Statistical Reasoning in Sports – Chapter 3 Assessment

Part 1: The Research

- Find an athlete, team or other topic that you are interested in investigating by comparing two categorical variables. A good way to get ideas is to look at problems we have done this chapter [such as #39 which has a video solution posted].
- Choose two categorical variables [response variable like outcome (wins-lose) and explanatory variable like location (home-away)] that you will use to compare an athlete's/team's ***ability*** for the response variable as compared different values of the explanatory variable.
- Find data that you will use. Try www.mlb.com/stats for baseball data or www.sports-reference.com for other sports but there are other sites that will work too. Be sure to copy all of your data [screen shots are relatively easy and fine for our reports] and be able to site your source. Use this ***performance*** data to answer your question.
- Ask me for help with your research !

II - The Written Report. [Each of these sections is graded]

- Header is in upper-right corner: [10 pts]
  - First and last name
  - 5° Statistical Reasoning in Sports
  - Chapter 2 Assessment
- Title is written in the form of a question: Something like, "Is Luke Voit a better hitter at day than at night ?" [10 pts]
- Write a paragraph to introduce and explain your question of interest [expand on the title]. Include other important and/or interesting details about this team/individual and game/season. In other words, why did you choose this topic ? [10 pts]
- State the null and alternative hypothesis for your question. [10 pts]
- Present your data (be sure to cite your source) and include a segmented bar-graph [you can use a screenshot from the applet provided by our textbook for this]. [15 pts]
- Conduct a simulation using the applet provided by your textbook to see what differences in *performance* are likely to happen by *random chance* alone, assuming the null hypothesis is true [Use at least 1,000 trials. Remember to change the setting to percentage]. [10 pts]
- Use the last part of the applet to find the likelihood (percentage) that this kind *performance* would happen by chance, given the null hypothesis is true. Include a screenshot from the applet in your report. [10 pts]
- Use the results of the simulation to determine if the evidence for the alternative hypothesis is convincing. [15 pts]
- Write a paragraph for conclusion – in your words. What do you think of your results? What would you investigate next? Other thoughts? [10 pts]

Ask me for help! This project is to assess what you have learned this chapter, but I want you to be successful so please ask me for advice, to check your work – but it needs to be during class time and office hours.