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Intro to R for Survey Researchers: Hands-on

Been wanting to try out R? Here's your chance. During this 4-week class, students will use R to analyze survey data. We will cover descriptives, crosstabs and factor analysis.

There's a reason many quant researchers are making an effort to gain this skill: they don't want to get leapfrogged. We make it easy by providing demonstrations and exercises that are specific to the needs of survey research data analysis. And we even have a little fun along the way.

Please note: This class follows a flipped classroom model. **Students will do homework prior to class time.** Then during live class time, students will do hands-on exercises with real-time instructor support and peer interaction using screen sharing demonstrations.

I. Homework for Part 1: Download, Install, and Set up R
   A. Instructions on where to find, download, and install R will be provided
II. Part 1: The Basics of the R Environment
   A. Data Types in R
      i Vectors
      ii Matrices
      iii Dataframes
      iv Lists
   B. Basic Functions in R
      i Importing data
      ii Creating variables
      iii Creating Dataframes
      iv Transforming Variables
   C. Manipulating Data in R
      i Selecting parts of dataframes
      ii Using the subset() function
   D. Basic Data Visualization
      i Pie charts

III. Homework for Part 2: Creating variables, combining them into a dataframe, running descriptive statistics on the dataframe and performing basic data visualization on the variables

IV. Part 2: Exploring Data in R

A. Exploring Data Visually

i Bar Graphs

ii Bar Graphs with color

iii Scatterplots

iv Scatterplots with color by a categorical variable

v Scatterplot with linear trendlines

vi Scatterplot with other trendlines

vii Comparing multiple trendlines on one scatterplot

B. Exploring Underlying Assumptions

i Assumption of Normality

ii Homogeneity of variance

iii What to do when an assumption is violated

iv Finding outliers

V. Homework for Part 3: Graphing a new data set using bar charts and scatterplots

VI. Part 3: Correlation and Regressions

A. Running Correlations

i Using cor

ii Using rcorr

iii Using cor.test

B. Running Regression

i Running a simple linear regression

ii Running a multiple linear regression

iii Comparing linear regression models

iv Looking at model diagnostics

v Testing the assumptions of independence

vi Testing for Multicollinearity

vii Testing the residuals

VII. Homework for Part 4: Running correlations and regressions

VIII. Part 4: Group Differences

A. Difference between two groups

i Using t.test()

B. Difference between 3+ groups

i Using aov()

ii Pairwise testing

C. Crosstabs

i Using table() function

ii Using prop.table()

iii Using CrossTable()

Class availability and content subject to change. For the most current information, please contact Sales@ResearchRockstar.com.