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| --- | --- |
| Name: |  |

Pre-Test Training Course “240 CenSARA” Excel Statistics

**PLEASE: Read the entire assignment before you start any work.**

**You are to work on this Assignment for the next 30 minutes. Do your best to complete as much as possible. When instructed to stop, save the assignment with the name   
“Pre-Test *Your Name*” and attach to an email and send it to *steve.hiebsch@gmail.com*.**

1. How does elevation affect overall plant height? Suppose that you wanted to study this question using the height of yarrow plants. The plants were germinated from seeds collected at different elevations from 16 different sites in the western United States. The plants were reared in a greenhouse to control the impact of temperature on the plant’s height. See the hypothetical data as given below in TABLE 1.

|  |  |  |
| --- | --- | --- |
| TABLE 1 |  |  |
| SITE # | ELEVATION (m) | HEIGHT (cm) |
| 1 | 1200 | 75 |
| 2 | 1350 | 65 |
| 3 | 1400 | 68 |
| 4 | 1550 | 60 |
| 5 | 1600 | 45 |
| 6 | 1750 | 50 |
| 7 | 1850 | 46 |
| 8 | 1900 | 48 |
| 9 | 2000 | 45 |
| 10 | 2100 | 25 |
| 11 | 2250 | 23 |
| 12 | 2300 | 20 |
| 13 | 2400 | 21 |
| 14 | 2850 | 18 |
| 15 | 3000 | 18 |
| 16 | 3150 | 17 |

1. Your overall goal in this step is to create an Excel workbook that contains a worksheet that looks similar to the TABLE 1 above.
   1. First, save a workbook named “**Pre-Test *Your Name.***”
   2. Next, name a worksheet tab, “DATA 1”
   3. By a method of your choosing, create Table 1 (above) in your worksheet, DATA 1.
   4. When you have completed creating Table 1 in your worksheet, the worksheet should meet the following specifications:
      1. Column heading “SITE #” should be in cell B2.
      2. Column headings “ELEVATION” and “HEIGHT” should be in Columns C and D.
      3. Name the data under the column heading ELEVATION. Name the data ELEV.
      4. Name the data under the column heading HEIGHT. Name the data HEIG.
2. In worksheet, DATA 1, create a TABLE 2 that looks similar to the table below. Place the title “Table 2” in Cell F2.

|  |  |  |
| --- | --- | --- |
| TABLE 2 | ELEVATION | HEIGHT |
| SUM |  |  |
| PRODUCT |  |  |
| MEAN |  |  |
| STANDARD DEVIATION |  |  |
| SAMPLE SIZE |  |  |

1. Calculate the values for the following:
   1. Sum the values in the column titled “ELEVATION” in TABLE 1 and show that value in the appropriate cell in TABLE 2.
   2. Sum the values in the column titled “HEIGHT” in TABLE 1 and show that value in the appropriate cell in TABLE 2.
   3. Calculate the product for all values in the column titled “ELEVATION” and show that value in the appropriate cell in TABLE 2.
   4. Calculate the product for all values in the column titled “HEIGHT” and show that value in the appropriate cell in TABLE 2.
   5. Complete TABLE 2 by calculating the MEAN, the sample STANDARD DEVIATION, and SAMPLE SIZE for both ELEVATION and for HEIGHT.
2. Copy TABLE 1 from DATA 1 worksheet to new worksheet and name it “DATA 2.” Further keep the column widths of TABLE 1 the same as in DATA 1 worksheet. Starting in Cell J2 of DATA 2, create a third table, TABLE 3, with column headings as given below.

|  |  |  |
| --- | --- | --- |
| **COL J** | **COL K** | **COL L** |

* 1. In Column J, Cell J3, enter a **formula** that adds 5 to the value in Cell C3.
  2. Copy this formula down Column J such that 5 is added to all values in Column C of TABLE 1.
  3. In Column K of TABLE 3, add 5 to all the values in Column D, Table 1. **Do this without typing or physically entering any values or math formulas in Column K. Do this solely using Excel function(s).**
  4. Copy the values in Column K into Column L. **Again, do this without typing or physically entering any values or formulas into Column L.** Hint: this can be completed by using the F4 function key.

1. In worksheet “DATA 2,” create a *Bar Chart* with “Elevation” on the horizontal axis and “Height” of plants on the vertical axis.
   1. Move the Bar Chart below TABLE 1 in DATA 2 worksheet.
   2. Label the vertical axis “Height (cm)” and the horizontal axis, “Elevation (m)”
   3. Place a meaningful title above the bar chart.
2. For the following no analysis is required and no new data is entered. You must complete these tasks using the data in TABLE 1.
   1. Create a new worksheet and name it “Descriptive Statistics.” Then provide the following statistics using data in TABLE 1:

|  |  |
| --- | --- |
| Mean | Standard Error |
| Median | Mode |
| Standard Deviation | Sample Variance |
| Kurtosis | Skewness |
| Range | Minimum |
| Maximum | Sum |
| Count |  |

* 1. Create on a new worksheet, a scatter plot of Elevation and Height.
     1. Name the worksheet “Scatter Plot.”
  2. Create on a new worksheet that contains the correlation matrix of Elevation and Height.
     1. Name the worksheet “Correlation Matrix.”
  3. Create on a new worksheet that contains the regression results of regressing the independent variable, Elevation, on the dependent variable, Height.
     1. Name the worksheet “Regression Results.”