

Creating a Standard Curve

Create a standard curve by graphing the following data (Absorbance vs. Protein Concentration). Be certain to include all elements of a good graph (title, axes labels, and units). Be certain that the data is well spread in the space available on your graph paper, otherwise drawing a best fit line will be difficult. Draw a line of best fit. A line of best fit (or "trend" line) is a straight line that best represents the data on a scatter plot. This line may pass through some of the points, none of the points, or all of the points.

Next you will determine the equation for the line that you just drew. Remember the general equation for a line:

$$y=mx + b$$

On this graph, y represents absorbance at 562 nm expressed in percent, and x represents protein concentration expressed in micrograms per milliliter ($\mu\text{g/mL}$). Choose two points on the line that you drew. These DO NOT have to be points that you plotted from the data table. Choose two points whose coordinates are easily determined with confidence. Use these two points (WITH UNITS!!!) to calculate the slope of your line. Now determine equation for this line (Remember that b, the y-intercept) in this case is zero, so the equation for our line is simply $y = mx$, making the slope a simple conversion factor to get from absorbance to protein concentration).

Finally, use your equation to determine the protein concentration for the sample data given.

Protein Concentration ($\mu\text{g/mL}$)	Absorbance at 562 nm (%)
0	0.001
125	0.011
250	0.03
500	0.062
750	0.092
1000	0.119
1500	0.169
2000	0.218

Unknown Samples	
Sample #	Absorbance at 562 nm (%)
1	0.051
2	0.155
3	0.040