

# [Lab report: relationship between concentration and absorbance](https://assignbuster.com/lab-report-relationship-between-concentration-and-absorbance/)

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involves measuring the absorbance of several concentrations of the pure substance or the " standard" substance determine relationship between concentration and absorbance compared results from unknowns How to use Linear Regression for Generating a Standard Curve? © 2010 by M. Olaveson UTSC 2 BIO A01F-Fall 2010 - ASSIGNMENT # 2 - Preparing a Standard Curve using Excel 2007 Assignment # 2 Analysis of Data from Lab 2-Exercise 2 Table 2. 6. Protein in Test Tubes prepared for Standard Curve. 1. Follow instructions in Lab Manual and complete Table 2. 6 © 2010 by M. Olaveson UTSC 3 BIO A01F-Fall 2010 - ASSIGNMENT # 2 - Preparing a Standard Curve using Excel 2007 Assignment # 2: Table 2. 7. Absorbance (at 550 nm) as a function of protein concentration. 2. Complete Table 2. 7 © 2010 by M. Olaveson UTSC 4 BIO A01F-Fall 2010 - ASSIGNMENT # 2 - Preparing a Standard Curve using Excel 2007 5. After plotting XY Scatter Plot — perform a Linear Regression Analysis to generate a “ line of best fit’ by using the “ Trendline" option Determine the Equation for the Line and the Correlation Coefficient (R2 Value) by clicking the options in the “ Trendline" menu: - choose “ intercept = 0" - choose “ show equation" choose show “ R2 value" Use Equation to determine the protein concentration in the Unknown Sample (make sure to indicate Unknown #) Complete Assignment # 2 according to Instructions on Blackboard under “ Assignments — Assignment # 2" and submit to your TA at beginning of Lab 3 © 2010 by M. Olaveson UTSC 6 BIO A01F-Fall 2010 - ASSIGNMENT # 2 - Preparing a Standard Curve using Excel 2007 Assignment # 2: From Table 2. 7 — use the Protein Concentration and corresponding Absorbance (at 550 nm) to plot an XY Scatter Plot (using Excel / Star Office / Graphing Program) HINT: graphing options are found in the Chart Function in Excel (use Chart Wizard) Follow instructions in: Appendix 2 (p. 196-198) in Knisely, K. 2005. A Student Handbook for Writing in Biology (2nd Edition). Sinauer Assoc. Sunderland, Mass. Appendix 2 (p. 221-226) in Knisely, K. 2009. A Student Handbook for Writing in Biology (3rd Edition). Sinauer Assoc. Sunderland, Mass. © 2010 by M. Olaveson UTSC 5 BIO A01F-Fall 2010 - ASSIGNMENT # 2 - Preparing a Standard Curve using Excel 2007 Assignment # 2: TUBE | WATER ADDITION | CASEIN ADDITION | AMOUNT OF CASEIN in 2 ml | CASEIN CONCENTRATION | | | | SOLUTION | (mg CASEIN / 1 ml solution) | | | | (mg CASEIN) | | 1 | 2. 0 ml | none | 0 | 0 | 2 | 1. 5 ml | 0. 5 ml | 5 | 2. 5 | 3 | 1. 0 ml | 1. 0 ml | 10 | 5 | 4 | 0. 5 ml | 1. 5 ml | 15 | 7. 5 | 5 | none | 2. 0 ml | 20 | 10 | 6 | none | 2. 0 ml of protein sample of unknown concentration | TUBE | C1 | V1 | V2 | C2 | ABSORBANCE | | PROTEIN CONC. | Volume (ml) | Volume (ml) | PROTEIN CONC. | (at 550 nm) | | (mg/ml) | before adding Biuret Solution | after | (mg/ml) | | | before adding Biuret Solution | | adding Biuret Solution | after adding Biuret Solution | | | (from Table 2. 6) | | | | | Tube 1 (blank) | 0 | 2 | 10 | 0 | 0 | Tube 2 | 2. 5 | 2 | 10 | 0. 5 | 0. 226 | Tube 3 | 5 | 2 | 10 | 1 | 0. 334 | Tube 4 | 7. 5 | 2 | 10 | 1. 5 | 0. 496 | Tube 5 | 10 | 2 | 10 | 2 | 0. 558 | Tube 6 | | 2 | 10 | | 0. 189 | Unknown Sample # \_\_\_\_\_\_\_ | | | | | |