# PSY 350 Homework #2: Correlations and Reliability Fall 2018

*In this assignment, you’ll use R to explore associations and correlations in the class survey data, and practice writing your results in APA style.*

**To complete this assignment, you’ll need:**

* A computer with R and RStudio installed.
* The “PSY 350 Class Survey.csv” data file from Canvas (under “Homework Resources”). Download this file and save it in a folder where you can access it easily.
* Access to the internet, so that you can reference **R Tutorials 3** **and** **4** (also under “Homework Resources”). You may also want to reference previous tutorials.
* Your class notes on writing style, and your APA manual or *Easy Guide*.

Homework assignments are designed to follow from the R Tutorials, so make sure you’ve completed **R Tutorials 3 and 4** before you begin this assignment. Remember that the tutorials include only *some* of the variables from the survey, whereas your full data set includes all of them. It’s best to practice an analysis within the tutorial first, then move over to RStudio and repeat *that exact same analysis* to ensure you’re getting the same results. *Then* move on and adapt that analysis to new variables to answer the homework questions.

Each homework assignment consists of a **computational** section and then a **writing** section. Do the computational section first and submit it the “CHW #2” assignment in Canvas. You will receive immediate feedback on the computational section; if you need to revise your analyses, do so before you begin the writing portion!

**Please round all numeric answers to 2 decimal places.**

# Computational Section:

1. Create a crosstab including gender and interest. In which area of psychology were there even numbers of men and women interested? Provide the numbers that support your answer – you do not need to provide the full table.
   1. What is the **mean** number of countries visited by students in each year (sophomore, junior, senior – we have so few non-degree students that you don’t need to report their mean)? Report the numbers here.
   2. Create a pirate plot to represent the data in your answer above. Take a screen shot and upload it.
   3. What information do you learn from the pirate plot that you didn’t get just from the means? Be specific and talk about **this data in particular**, not just pirate plots in general.
   4. Does number of countries visited appear to be associated with GPA? Create a scatterplot and upload it.
   5. Report the correlation between number of countries visited and GPA here.
   6. Did you need to account for missing data in order to calculate this correlation? If so, what did you do?

Items “cons\_1” through “cons\_10” in the survey are part of a well-known measure of conscientiousness. If you look a the survey key, you’ll see that some of the items are negatively worded - I’ve already reverse scored those items for you, so that higher scores consistently indicate higher levels of conscientiousness. *Unfortunately, there is a typo in the variable names, so the item that should be “cons\_10” is labeled “cons\_50” instead. If you enter “cons\_50” anywhere you would have entered “cons\_10”, you will be fine.*

* 1. What is the **internal consistency** reliability of the conscientiousness scale?
  2. Is this an acceptable level of reliability? How do you know?

For the next few items, you’ll need to calculate an **overall mean conscientiousness** score for each participant, as you did for the SWLS items in Tutorial 4.

* 1. Find the correlations among the overall conscientiousness score, the item about childhood neatness, and GPA. Report the values of all of those correlations.
  2. Find scatterplots of those correlations and upload them here (remember that you should be able to get all of the correlations from *one line of script* – no need to plot each correlation separately. See the last segment of Tutorial 3).

As before, to show your work, submit a screen shot of your full RStudio window, showing as much of your script as possible, and make sure that your last name is included in the name of your data set (e.g., mine is “gibbons.data”). **You will lose 2 points if these elements are not present.**

# Writing Section:

Follow the guidance given in class and your APA manual to describe your results. **Integrate your answers to the following questions into one paragraph**, as you would see in a journal article. Follow the APA Format Checklist for this assignment. Use APA-style abbreviations (*including italics!*) and parentheses where appropriate. Use active voice.

1. How many participants did you have? Describe them in terms of gender and year.
2. Describe the average number of countries visited by students of different years, noting any outliers and discussing whether they appear to be error or interesting outliers.
3. Report and interpret the correlation between number of countries visited and GPA. Address both the direction and strength of the correlation and explain in plain language what this correlation means.
4. Assess the reliability of the conscientiousness scale. Identify which type of reliability you have information about, report the coefficient you obtained, and interpret the meaning and acceptability of that coefficient.
5. Interpret the correlations you calculated among conscientiousness, neatness, and GPA. As before, address both the direction and strength of each correlation and explain in plain language what each correlation means.

As you have no information about the significance of any of these correlations or differences at this point, “significance” should not form any part of your discussion.

**APA Checklist for Your Paragraph:**

* Use active voice – no zombies. (whatever you do, don’t say “the analyses were run”).
* Use first person language.
* Use numerals instead of writing out numbers (except at the beginning of a sentence).
* Report decimals to **2 places**.
* Include zeros before decimal values that can be greater than 1.0.
* Don’t capitalize names of analyses, statistics, variables, or conditions.
* Use APA statistical abbreviations: *M, SD, r,* appropriately capitalized, for your statistics.
  + Put abbreviations in italics.
  + Don’t use abbreviations when you’ve already used the word in the same sentence.
  + To use the α symbol, in MS Word, go to the “Insert” menu and then choose “Symbol.” You can find α under the “Greek and Coptic” category.
* If you choose to put some of your values in parentheses, remember that the rest of the sentence must stand on its own (make grammatical sense) if you skip over the parentheses. Try reading it aloud.

Finally, provide a table **in APA style** that summarizes the **descriptive statistics and correlations** among **conscientiousness, neatness, and GPA**. Follow the examples given in lecture and the APA Tables Examples documents to format your table properly.

APA Checklist for Your Table:

* Label your table as a table (Table 1).
* Put your variables in **rows** and different kinds of values in columns**.**
* Group information logically.
* Remember that a correlation table is symmetric – you only need to report the lower triangle.
* Use horizontal rules between major sections.
* Use white space – not vertical lines – to separate columns.
* Do not use colors or shading
* Use APA statistical abbreviations (with appropriate capitalization and italics) where they are relevant.
* Report numbers to **2 decimal places.**