

MATHEMATICS 201-510-LW

Business Statistics

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Fall 2008

Measures with Excel

Example 1

The height (in m) for a random sample of 40 SLC students was measured.

Make the usual heading (cells A1:A4) and label sheet 1 “Example 1”.

In cell A6 “Height in m” in bold. Adjust the width of the columns so that the words appear in full.

Open the worksheet “Data – Student Height” from my web site and copy the sample results in cells A7:A46.

Summary Statistics

In cell C6:C15 write the following

Measures for Student Height

Mean

Median

Mode

10% trimmed mean

Range

Variance

Standard Deviation

CV

Count of data n

Where “Measures for Student Height” is in bold.

We will now get Excel to calculate all of this. Most of these measures can be found directly in f_x ,

FUNCTIONS – STATISTICAL. Here is how to find all these measures.

Mean

AVERAGE(data range)

Median

MEDIAN(data range)

Mode

MODE(data range)

10% trimmed mean

TRIMMEAN(data range, percent as decimal)

Note: On excel, if you want to use a 10% trimmed mean, you must multiply this number by two for the percent, hence use 20%.

Range

MAX(data range) – MIN(data range)

Variance

For a sample: VAR(data range)

For a population: VARP(data range)

Standard Deviation

For a sample: STDEV(data range)

For a population: STDEVPP(data range)

CV (Coefficient of variation)

Use a formula making references to other cells

Count of data n

COUNT(data range)

Where “data range” is the range of your data, and is usually filled by shading the block of cells containing the data. In our example, this corresponds to A7:A46.

Measures of Position

In cell C18 write “60th percentile”. In cell D18, find the value of this using the function PERCENTILE(data range, percentile as a decimal number between 0 and 1)
Your answer should be 1.648 m.

For the five number summary, do the following, in cells C21:E26, do the following

Measures for Student Height

Minimum	1.43 m
First Quartile	1.58 m
Median	1.625 m
Third Quartile	1.74 m
Maximum	1.89 m

Note that all numbers must be found using formulas. Here the quartiles are found using QUARTILE(data range,#) where # refers to which quartile you wish to find.

Your results should look like this:

	A	B	C	D	E	F
1	Business Statistics					
2	Measures with Excel					
3	By Martin Huard					
4	18-Aug-08					
5						
6	Height (in m)	Measures for Student Height				
7	1.62		Mean	1.648 m		
8	1.52		Median	1.63 m		
9	1.67		Mode	1.61 m		
10	1.78		10% trimmed mean	1.647 m		
11	1.77		Range	0.46 m		
12	1.82		Variance	0.0137 m ²		
13	1.43		Standard Deviation	0.117 m		
14	1.63		CV	7.10%		
15	1.76		Count of data n	40		
16	1.54					
17	1.58					
18	1.48		60th percentile	1.648 m		
19	1.47					
20	1.55					
21	1.57		Measures of height			
22	1.44		Minimum	1.43 m		
23	1.59		First Quartile	1.58 m		
24	1.61		Median	1.625 m		
25	1.66		Third Quartile	1.74 m		
26	1.61		Maximum	1.89 m		
27	1.62					
28	1.64					

Example 2 – Grouped Data

The height (in m) for a random sample of 40 SLC students was measured and the results were summarised in the following table.

Distribution of Height for a sample of SLC students			
Height (m)			Frequency
1.40	to	1.49	5
1.50	to	1.59	7
1.60	to	1.69	14
1.70	to	1.79	9
1.80	to	1.89	5
<i>Total</i>			40

Go to Sheet 2 and label it “Example 2”. Make the usual heading. Copy the above table, found on the Sheet “Height Table” in “Data – Student Height”, in cells A6:D13. Fix the width of the columns accordingly.

In cell D15, write “Mean”, in cell D16 write “Variance” and in cell D17 “Standard Deviation”. Have these three cells align to the right.

To find these two measures, we will extend the above table in cells E7:G13, to have the following headings:

Height (m)	Frequency	Midpoint x	xf	x^2f
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Note that all numbers in the last three columns must be found using formulas. You should obtain the following results:

	A	B	C	D	E	F	G	H	
1	Business Statistics								
2	Measures with Excel								
3	By Martin Huard								
4	18-Aug-08								
5									
6	Distribution of Height for a sample of SLC students								
7	Height (m)			Frequency	Midpoint x	xf	x^2f		
8	1.40	to	1.49	5	1.445	7.225	10.440		
9	1.50	to	1.59	7	1.545	10.815	16.709		
10	1.60	to	1.69	14	1.645	23.03	37.884		
11	1.70	to	1.79	9	1.745	15.705	27.405		
12	1.80	to	1.89	5	1.845	9.225	17.020		
13	<i>Total</i>			40		66	109.459		
14									
15					Mean	1.65 m			
16					Variance	0.0143 m ²			
17					Standard Deviation	0.120 m			
18									
19									