

In-Lab Checkout

The following items must be completed and signed off by a TA or instructor in the laboratory before starting the next experiment. This sheet has to be handed in with the final lab report.

Record Keeping

In-class notes

- Notes are **original**, in-class notes.
- Notes are **easy to follow**: an outsider could tell what was being recorded and why.
- Notes are **complete**: operations or conditions that affect the interpretation or analysis of data are given.
- **First page** includes **name of experiment**, names of **all partners**, and **dates** beginning and ending experiment.
- Each page is **numbered and dated**.
- Notes are **neatly kept** and are recorded in **pen**.

Apparatus diagrams and annotations

- The diagrams + annotations **succeed** in communicating **how the apparatus works and how it was used**.
- Diagrams are **functionally clear**: the diagrams would make sense to other students in the course.
- Diagrams are **correct and well annotated**, indicating the **use and/or function of each important component and sub-component**, clear **signal paths**, and **important physical features** (e.g. magnet orientation, important dimensions).
- Diagrams are **original drawings** taken from the apparatus itself, not merely copied from the instructions.

Data

- Raw data are **correct**: no significant mistakes in collection of data. [Note – you should annotate corrected mistakes]
 - The data set is **sufficient** to calculate **all important results and random uncertainty**.
 - Relevant **conditions pertaining to data sets** (e.g., sample type, run number, equipment settings) are present.
 - **Tables of data** include an **estimate of uncertainty** along with **reasons for assigning that uncertainty**.
 - Raw data are **recorded neatly**, with **correct units**.
 - **Copies** of original data (XY plots, computer printouts, tables, etc.) are **complete and annotated with information** describing the sample, conditions or other information pertaining to it.
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Preliminary Analysis and Results

Data analysis

- **All classes of data** taken have at least one set **analyzed**. [All data sets must be analyzed in final report.]
- Analysis of data is **correct**, with correct units.
- **Plotting and fitting** of data to obtain results **is used** when appropriate.
- **All calculations** performed, in whatever manner (spreadsheets, code, by hand), are **fully and clearly** described with **annotations**. [Any computer code must be included in final report.]
- **Graphs** are at least **1/2 page** in size and **easy to read**: one could estimate data points from the graph itself.
- **Graphs follow these basic formatting conventions**: **Legends** are given for graphs with multiple data sets and/or curves; **data points** are **bare** – point symbols **not connected** with lines; when applicable points include **error bars**; theoretical **curves** and/or **fits** are shown as **lines** (not points); **axes** are labeled with **quantity** and correct **units**; there is a clear **title** explaining the graph's purpose.
- Spreadsheet **printouts** are **clearly laid out** with **labeled** columns and rows, including **quantities and units**.

Uncertainty analysis and calculation

- **Uncertainty** is calculated for numerical results for at least one data set in each class of data. [full calculation to be included in final report].
- **Reasoning and method** used to derive uncertainty in final results is **clearly presented and correctly applied**.
- Uncertainty **calculations** themselves are clearly shown (either in entirety or with examples).