

Final exam, Sports Analytics take home

Name: _____

December, 2018

Note: Your exam should be submitted using R Markdown. A HTML is due to my mailbox in Harder Hall by 5:00 pm on Tuesday, December 18.

Question 1 (25 pts)

Beginning in 2016, the National Basketball Association started tracking *hustle stats*, as explained at http://espn.go.com/nba/story/_/id/15203926/nba-track-hustle-stats-playoffs-first. Read the article, and answer the following questions.

Part I: The article indicates that *trained personnel are going to count the hustle stats*. With reference to an example from our unit on referee bias, provide a 2-3 sentence explanation as to how the league's tracking of hustle statistics could go awry.

Part II: Which *hustle stats* are the league going to record? Of these, identify which metric you think is (i) most repeatable (ii) most important to team success (iii) most a function of individual talent, and not team strategy. Justify your answers in one sentence each. Note that you can use the same metric more than once.

Question 2 (50 pts)

One of the goals of our course was to be able to communicate more complex statistical developments in a manner that those unfamiliar with statistics can understand. In this section, you will write a roughly two-page summary designed for a team official that is both interpretable and actionable. Your job is to summarize recent work that's been done, explain why and how any traditional statistics may be flawed, as well as to comment on unsolved issues. Ideally, the team official (coach or general manager) could use your comments to understand past team success, develop strategies for future games, and/or acquire new players.

Pick exactly one of the following sports - **baseball, football, basketball, or hockey**. You may refer to our readings, class notes, or outside material in your write-up. You are graded on accuracy, depth of coverage, and how actionable your insights would be to a coach.

Question 3 (25 pts)

We were able to cover several sports in this class, but we didn't cover all of them. Your final question is to take a sport we **didn't** talk about and do the following:

- 1 - Describe a question that sports analytics tools could answer
- 2 - Describe the variables that you would want to collect (variable types, etc)
- 3 - Describe what tools you would use. Without drawing one, describe a visualization you would want to make
- 4 - Consider what implications your findings would have for decision makers.

Note that you are not allowed to use the sport that you used for the final project. Your summary should cover roughly one page.

Honor code

Write the following on the top of your exam, and sign

While taking this examinations, I have not witnessed any wrongdoing, nor have I personally violated any conditions of the Skidmore College honor code.