

Lab reports should be written such that someone who knows nothing about this course (or astronomy) could follow your work to successfully recreate the experiment.

Unless otherwise instructed, each lab must be done in a string-bound, quadrille-ruled notebook.

- Write in ink, never pencil.
- Write in the notebook; *there is no such thing as scratch paper or re-copying. Ever.*
- Write as you go. *There is no "down time" in class; you should be writing. Always.*
- Write only on the fronts (right sides) of the pages, leaving the backs (left sides) for potential reworks.
- Do not ever use white-out or otherwise render "mistakes" illegible; they may later turn out not to be mistakes. Simply mark through anything you don't want considered.
- Fasten printouts and other loose pages securely into the notebook.
- Clearly number answers to the assigned questions.

A basic outline for a lab report in this class looks like this.

- title
- date
- lab partner(s)
- purpose
- procedure
 - data
- analysis
 - calculations
 - graphs
- conclusion(s)
- summary
- references
- questions

The **TITLE** of lab, **DATE** (including year!), and **LAB PARTNER(S)** if any must *always* be first.

The very next thing written, before *anything* else, is always the **PURPOSE**. Remember the purpose is a statement of *why* you are doing this lab and the ultimate goal you're working towards, not *what* you are doing. You should know the purpose of the lab before you ever come to class.

Records of **PROCEDURE** come next and constitute the bulk of the report. This is where you document what you did, how you did it, the **DATA** you took, and any problems encountered and how they were addressed. *Anyone* should be able to use your report to decide what to do and not do to successfully recreate this lab or take similar data. *Numerical data must have appropriate units.*

A thorough **ANALYSIS** is critical. This is your opportunity to take a serious look at the data, distill it to the most important components, interpret it and address inconsistencies, make the necessary **CALCULATIONS** (showing all work), and construct **GRAPHS** and/or charts to tease out and illustrate relationships amongst variables. This discussion (and the conclusion[s] reached) are the most important part of the report. *Graphs must be properly labeled (including units) and be large enough for reasonable interpolation. Do not connect the dots! Fit functional relationships as appropriate.*

Clearly state the **CONCLUSION(S)** reached. What are the findings? Did you address the *purpose*? Give a **SUMMARY** of what you did and what you found. A single statement is sufficient. After that, you may want to make suggestions for changing or improving future iterations of the lab.

Document any external **REFERENCES**.

Answer all discussion **QUESTIONS**. *Do not* re-copy the questions! But you should be able to tell what the question was from reading your answer.