The project assignment is described below. You must submit a written report for your project. You may work alone or as a member of a team of **three or fewer persons**. If you work as a team, only one report should be submitted by the team (remember to include everyone’s name on the report!) and all members of the team will receive the same grade. Neither my expectations for nor grading of reports is influenced by the size of the team.

Please submit legible reports. For many of you, this will mean words typed, and “non-words” (e.g. tables, figures, formulas, and computations) drawn by hand. Reports may be submitted electronically via Learn or on paper in my mailbox in the Statistics Department.

I want you to perform a balanced CRD with a numerical response. You have seen several examples of such projects in the *Course Notes*: Dawn’s study of her cat; Sara’s study of golf; Cathy’s study of running; Kymn study of exercising; Reggie’s and Doug’s studies of darts; and Brian’s study of running boots.

I want you to have a total of 20 trials or more. (Like Cathy and Kymn, you may request approval to have fewer trials.) At the other extreme, don’t perform too many trials. I want you to have the experience of collecting data; I am not looking for the definitive study on your topic.

Nearly all students do fun projects. Alternatively, if you have data from your work that fits the assignment, then you may analyze it provided you had some role in collecting it.

Below is a list of items that should be included in your report.

1. Briefly explain the motivation for your study, including your choice of treatments and response. Note that I have no interest in your finding an original topic for study; I want to know why your topic is interesting to you.

2. Before collecting data choose an alternative hypothesis; briefly explain your choice.

3. Present your data in the order you obtained them.

4. Separate your data by treatments and sort them.
5. Obtain the means and standard deviations for the data on each treatment. (I don’t care which methods you use to obtain these numbers: by hand; a fancy calculator; a spreadsheet; or vassarstats.) Comment.

6. Draw pictures—dot plots or histograms—for the data on each treatment. Comment.

7. Calculate the mean of the ranks of the data on each treatment. (Remember: In order to obtain ranks you must combine your two data sets.) Comment.

8. Use the vassarstats simulation option, with 10,000 runs, to obtain an approximate P-value for the test that compares means with your alternative. Comment.

9. Use the vassarstats simulation option, with 10,000 runs, to obtain an approximate P-value for the sum of ranks test with your alternative. Comment.

10. Compare the two approximate P-values you now have and comment.

11. Write a brief summary of what you have learned about your topic.

A Note on Grading. The maximum score on the project is 4.00 points. Basically, your grade starts at 3.80 points and you can gain up to 0.20 points if: (a) you convince me the topic is of interest to you and (b) I judge that data collection required significant effort on your part. (For example, rolling each of two dice—the treatments—ten times to obtain 20 numbers will not be well-received by me, no matter how much you love said dice.)

Next, you will lose up to 0.25 points for each error you make. The most common error is the failure to include one of the items above in your report. As a result, if you are careful then you should obtain full or nearly full credit.

Also, very important: I—not the TAs—will be grading the projects. Therefore, if you have any questions, ask me.