

Math 263: Excel Assignment 4(Version 2)

You must do the computer work for this assignment yourself, although you may certainly talk to other people. Graphs or answers which appear to be copied will be treated as an integrity violation.

Topic: Home Team Advantage in Baseball

Note: In this problem, you will use the Excel command = COUNTIF(array, criterion) to count the number of occurrences of an outcome.

The array is the region of the spreadsheet in which you want to count, designated by the top left corner and the bottom right corner. (For example: B2:E27)

The criterion is the outcome you are counting. If it the criterion is not a number, you will need to put quotes (“ ”) around it.

The World Series baseball championship has been played yearly since 1903 between the best teams from the American League and the National League. The World Series is a best-of-seven series, so four to seven games are played. (If one team wins the first four games, they have won the series, so the last three games are not played, etc.) It is believed that the team playing on their home field has an advantage because the field is familiar and their fans give them a boost. As a result, the first two games are held on one competitor’s home field, the next three on the opponent’s field, and the last two (if needed) at the first team’s field.

1. The file *BaseballHometeamAdvantage.xlsx* contains the results of the World Series for the years 1922-1992. Use = COUNTIF (described in the box above) to fill in the table:

American League wins at home	
National League wins at home	
American League wins away	
National League wins away	

2. Use the data in the table to calculate $P(\text{Am win}|\text{Am home})$ and $P(\text{Am home}|\text{Am win})$.
3. Are the two probabilities found in #2 the same or different? Why? Respond by answering these questions:
 - (a) Explain in words what $P(\text{Am win}|\text{Am home})$ means.
 - (b) Explain in words what $P(\text{Am home}|\text{Am win})$ means.
 - (c) Why do you expect the answers to the two probabilities in #2 to be the same or to be different?

4. Use the table to investigate the whether there is a home team advantage. Do this by finding the probability that during this period:
 - (a) The American League won a home game. (Give your answer as a percentage with one decimal place.)
 - (b) The National League won a home game. (Give your answer as a percentage with one decimal place.)
 - (c) Either League won a home game. (Give your answer as a percentage with one decimal place.)

5. Does there seem to be a home team advantage for either league? If so, for which league?