BIOS 544: Introduction to R (Non-BIOS Students)

Course Objectives

We will not re-implement the statistical methods you learned in BIOS 500 & 501 labs using R. On the contrary, you will gain a solid foundation of how R works to visualize, organize, summarize, manipulate, analyze, and communicate data. You will also be introduced to programming in R.

Textbook

R for Data Science (*O'Reilly*), by Hadley Wickham & Garrett Grolemund (2017). Note this book is available **FOR FREE ONLINE** in a "point-and-click" format (not download) at http://r4ds.had.co.nz/ . Some students may wish to purchase a physical copy (see Amazon). It is relatively inexpensive. However, obtaining the book is strictly optional.

Grading & Homework

Your course grade will be based on homework assignments, according to the following scale:

A	95 and above	B+	85 – 89.9	C	66 – 75.9
A-	90 – 94.9	B	80 – 84.9	F	below 66
		B-	76 – 79.9		

Other factors may affect your letter grade, such as class participation, attitude, consistent effort, and demonstrated progress. Each student will do his or her own work. You will turn in your code, along with any responses that are to be written out. No homework assignment will be dropped. Late homework will be penalized.

Getting Help

If you need help outside of class, you may see the TA during her office hour, or your instructor by appointment. *You are strongly encouraged to email your TA first, rather than the instructor, for questions related to homework or for other routine questions.* But do not shy away from contacting the instructor if you feel it is a question for him. You can expect the instructor to respond to emails within 48 hours. We will not use an online discussion board in this class.

Course Outline

This is a rough plan. Topic coverage and placement/frequency of homework may be adjusted according to the pace of the class.

Introduction
Data Visualization
>   *Homework*
Data Transformation
Exploratory Data Analysis
>   *Homework*
Data Manipulation
>   **Data Import**
>   **Relational Data**
>   **Strings**
>   **Factors**
>   *Homework*
Programming
>   **Functions**
>   **Vectors**
>   **Iteration**
>   *Homework*
Modeling Basics
R Markdown
>   *Homework*
Shiny

Honor Code

RSPH requires that all material submitted by a student in fulfilling his or her academic course of study must be the original work of the student and must uphold academic integrity at the graduate level. See more at:
http://www.sph.emory.edu/rollins-life/enrollment-services/honor-code/index.html. Ignorance of these regulations will not be considered a defense. Excuses like "The academic culture is different in my country and I didn't realize…" will NOT be accepted. There will be a zero tolerance policy for cheating.

Access and Disability

Students with medical/health conditions that might impact academic success should visit Access, Disability Services and Resources (ADSR) to determine eligibility for appropriate accommodations. Students who receive accommodations must present the Accommodation Letter from ADSR to the instructor at the beginning of the semester, or when an accommodation is granted, AND have a discussion with him about your required ADA Accommodations.