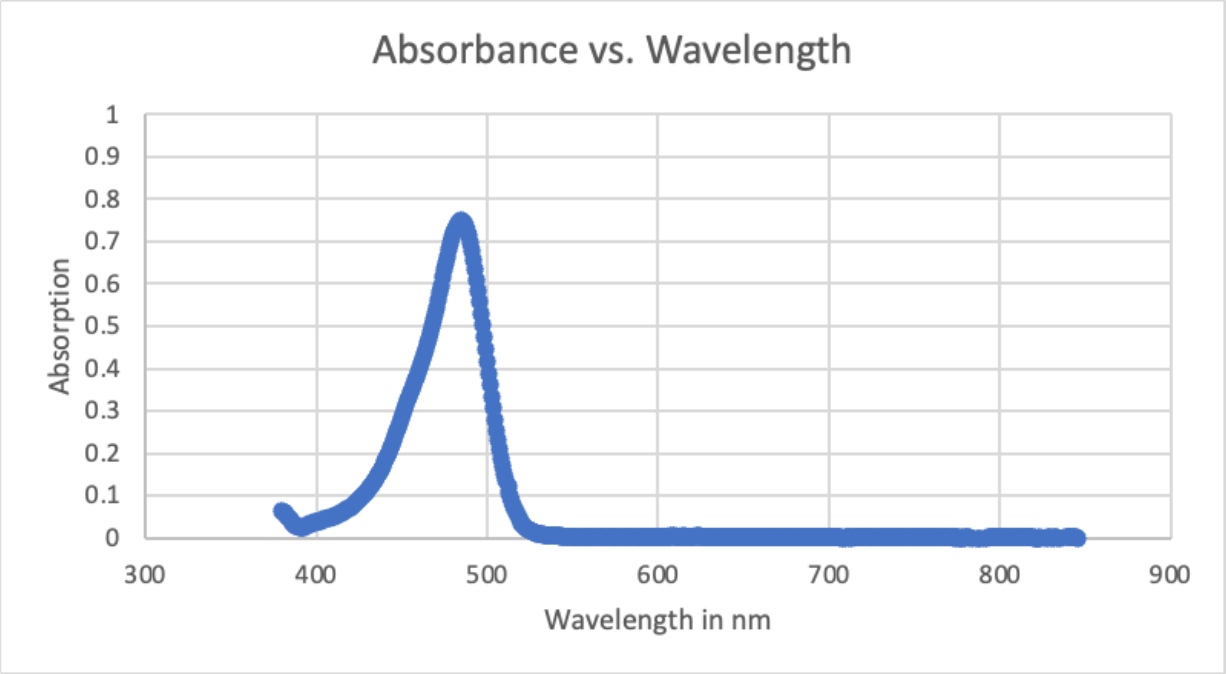
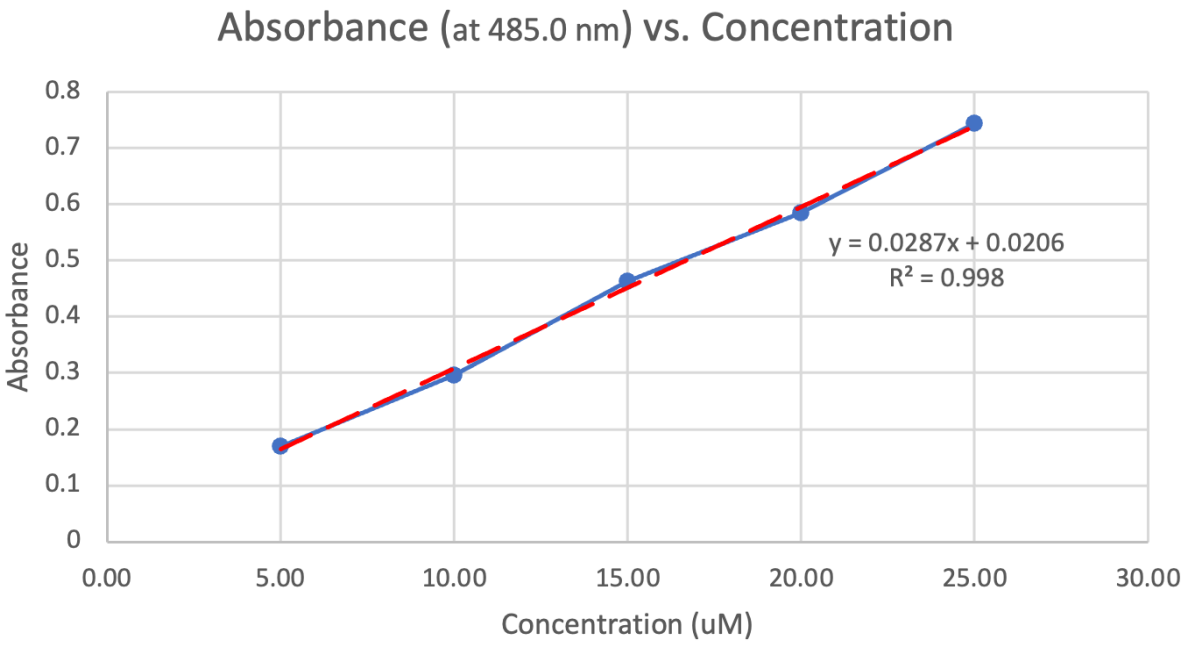
BE1000 HW1 - Spec Lab Report

Maxx Yung

1. The stock solution was prepared at $0.03g/L$, while the molecular weight is $332.31g/mol$. That means $\frac{0.03g}{332.31g/mol} = 0.0000902772\text{mol}$. Using the formula to calculate molarity, which is $M = \frac{mol}{L}$, we get $\frac{0.0000902772}{1}$ = 0.0000902772 M. After converting from M to μM, we get $90.2772\mu M$.
2. Given final diluted concentrations in μM:
    1. 25 - $275\mu L$ of stock and $725\mu L$ of water.
    2. 20 - $220\mu L$ of stock and $780\mu L$ of water.
    3. 15 - $165\mu L$ of stock and $835\mu L$ of water.
    4. 10 - $110\mu L$ of stock and $890\mu L$ of water.
    5. 5 - $55\mu L$ of stock and $945\mu L$ of water.
3. For the $10\mu M$ sample, we needed $110\mu L$ of stock and $890\mu L$ of water. Then, for the $1000\mu L$ pipette for water, the number was 089. For the $200\mu L$ pipette for the stock solution, the number was 110.
4. 

5. Max absorbance according to our data is: 485.0nm



6. The extinction coefficient is the slope of the line because $A = \epsilon lc$, but $l = 1$, so $\frac{A}{c} = \epsilon$. That means the extinction coefficient is $0.0287 mol^{-1} cm^{-1}$.
7. Our unknown sample had an absorbance value of 0.463741054. Based on the standard curve formula, $A = \epsilon lc \rightarrow 0.463741054 = 0.0287 \times 1 \times c$, so $c = 16.158224878 = 16.16 \mu M$