114 RUBRIC Investigation 19: What Factors Affect the Intensity of Color?

General

- Report is due by beginning of next week' class. Late lab reports will not be accepted.
- One hard copy of the report per group.
- Attach the contribution sheets to the end of the report.

Formatting (points can be deducted if these items are not followed)

- Title page with Investigation name, date, lab section, group members' names, TA's name.
- Must be written in third person, past tense, passive voice; no use of first person, and no contractions or slang. Uniform in spacing (double space) and fonts,
- Label each of the sections listed below, bold or underlined.
- Use proper grammar and spelling. Use superscripts and subscripts for chemical formulas and scientific notation. Remember to put a zero in front of the decimal point.
- Include all bibliographic entries of all reference material used.

Introduction (1pt)

- Brief description of the goal in this experiment
- Brief explanation of the spectroscopy technique to support the investigation and the related concepts: light, transmittance, concentration, Beer-Lambert's law, etc.
- Brief description of the experimental plan used to achieve your goal.

Procedure (1pt)

- Provide a list of reagents/equipment made available in the lab that you used.
  - Molarities of solutions must be listed correctly.
  - Proper subscripts and physical states are very important.
- Provide a clear description (in a paragraph style) of the procedures used during the course of the experiment; include concentration/volumes of solutions. *This should be detailed enough that another group could duplicate your work.*

Results (4.5pts)

- *For one dye color*, plot the following functions of %T vs. concentration:
  - % transmittance (y-axis) vs. concentration (x-axis)
  - $\dfrac{(\%T)^2}{100}$ vs. concentration
  - $\%T$ vs. concentration
  - $\sqrt{\%T}$ vs. concentration
  - $\log\left(\dfrac{\%T}{100}\right)$ vs. concentration
- Plot and discuss ALL the functions of *%T vs. dye concentration* that you calculated.
- For each plot, remember to:
  - Label x-axis and y-axis (with units)
  - Use appropriate software to find the straight-line trends (such as m, y-intercept)
  - Include the R^2 factor as a statistical measure of the best straight-line fit
  - Show an example of the spreadsheet formulas
  - Also write the best fit equation for each plot: $f(\%T) = m(concentration) + b$