

READ THIS SHEET! DO NOT JUST FOLLOW THE PICTURES. THERE IS INFORMATION YOU NEED THAT IS NOT IN THE PICTURES.

PART II – Analysis and Reporting of Data

DUE DATE: E-mail the Excel and PowerPoint files to me by 12:00 noon on **Wednesday, April 29** (MW class) or by 12:00 noon on **Thursday, April 30** (TuTh class).

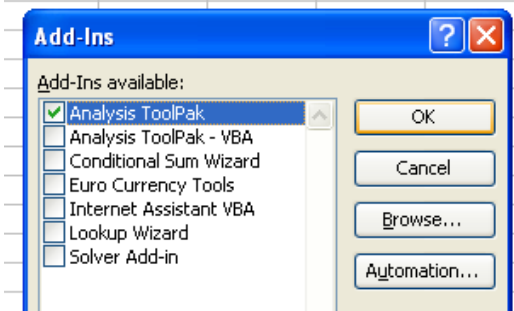
You should e-mail both your Excel spreadsheet and your PowerPoint presentation to me in EdNet (outside EdNet you can use the address mwelden@ednet.rvc.cc.il.us).

A. Download the Excel template.

1. Start a web browser such as Internet Explorer.
2. Go to this address – <http://ednet.rvc.cc.il.us/~mwelden>
3. Click on the link for MTH 115 and then the link to download the Excel template.
4. So that you can open the file in Excel itself, choose to **SAVE** the file. Then, click the “Desktop” icon to the left of the save window and then the “Save” button. Close Internet Explorer and double click the “ExcelTemplate” icon on your desktop.

B. Use Excel to perform data analysis.

1. Before Excel can do some statistical functions, you need to install something called the “Analysis ToolPak.” To do this, click on the “Office Button” in the upper-left corner of the Excel spreadsheet and then click “Excel Options” at the bottom of the window. Click “Add-Ins” on the left-hand side. At the bottom of the window, it should say “Manage: Excel Add-Ins”. Click “Go” and then click the box before “Analysis ToolPak” so that a check mark appears. Click “OK.”



2. **Replace “x = ?” and “y = ? in Cells A2, B2, A36, and B36 (red cells)** by entering labels for your x and y variables (for example: Height in A2 and Weight in B2). Then enter your values in the cells below. Your 30 x values should be in cells A3:A32 and your 30 y values should be in cells B3:B32.

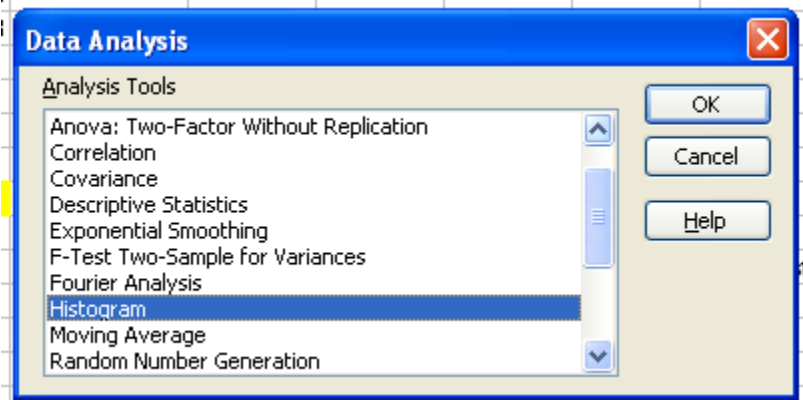
Note: Change the width of the columns by clicking the vertical line between the column headings at the top of the screen (A, B, etc.) and then dragging the line to the right or to the left.

3. You need to make a histogram for each of your variables. To do this, you need to decide which x values should be grouped together for each bar in the histogram and which y values should be grouped together.

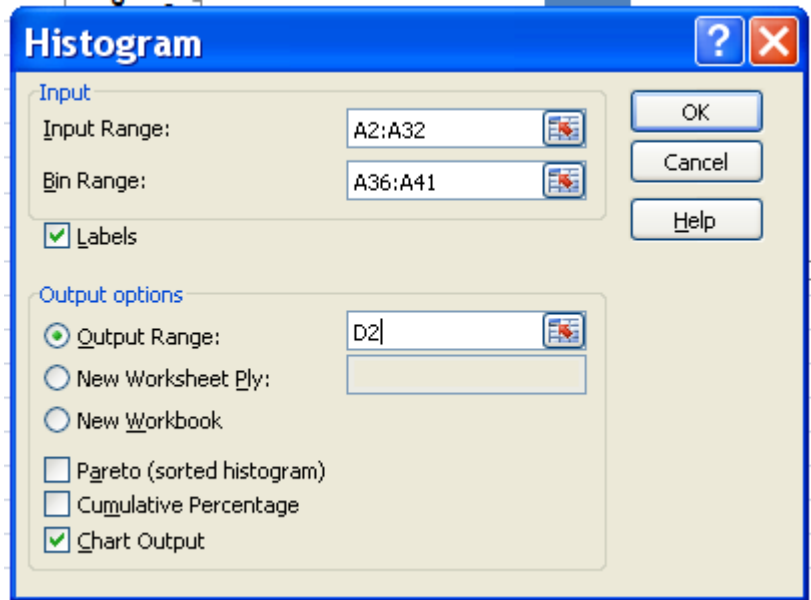
First, decide which x values should be grouped together. For example, you might decide to group these values this way: 1-5, 6-10, 11-15, 16-20, and so on. These are the class limits for your x variable. You should put the **upper** limits for each class in column A, starting in cell A37 and moving down. For our example here, you would put 5 in A37, 10 in A38, 15 in A39, 20 in A40, and so on. Then, repeat the process for your y variable, using column B. (note: Your y limits do not have to be the same as your x limits.) Ask me if you need help with this step.

If one of your variables has only a few possible values, you will want to make a separate class for each value. For example, if you have counted the number of children in a family, you may have values of only 0, 1, 2, 3, 4, 5, and 6. In this case, you would put these exact values down as your upper limits in column A or B (depending which variable it is).

4. Make a histogram for your x variable in cell D2. To do this, click on D2 (light blue) and then select “Data,” then “Data Analysis,” then “Histogram” and click OK.



Type your range of x values (including the label) in the box after “Input Range:” (This is probably A2:A32.) You can also get this range by clicking the x label box and then holding down the mouse button and dragging the box that appears so that you highlight all your x values. You also need to type the location of your upper class limits in the box after “Bin Range:” This will be the cells in column A that contain your limits. Include your label box so that the label will show up in the graph. Thus, you will have a range like A36:A41 or A36:A42. Then be sure the box is checked before “Labels,” so that Excel knows not to try to compute with cells A2 or A36. Tell Excel where to put the frequency distribution and histogram in the box after “Output Range:” I think that D2 is a good choice. **Finally, be sure to check the box before “Chart Output”** so that Excel gives you the histogram. Click OK.



Let’s format your histogram a little bit. Click on the word “Histogram” and delete it using the “Delete” button on the keyboard. Then, click on the word “Frequency” and delete it. Now, click the right mouse button on one of the blue histogram bars and select “Format Data Series...” Move the slider for “Gap Width” to “No Gap” and click “Close.” You can move and resize the histogram so that it fits above Row 22 and before Column J.

5. Repeat the process for your y variable, placing your results starting in cell J2. Your input range will probably be B2:B32 and your bin range will be something like B36:B41 or B42. Format your histogram the same as you did above for the x variable. Make sure the histogram fits above Row 22 and before Column J.

6. Now, let’s find the mean, median, mode, and standard deviation of the x variable. You are going to type a formula next to each cell in the “x Summary” section. Here are the formulas you will type for x:

In E31 =average(A3:A32)
 In E32 =median(A3:A32)
 In E33 =mode(A3:A32)
 In E34 =stdevp(A3:A32)

For example, to find the mean of your x values, go to cell E31 and type: “=average(A3:A32)” (without quotation marks) and then enter. (*note: If there is more than one mode, Excel will list the smallest mode only.*)

7. Repeat the process for your y variable in E38-41. You will use B3:B32 instead of A3:A32.

8. Next, you need to get information about the regression line. To find the slope of the regression line, you need to tell Excel the range of y values, followed by the range of x values. If your actual x values are in A3:A32 and your y values are in B3:B32 you need to type EXACTLY what is below in cell E23:

=slope(b3:b32,a3:a32)

And then hit the "Enter" key. This result is the slope of your regression line. (the m in $y = mx + b$)

Type this command in E24 followed by Enter to get the b in $y = mx + b$.

=intercept(b3:b32,a3:a32)

Type this command in E25 followed by Enter to find r (the correlation coefficient).

=correl(b3:b32,a3:a32)

11. To get the scatterplot, highlight all your x and y values, but DO NOT include the labels. You may want to then scroll down the spreadsheet so that you can see the area where you want to put the scatterplot. Then click "Insert" and "Scatter" and choose the upper left graph (Scatter with only Markers). Move and resize your graph as needed.

Click on "Series1" and delete it.

Select the scatterplot. At the top of the spreadsheet you should see "Chart Tools." Click on "Layout" and then "Axis Titles" to label your axes. Choose "Primary Horizontal Axis Title" and then "Title Below Axis." You can now label the horizontal axis with the name of your x-variable. Click on "Axis Titles," then "Primary Vertical Axis Title," and choose "Rotated Title" so that you can enter the name of your y-variable on the graph.

If you would like, you can adjust the x- and y-axis so that they start at higher numbers by clicking the right mouse button on the appropriate axis and then clicking "Format Axis."

To graph the regression line, click the right mouse button on one of the points graphed on the scatterplot. Then select "Add Trendline," be sure that "Linear" is selected, and click "Close."

12. Now, you should have all the information you need in the Excel worksheet:

- a. list of x- and y-variables
- b. frequency distribution and histogram for x and y
- c. mean, median, mode, and standard deviation for x and y
- d. the slope and y-intercept of the regression line
- e. the value of the correlation coefficient
- f. the scatterplot with the regression line graphed on it

13. Type your name (and your partner's name, if you have a partner) somewhere near the bottom of the spreadsheet.

14. Save the Excel worksheet to the desktop using your last name (or your partner's last name) followed by the word Excel. Since my name is Mike Welden, I would save the file as weldenexcel. To do this, click on the "Office Button" in the upper-left corner of the Excel spreadsheet, move over "Save As," click on "Excel Workbook," enter your new file name, click "Desktop," and click "Save."

C. Transfer the needed information into the Powerpoint Template.

1. Download the Powerpoint template like you did the Excel template in part A.
2. Double click the "Powerpoint Template" icon on the desktop.
3. You can click on a slide on top of a word to change the word. Here is a summary of what you need to do:

Slide #1: Change "Variable 1" and "Variable 2" to your variable names. **Change to your name (and your partner's name if you have a partner).**

Slide #2: Describe your x and y variables. You might include information about how you selected the people or objects if that seems important.

Slide #3: Change "Variable 1" to your x variable. Include your information from the Excel spreadsheet for your x variable.

Slide #4: Change "Variable 1" to your x variable. Copy and paste your histogram from the Excel spreadsheet. (Go to Excel and right-click on your x histogram. Click "Copy." Now go back to Powerpoint and Slide #4. Right-click on the slide and then click "Paste." Make the histogram bigger in Powerpoint by dragging with the mouse.

Slide #5: Change "Variable 2" to your y variable. Include your information from the Excel spreadsheet for your y variable.

Slide #6: Change "Variable 2" to your y variable. Copy and paste your histogram from the Excel spreadsheet as before.

Slide #7: Copy your scatterplot from Excel to Powerpoint as before. Resize the image in Powerpoint with the mouse.

Slide #8: Replace m and b with the values from your Excel spreadsheet. Type in your value of r.

Slide #9: Explain what type of correlation you found after the first bullet. Give some reasons why this might have happened or any special circumstances after the second bullet. Be sure to include whether the correlation coefficient was positive or negative (and what this means), and whether the correlation is strong, weak, or somewhere in between (and what this means).

13. Save the Powerpoint presentation to the desktop using your own last name followed by the word power. Since my name is Mike Welden, I would save the file as weldenpower

You will probably want to save your Excel and Powerpoint files to a memory device of some kind, upload the files to your EdNet account, or e-mail the files to yourself through a mail service such as Yahoo or AOL. Ask me if you are having trouble doing this.

After you have finished your Excel and Powerpoint files, you need to e-mail them to me as indicated on the first page. Contact me as soon as possible if you do not know how to do this,