

# Instructions for Project 6: Students' Heights, Lengths of Feet and Forearms

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For this project you will continue to enhance your Excel Skills with an emphasis on creating scatterplots and working with linear regression. In the Project 6 Solution Template, please answer all the questions with complete sentences and proper grammar.

## Instructions for Task 1:

At the beginning of the semester, we collected data from all Math 107 courses regarding student heights, the length of their forearm and the length of their foot. For this task we will be working with the height and forearm measurement data we collected.

Steps for Task 1:

1. In Excel open the spreadsheet Project 6 document, and open the tab labeled **Forearm Measurement**.
2. Use the provided data to create a scatterplot.
  - In Excel a scatterplot is the chart called "Scatter."
  - You probably noticed when you created your scatterplot that the data is clumped to the right of the graph. To fix this we need to change the axes slightly:
    - Right click on the horizontal (x) axis, click on the Format axis option
    - Alternatively, in the menu bar at the top click on axes and then horizontal
    - Change the minimum value to 55 and click ok
    - Eventually you will want to repeat the process with the vertical (y) axis with the minimum value set to 6.
  - Make sure to properly label the graph (title, axis titles)
3. We want to make another scatterplot with the outlier removed. (If you do not see an obvious outlier, make sure you are viewing data from the **Forearm Measurements** sheet). However, if we were to remove the outlier from the data, the original chart would be affected (like in Project 2, about UA football scores). Here are the steps to get around this.
  - Right click on the spreadsheet tab labeled forearm measurement
  - Select the move or copy feature

- Check the box labeled make a copy and highlight Forearm Measurement
  - Click ok
  - You now should have a sheet labeled Forearm Measurement (2)
4. Locate the outlier in the data and delete the cells that contain the outlier. The scatterplot should be updated so now all you need to do is copy and paste the new scatterplot into Word.
  5. Now add a linear regression line and  $R^2$  value to a scatterplot. Directions are as follows:
    - Click anywhere on the chart.
    - In the top menu bar select the Layout/Chart Layout tab
    - In the analysis section click on Trendline
    - Click Trendline options in the dropdown menu
    - Under the Type menu
      - Select Linear
    - Under the Options menu
      - Select Display Equation on Chart
      - Select Display R-square Value on Chart
    - Click on ok
    - NOTE: Excel calculates a value labeled  $R^2$ . To calculate the **r-value**, take the square root of the  $R^2$  value in Excel.

## Instructions for Task 2:

At the beginning of the semester, we collected data from all Math 107 courses regarding student heights, the length of their forearm and the length of their foot. For this task we will be working with the height and foot measurement data we collected.

Steps for Task 2:

1. In Excel open the spreadsheet document Project 6, and open the tab labeled **Foot Measurement**.
2. Use the provided data to create a scatterplot.
  - Refer to the instructions above to properly scale the scatterplot
  - Make sure to include all of the proper labels
  - Add a linear regression line, equation and  $R^2$  value to your scatterplot like you did in Task 1.