

## Topic 1: Overview of R

1. What is R?
  2. What can you use R for?
- 

## Topic 2: Installing and navigating R

3. Which software should you install first, R or RStudio?
  4. How many windows are there in R and RStudio?
  5. Which RStudio window would you use to conduct *interactive statistical analysis*?
    - A. Console
    - B. Environment/History
    - C. Files/Plots/Packages/Help/Viewer
- 

## Topic 3: Data management (and some plotting) in R

6. How many folders should there be in an R project? What are they?
7. Which operator should you use to assign a value to a variable?
8. What is the function `c(...)` for? Other than using `ls()`, where can you view the variables you declared?

9. How do you determine the type of data (logical, numeric, integer, etc.) you declared?
  10. What is a csv file? Which function do you use to import a csv data file?
  11. How to you change the title of the x and y labels in {graphics} package plot? What are the characteristics of a data frame?
  12. What is a good chart to use to assess the distribution of a continuous univariate dataset?
  13. What kind of data do bar plots best represent? How about time series plots?
  14. What is the advantage of using a dot plot?
- 

#### **Topic 4: Mean, median, mode, variance, and standard deviation**

15. How do you calculate mean in R?
  16. How do you calculate standard deviation in R?
  17. How do you deal with data with Not Available (NA) or missing data?
  18. What is the use of the table() function?
  19. When do you choose median over mean?
-

### Topic 5: Hypothesis testing

- 20. When do you conduct hypothesis testing?
  - 21. When should you use z-test or t-test?
  - 22. What is the difference between hypothesis testing using t or z distributions or chi-square distributions?
  - 23. How is R useful in hypothesis testing?
  - 24. Which of the functions below is used to obtain the critical score for a t-test?
    - A. `qnorm()`
    - B. `qt()`
    - C. `qchisq()`
- 

### Topic 6: Correlation and regression

- 25. What is the difference between correlation coefficient and coefficient of determination?
- 26. Which function should you use to calculate correlation? How about coefficient of determination?
- 27. How do you report the results of a simple linear regression analysis given  $b_0 = 0.85$  and  $b_1 = -0.56$ ?

28. True or false? You use the same function to conduct simple linear regression as multiple linear regression.
- 

### **Topic 7: ANOVA**

29. What can you use ANOVA for?
30. Which function should you use to conduct ANOVA?
31. What is the use of the summary() function?
32. What should you look out for first when conducting a two-way ANOVA?
33. What is the use of the F value in a one-way ANOVA?
34. What is the use of the p-value in a two-way ANOVA?
- 

**CONGRATULATIONS!**

**YOU HAVE SUCCESSFULLY COMPLETED THE “STATISTICAL ANALYSES USING R” COURSE**