

Guidelines for Keeping a Laboratory Notebook

The following guidelines apply to laboratory notebooks kept in private industry. However, every organization has a specific set of guidelines for keeping a laboratory notebook. This information is for your general use, but not every item will be important in keeping a notebook for the Quantitative Analysis lab.

Notebook records of experimental work constitute the primary record or evidence to support lab reports, journal publications, ideas, and invention applications. Failure to keep a proper notebook, including proper corroboration of any of the above, may result in financial loss to a corporation, particularly in the event of disputed ownership of claims to new inventions. The laboratory notebook must yield the complete story of every experiment in such detail that it can be repeated and properly understood without interpretation by other chemists, even many years later.

The record of each experiment must show the following:

1. **Subject:** The broad program under which the work is being performed and the specific purpose of the experiments should be stated at the top of the notebook page, which carries the first entry on the project.
2. **Date:** The date the experiment was started must be entered at the top of the notebook page. The dates of all subsequent entries must be entered in chronological order and the dates of actual witnessing and signing, if required, must be recorded at the bottom.
3. **Materials:** All materials used should be clearly identified by their technical names rather than simply by code or trade names. However, trade names, order numbers, analyses, sources, or code names that aid in the characterization of materials should be recorded. Designation given to materials in codes should be retained and the meaning of the code noted.
4. **Equipment:** Accurate descriptions of equipment and its function and purpose in the experiment are necessary.
5. **Procedure:** Sufficient detail should be given to enable others skilled in the general field to repeat the experiment.
6. **Data:** All data should be clearly labeled with appropriate units, scale factors, and equipment or instrument settings.
7. **Results:** Those facts should be recorded which established the conclusions drawn from the experiment.

8. Comments: Predictions, suggestions, interpretations, and suggested improvements should be recorded.
9. Signature: The person or persons performing the experiment must sign in ink at the bottom of the page, and each person making entries on the page must initial his entries.
10. Witness: A person who has read the record, understand the work, and who is not a co-inventor must sign each page at the bottom. The witness and the principal investigator must also see that any unused space left on the page is cancelled by a diagonal inked line.

The notebook pages should be numbered beginning with the table of contents. Leave several pages blank for the contents and enter the title and page number of each experiment as you conduct your investigations. All notes and observations should be entered in ink directly in the permanently bound notebook (loose leaf and spiral binders are not acceptable). When it is necessary to make additional records or graphs on separate sheets these should be signed and dated and may be affixed in the notebook by stapling or by a permanent glue such as Elmer's™. Transparent tapes and rubber cements generally deteriorate too rapidly to allow their use in permanent records. Samples may be inserted in the notebook by stapling, but generally it is more desirable to preserve them separately and record their designation and distribution in the notebook. No erasures or eradications should be made in the notebook. When cancellation is necessary, a single ink line should be drawn through the material and the cancellation initialed and dated.

Notebooks remain the property of the research group and the University. A notebook may be requested for review by the Research Director or Instructor if and when the technical status of a project warrants. To protect against possible damage or loss, research notebooks should be returned when completed to the Research Director.