WRITING A LAB REPORT
Standard Format

A Laboratory Report is a technical writing project. Avoid overstating the facts and editorializing. Be clear, concise and give concrete examples. Give appropriate credit to reference materials, individuals and other resources in standard bibliographic format. Whenever possible, data should be displayed in an organized labeled table and samples of all calculations must accompany any mathematical data analysis. The body of the laboratory report must be typed in a standard 12 font. Calculations may be illustrated on a separate hand-written page with appropriate labeled descriptors as to what they represent for ease of reference however ONE sample of each type of calculation must be included in the typed report. When appropriate, the following list of topic categories should be addressed. It is suggested that the order given be followed continuously on a single spaced page, simply double spacing between topics. Margins should be the standard format of 1 inch. All pages should be numbered and referenced in a Table of Contents. The entire report should have a Cover page that includes the name of the Lab Experiment, your name, instructor's name, class period, and date. (Please *no* report folders)

Title of Lab: Choose a title that appropriately describes the lab

Purpose: Briefly describe the intent of the lab experiment and the laboratory technique utilized.

Background:
Chemical Principle: Discuss the basic chemical principles involved in this experiment illustrated by appropriate chemical equations and predicted outcomes.
Analytic Technique: Summarize the general uses of the analytic technique employed in this lab, when and/or where it is used and other possible applications. Reference your sources of information in an annotated bibliographic format with a minimum of three resources.

Equipment: List each piece of equipment, glassware and laboratory utensil used in the lab procedure. Where appropriate and available, include the model and identification number of any piece of equipment that you used. Include a *fully labeled set-up diagram* of all equipment used.

Reagents: List all chemicals, their concentrations and states (solid, liquid, gas, aqueous solution, etc.) used in this laboratory experiment.

Procedure: Describe exactly what you did to perform this experiment directly related to lab technique and data collection. Avoid superfluous information and keep in mind the intent of the procedure section of the lab report. Accurately describe the specific procedure you followed in a way that would enable another individual to exactly reproduce your findings.

Data Table and Data Analysis (Calculations): List **all** data collected and observations made in an organized and thoroughly labeled table. If data results require calculations, show the calculated answers in an organized; labeled table (may be the same table above. Show one sample of *each* type of calculation necessary for the experiment. Be sure to include some reference as to what the calculation is illustrating. Full calculation samples of remaining trails and calculations are to be included in an appendix labeled as Data Analysis.[1]

Discussion: Referencing your data table, describe any problems you may have actually experienced in the lab. Discuss the inclusion and omission of data collected making concrete and supported justifications for any data discarded. Include any possible insights you may have gained or any possible suggestions as to how another could improve their results due to your experience. If appropriate, report your average findings here and include the actual calculations for such in a labeled section on your Data Analysis page.[1]

Error Discussion: Discuss, in detail, all possible human or equipment errors which may have affected your data collected and your experimental findings. Attempt to explain the direct effect these errors may have had on your results.

Accuracy: If an accepted or actual value is provided for comparison of your findings, state the known value and compute the Percent Error for your data collected. Show the actual calculation procedure referencing your data table on a labeled section of your Data Analysis page.[3]

Precision: To show the reproducibility of your experimental measurements, calculate the Relative Deviation. Show the actual calculation procedure, referencing your data table on an appropriately labeled section of your Data Analysis page.[1]

California Content Standards: Describe the specific standards are addressed in this Lab.

Lab Questions: Answer any assigned lab questions.

Conclusion: Summarize your findings in a short paragraph including a restatement of your average calculated results, Percent Error and Relative Deviation if applicable.

Journal Entry:
Describe in full and complete sentences any difficulties or problems you had while working to complete this laboratory activity. What were you able to recall *without* assistance? What did you need to research or review? Try to be as explicit as possible in your reflection as to what you did or did not know, did not remember or were not able to do without assistance. Finally, summarize all the chemistry skills and concepts that were needed to complete this task or laboratory experiment.

Suggested Appendix: (List contents of the appendix in order on the Appendix cover page.)

1. **Data Analysis:** This page will contain the following information as described above (for applicable experiments):
   Calculations made from data collected (Ex: Molarity calculated for each titration trial)
   Average Findings (Ex: Average Molarity calculated for all trials)
   Percent Error (Ex: Stating the Known Molarity, calculate your Percent Error)
   Relative Deviation (Ex: From the Molarities calculated from each trial and the Average Molarity, compute the Relative Deviation)
2. **Annotated Bibliography**
3. **Turnitin.com** full plagerism report
4. Contributing documents: prelabs, lab directions, worksheets and rough drafts

In some instances, students may share the lab data collected within their group however lab reporting, research and written assignments are independent, NOT GROUP WORK.