**BIOS 543 GRADUATE RESEARCH METHODS I**

**HOMEWORK 2**

**DUE TUESDAY, OCTOBER 4, 2022**

Directions: Your completed homework is due at the beginning of class on the date listed above. Compose your responses to the problems listed below electronically (e.g., Microsoft Word) and print. This assignment is subject to the VCU honor code: you may collaborate with other students, but your homework must be the product of your own efforts and understanding.

The data for this assignment are stored in an excel file entitled “HW2\_Data.csv”, which contains measures from a study comparing health outcomes between cancer patients treated with or without antithymocyte gobulin (ATG). Use the data within this file to conduct the following:

1. Say we have the following research question: is mean CD34 count greater than 2?
   1. Translate this research question into a set of testable hypotheses in symbolic form.
2. Assess the assumptions needed to test this hypothesis.
   1. Visualize the distribution of CD34 values.
   2. Comment on whether the assumptions are satisfied.
   3. Based on your assessment, state unequivocally which test you are conducting.
   4. State which functions in R/RStudio you’re using for each task.
3. Summarize the variable CD34.
   1. Use appropriate measures of center and variability.
   2. Calculate a 95% confidence interval.
4. Perform the hypothesis test.
   1. Report the relevant statistics from performing that hypothesis test.
   2. State your conclusion from these findings.
5. Extra Credit
   1. Calculate the association (and 95% confidence interval) between Age and CD34

Write-Up Instructions:

* This assignment should be written as a single, comprehensive narrative.
* Each of the above questions should be written as a single paragraph, with responses to particular components written in at least one complete sentence.
* This write-up should include at least one figure, with a short title and clearly labeled axes. You need to make clear reference to this figure in your narrative.
* “Solo” statistical estimates can be place directly into your sentences if you don’t have a place for them in a table.

Write-Up Guidance:

* Please review the IMRD information provided in the Course Sections/IMRD Guides section of the Blackboard course page.
* This doesn’t have to be a long write-up; two pages should be more than enough.