NORTHERN ILLINOIS UNIVERSITY

PHYSICS DEPARTMENT

Physics 374 – Junior Physics Lab Spring 2021

Excel LINEST function

(1) Find the uncertainty in your slope and intercept values using the LINEST method described below.

(a) select a box of 4 cells in the worksheet (the output will be a 2x2 array)
(you could select a 2x5 [2 columns, 5 rows] array to get more information)
(b) write in the formula bar:

= LINEST(*range for **y-column** data*, *range for **x-column** data*, TRUE, TRUE)
[for example: = LINEST(C2:C6,B2:B6,TRUE,TRUE)]

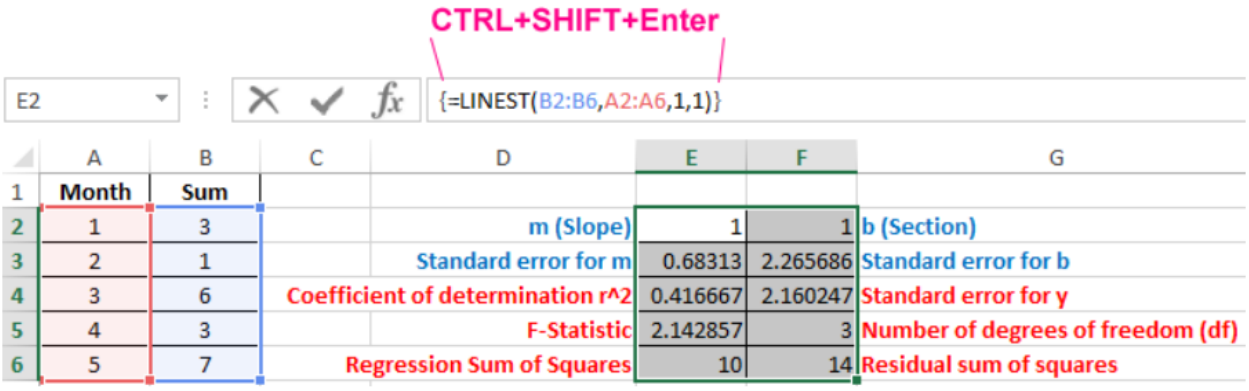
(c) press the keys Ctrl+Shift+Enter simultaneously.

You should have the following information in the selected cells in your Excel spreadsheet (below is an example):

D	E	F	G	H
	=LINEST(C2:C6,B2:B6,TRUE,TRUE)			
slope m	3.610762185	-8.32503625	intercept b	
uncertainty in slope σ_m	0.185741045	1.644894	uncertainty in intercept σ_b	

Check to make certain the slope and intercept values agree with your linear fit.

Selecting a 2x5 matrix in the spreadsheet gives more statistical information (Google LINEST) such as the linear regression coefficient, F-test, etc.



	A	B	C	D	E	F	G
1	Month	Sum					
2	1	3		m (Slope)	1	1	b (Section)
3	2	1		Standard error for m	0.68313	2.265686	Standard error for b
4	3	6		Coefficient of determination r^2	0.416667	2.160247	Standard error for y
5	4	3		F-Statistic	2.142857	3	Number of degrees of freedom (df)
6	5	7		Regression Sum of Squares	10	14	Residual sum of squares

From: https://exceltable.com/en/excel-functions/examples-use-linest-function