TITLE OF LAB

Name

Quantitative Analysis Lab Spring 2009

Section: 002

Date

Double spaced where applicable (introduction, conclusion
Font: size 12, times new roman
Label each section of your report: size 12 font, times new roman, bold, underlined
Page numbers

Use the sample lab report as a guide. It reflects the basics of a lab report. Yet, take note of the additional things and specifics we require for the lab report….

Introduction

Start by stating the purpose of the lab, what we were trying to accomplish. To develop your introduction read over the lab manual. Pick out the important topics and talk about them. Length of introduction is to be at least **one** full page. Example of what should be talked about for permanganate lab:

- oxidation/reduction titrations
- why do we use potassium permanganate
- what are primary standards
- why do we standardize solutions in general
- Gaussian curve/standard deviation. Why do we do this, what does it mean, etc.
- Always put chemical equations in the intro:
  Ex: $2MnO_4^- + 5H_2C_2O_4 + 6H^+ \rightarrow 2Mn^{2+} + 10CO_2 + 8H_2O$
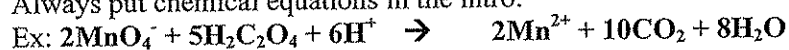
- Use your lab #1 assignment to talk about the redox reaction that is going on

State your references at the end of this section, include the lab manual as a reference. References should be in APA format. There are a plethora of online guides on proper APA format.

Reagents

List all reagents used in lab, include concentration

Solution preparation

Show the equations used to prepare solutions (ex: $KMnO_4$) i.e. if you must dilute a stock provided by Bert

$$-M_1V_1 = M_2V_2, \quad M = \frac{moles}{V}, \quad moles = \frac{grams}{MW}$$

Results
-Label within section using italics
-Use tables to diplay your data. Give a title for your tables.

Ex:
Table 1: Standardizing HCl with NaOH Titration Results

Flask	Grams of KHP	Initial Volume (NaOH)	Final Volume (NaOH)
#1	0.2069g	0.00mL	31.60mL
#2	0.2090g	0.00mL	27.65mL
#3	0.2168g	0.00mL	27.90mL
#4	0.2628g	0.00mL	35.19mL

- If a table or chart is going to be cut in half (if the table on the previous page didn't fit and was continuing on this page) it is better to have space at the bottom of a page and put the table on a whole new page, rather than having the table cut in half between one page and another.

-Show the general equations for your calculations. Then show a sample calculation for one of your trials. Label the calculations with the trial # you are performing them for.

Example:

Sample Calculation for finding the Molarity of the NaOH:

$$M = \frac{grams}{MW \times V}$$

Flask #2: $\quad M_{NaOH} = \dfrac{0.2090g\ KHP}{204.22g/mol \times 0.02765L}$

$$= 0.03701M\ NaOH$$

Average Molarity of NaOH:

$$(0.03701 + 0.03805 + 0.03657) \div 3 = 0.03721M\ NaOH$$

-Do NOT forget to put units!

Statistics

- Show the general equations and results of the requested calculations. You don't have to show example calculations here.
- Standard deviation and rel. standard deviation, etc.
- Label data. (ex: Standard dev. of molarity, Standard dev. of wt. %)

Conclusion

-Reflection of this experiment. Did you accomplish your purpose.

- Talk about your data. (i.e. The molarities I calculated for the $KMnO_4$ were.....The average value was...etc. etc. Talk about the main data from the lab in sentence form. Should be easy since you just put it all in your calculations part.

- Think about how confident you are with your data based on your standard deviation. How did your results compare to those of your groupmates.

-Write about 3 possible sources of error and how they can be avoided if the experiment were to be performed again.