

## Curve-fitting Project - Linear Model

(due date for final submission is June 21)

### Instructions

**1)** Collect data exhibiting a relatively linear trend.

Here are some possible topics and sources of data:

- **Olympic sport.** <http://www.databaseolympics.com/> You can choose results in any sport category for 8-10 Olympic Games. Make a plot to check whether the data points exhibit a relatively linear trend. If so, proceed. If not, try a different event.
- **Food.** <http://www.acaloriecounter.com/fast-food.php> Find information about calories, fat and sodium content in different food depending on serving size. Select 8-10 brands and look up, for example, the fat content and the associated calorie total per serving. Select data that exhibit a relatively linear trend.
- **Baseball.** If you are baseball fan you can use website <http://www.baseball-reference.com/> to find two variables that may exhibit a linear relationship. For instance, for each team for a particular season in baseball, find the total runs scored and the number of wins.
- **Health.** You can select all your data from [attached file Appendix B.pdf](#). File has extensive numerical data related to health exams, body temperature, weight, body mass index and many other collected information that you can use in this project.

**2)** Enter data in Excel Spreadsheet and create a scatter graph with (x, y) points.

Use an appropriate scale on the horizontal and vertical axes and be sure to label carefully. Visually judge whether the data points exhibit a relatively linear trend. (If so, proceed. If not, try a different topic or data set.)

**3)** Use Excel tools to add best fit (regression line) to the graph it on the scatter plot.

When you add the best fit line, check the box that says "show equation", so you can see the equation of your linear regression line.

**4)** Identify the slope and x-, y-intercepts of your line, describe the meaning of slope.

**5)** Use the linear equation to make a prediction of y at x that is not in your data set.

**6)** Use Excel tools to find correlation coefficient r and discuss the meaning of its value.

You may submit your project in one document or in a combination of documents, which may consist of Excel spreadsheet, Word document, or scanned handwritten work.

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