shot). The RMarkdown assignments are applied work where you show your replicable workflow in RMarkdown. We will discuss this more in class. There will be flexibility about the nature of the RMarkdown assignments (e.g., students can use their own data). Again, as it was in the previous class, assignments will not take much time, especially if you follow along in class.

**Students with Disabilities**: Reasonable accommodation will be provided for all persons with disabilities in order to ensure equal participation within the program. If a student has a disability that will likely require some accommodation by the instructor, the student must contact the instructor and document the disability through the Disability Resource Center (797-2444), preferably during the first week of the course. Any request for special consideration relating to attendance, pedagogy, taking of examinations, etc., must be discussed with and approved by the instructor.

**Important Dates**:

* Aug 29 – First Day of Class
* Nov 21 – No Class
* Dec 5 – Last Day of Class

**Tentative Schedule**:

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|  | **Discussion Topics** | **Relevant R Packages** | **Homework** |
| Review of R | Base R Syntax and Tidyverse | “tidyverse” | RMarkdown # 1  Discuss tidy data |
| Reshaping and other Cleaning | “furniture”, “tidyverse” |
| ggplot2, tables, output | “furniture”, “tidyverse” |
| RMarkdown | RMarkdown Basics | “knitr”, “rmarkdown” | RMarkdown # 2  GitHub  Workflow in R |
| Reproducible Workflow | “knitr”, “rmarkdown” |
| Figures | “ggplot2” |
| Tables | “texreg”, “stargazer”, “furniture” |
| Version Control,  Loops, Functions, Packages | Git and GitHub |  | RMarkdown # 3  Repo |
| Review of Loops and Functions | “purrr” |
| Writing Functions | “roxygen2” | RMarkdown # 4  R Package |
| Creating a Package | “devtools” |