Grading Guidelines
Investigation 20: *How Much Cobalt Is in the Soil?*

DUE: _____

Due at the beginning of Lab.

Make sure you staple all contribution sheets to the back of the Lab Report

General

- Report is due by next week on:_____. Late lab reports will not be accepted.
- One copy of the report per group (hard copy or e-copy sent by email).
- 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 (l.5pt)

- Briefly describe the goal in this investigation.
- Briefly explain the spectroscopy technique used in the investigation.
- Describe the following concepts and explain how they relate to this lab:
  - The Beer-Lambert Law
  - Standard curve (absorbance vs. concentration)

Procedure (1.5pts)

- 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.*
  - Describe the analytical procedures followed. Include proper use of the spectrometer and the cuvette; the calibration of the spectrometer, why and when....
  - Be sure to describe how the data was gathered in the course of the experiment.

    When many solutions are made of varying volumes and concentrations, a table of just the values used to make the standard solutions can be placed in this section instead of writing it all out in paragraph form. Don't include the absorbance values because they should be listed in Result.

Results (3.5pts)

- What was the **wavelength of maximum absorbance** (λmax)?
- **Figure:** Calibration curve of absorbance vs. concentration of the standard solutions.
  - Including best fit line, best fit line equation and R2 value.
  - The graph should be properly labeled with a title and axis labels.
- **Table:** Organize the data in a table (numbered with a descriptive title) showing concentrations of cobalt (II) standard solutions and the corresponding absorbances.
- **Sample Calculations**: For each calculation, clearly explain from where the values came and the purpose for