Appendix G: Using Excel to Create a Graph with Error Bars

You can use Excel to create graphs and add error bars, labels, trendlines, etc. To create a simple scatter plot with error bars follow these steps.

Creating a graph

1. Enter your data in an Excel spreadsheet as shown in Fig.1.

	A	B	C	D
1	Time (s)	Distance (m)	sigma_D (m)	
2	4.68	1.05	0.1	
3	3	0.75	0.1	
4	3.2	0.95	0.07	
5	3.8	1	0.08	
6	4.3	1	0.09	
7	2.5	0.55	0.1	
8				
9				
10				

Figure 1: Entering your data

2. Label your columns with names and units.

3. Highlight the data that you want to graph, as shown in Fig. 2.

	A	B	C	D
1	Time (s)	Distance (m)	sigma_D (m)	
2	4.68	1.05	0.1	
3	3	0.75	0.1	
4	3.2	0.95	0.07	
5	3.8	1	0.08	
6	4.3	1	0.09	
7	2.5	0.55	0.1	
8				
9				
10				
11				
12				

Figure 2: Highlighting data to be graphed

4. Click the Insert tab at the top left of the Excel window (or click the chart icon in the horizontal tool bar).

- Click the "Scatter" icon.
- Click the picture of a graph with just the points (no lines) as shown in Fig. 3.

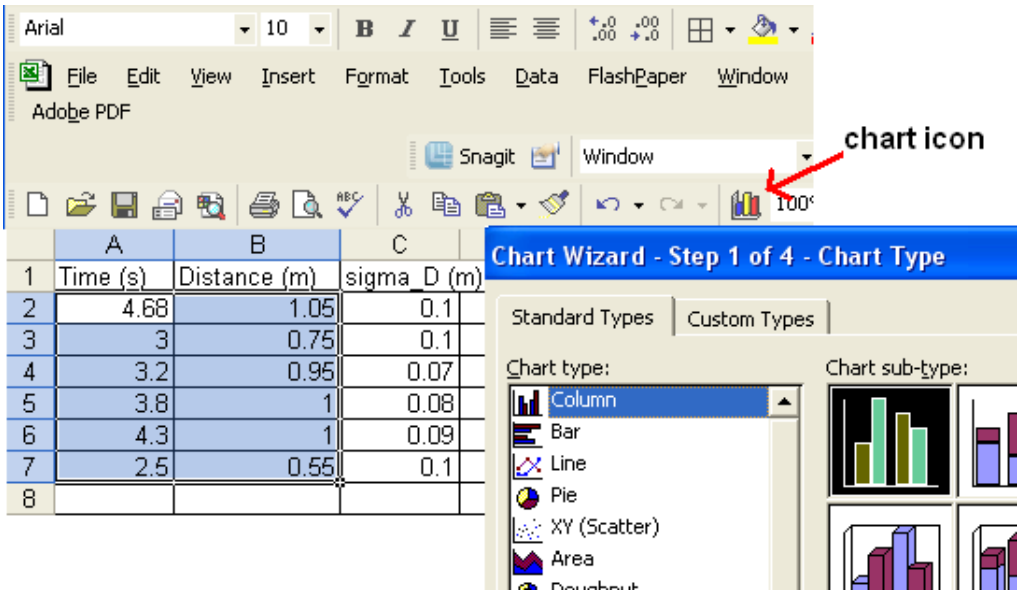

Figure 3: Choosing your graph

5. Your graph should appear as seen in Fig. 4.

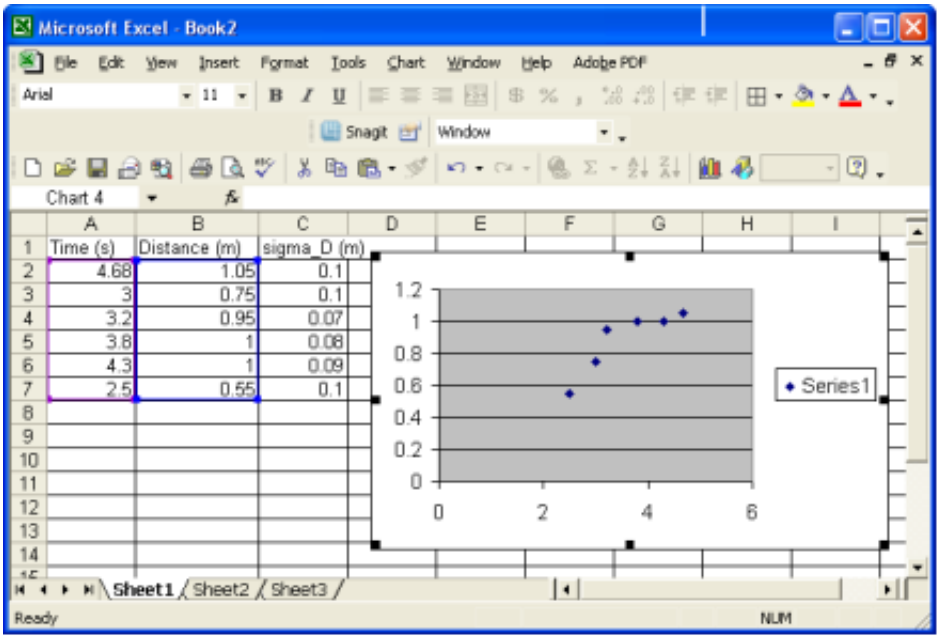

Figure 4: Inserting your graph

Adding error bars

6. To add error bars, right click one of the points in the graph.

   - Select "format data series".
   - A window as shown in Fig. 5 will appear.

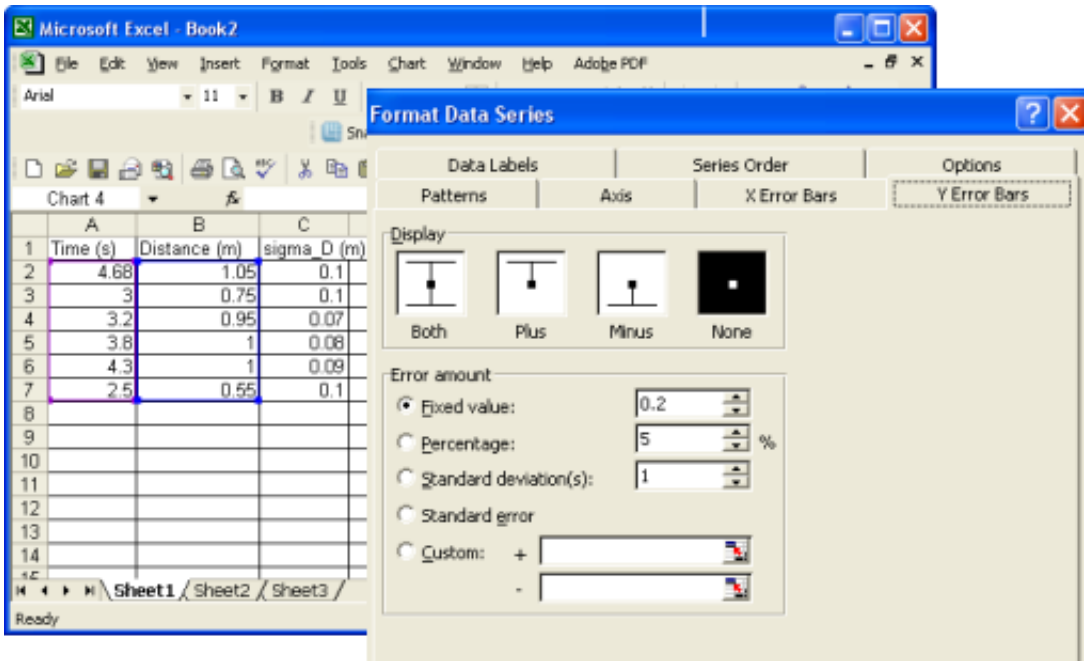

Figure 5: Error bar menu

7. Click on the 'Y Error Bars' tab if it is not already selected.

   - Click 'Both' for display option and 'Custom' for error amount.
   - The cursor will automatically appear in the '+' next to 'Custom'.
   - Select cells C2 through C7 and you will see these cells listed in the '+' box for the positive errors for each data point. See Fig. 6.

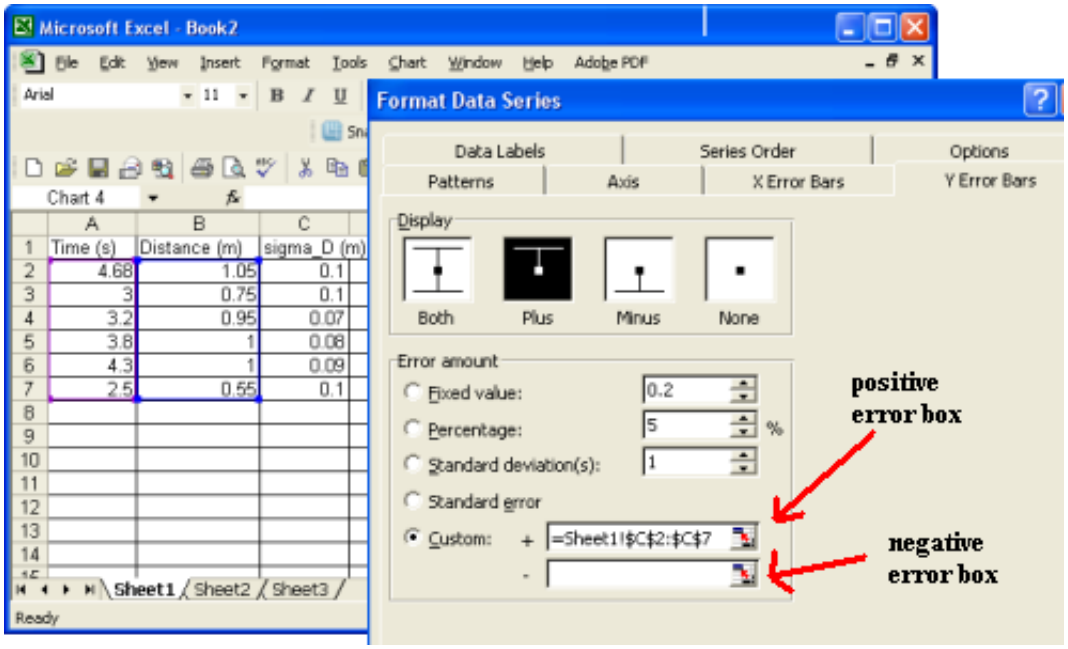

Figure 6: Entering values for error bars

8. Select the '-' error bar box and once again select cells C2 through C7.
   - Click 'OK' to complete this step.
   - Your graph will now have error bars as shown in Fig. 7.

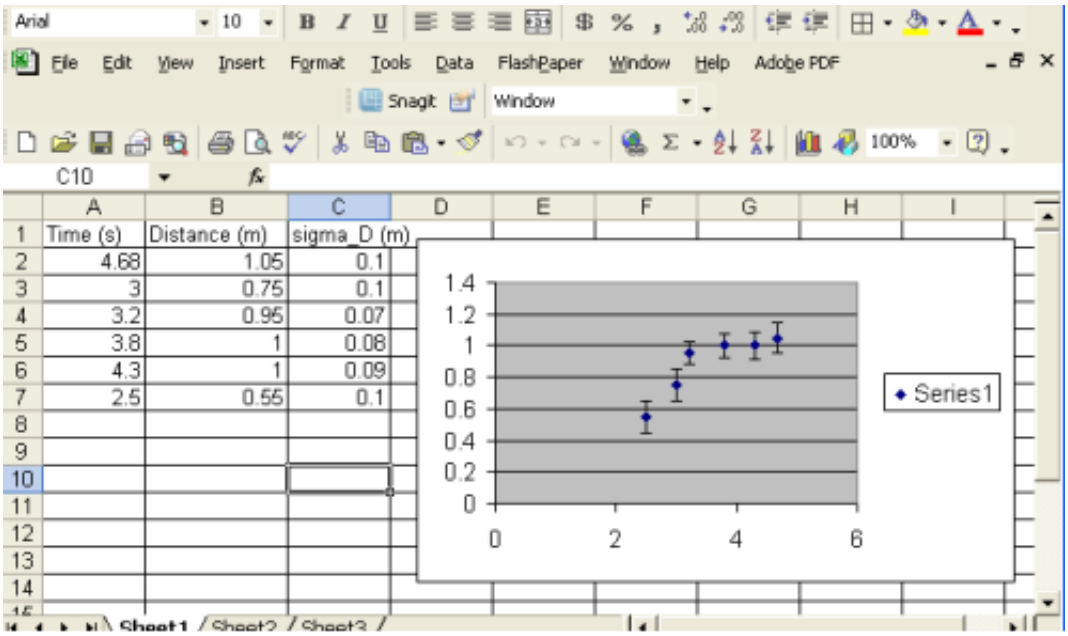

Figure 7: Graph with error bars added