

Advanced Guidelines and Instructions for Lab Notebooks

Ownership

This laboratory notebook is the property of [Organization Name]. Unless currently archived, the care and maintenance of this notebook and its associated files are the responsibility of the notebook's author or the last person charged with its care. Immediately report any damage or loss of notebook material to laboratory management

General Notebook Use

The purpose of this notebook is to provide a thorough record of your research progress and document your scientific thought. The notebook should provide enough details to enable other scientists to repeat your experiments and acquire the same results. The following guidelines can help meet this requirement:

1. Each entry should record (A) the title and date of the experiment, (B) the introduction and purpose of the experiment, (C) The experimental plan/procedures, (D) observations and data, (E) discussion, and (F) conclusions. More information about notebook organization is included below.
2. All entries should be written in ink and erasures are prohibited. To correct a mistake, draw a single line through the inaccurate notebook material along with the date and your initials. Use of Wite-Out or scribbling out errors is prohibited.
3. Data and observations should be written directly into the notebook. Recording on loose scrap paper should be avoided. If paper is used, it should be signed, dated, and securely attached to the notebook as soon as possible.
4. Entries should be signed by the author and an independent witness as soon as possible to verify authenticity. More information about witnesses is included below.
5. Blank space should be limited throughout the notebook to help safeguard it from tampering. Overlooked blanked pages or space should be marked out with an "X" or a signature and a date.

6. Page numbers must be consecutive throughout the notebook and entries should be presented in chronological order.

7. Never edit or remove old entries from the notebook, even if the data is discovered to be outdated or incorrect. Address these issues in a new notebook entry

8. Submit notebooks to storage after the author's position in the lab is terminated, a project is completed or discontinued, or the incomplete notebook is left unused for two years. More information about storage is included below.

Basic Notebook Organization

Notebook entries should be organized, thorough, and enable other scientists to replicate your findings. Notebook entries describing your experiments can be arranged in the following format to meet these requirements:

1. Title Information—Each entry should have a clear title, date, and indication of the project the experiment belongs to.
2. Introduction/Purpose—Notebook entries should state the reason for the work that is being done and what similar studies have already been conducted, either by the researcher or elsewhere in literature.
3. Experimental Plan/Procedures—Describe the steps you intend to carry out and what materials are needed. Include any calculations or relevant safety information.
4. Observations and Data—Each entry should include observations made during the experiment along with raw and analyzed data. Observations should be detailed and objective.
5. Discussion—In this notebook section, you thoroughly reflect on the experiment. Describe your interpretation of the data and whether or not it fits your hypothesis.

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6. **Conclusions**—Summarize the goal of the experiment and your results. Reexamine what work was done, what should have been done, and what should be done next.

Other Notebook Organization

Additional sections of this notebook can be utilized to increase the accessibility and organization of your research records:

1. **Table of Contents**—This mandatory table in the front of the notebook provides a quick reference to experiments and associated data. The table should be kept updated and include the experiment date, title, and page number in the notebook.
2. **Notebook Information**—This section is included in the front of the notebook and contains general information about the notebook
3. **Preface**—This notebook section is optional and can be included in the first few pages before you begin formal entries. The preface contains information about the notebook's author, the research and projects covered in the notebook, and any other relevant background information.
4. **Table of Abbreviations**—This section is incorporated into the back of the notebook. It provides a reference list for abbreviations, symbols, and other shorthand commonly used throughout the notebook.
5. **Accessory Data Locations**—This section is also incorporated into the back of the notebook. It offers a list of physical and/or digital locations of raw data associated with the notebook.

Laboratory Witnesses

Notebooks need to be corroborated by credible witnesses to serve as significant evidence in the court of law. By acknowledging that they have “read and understood” content, witnesses also help validate the credibility of data.

Chosen witnesses should be independent, have no conflict of interest, and should not be potential inventors for any laboratory patents that could be associated with the notebook. Witnesses should be familiar with the notebook's area of study. Colleagues, research advisers, and collaborators do not make good witnesses.

A witness should sign notebook entries regularly. Daily review by a witness is preferable. However, a weekly or even monthly witnessing can still help validate the notebook's material.

Other Notebook Uses

Other types of entries not related to scientific experiments can also be recorded into this laboratory notebook. Some possible alternative entries include:

1. **Meeting minutes**—Record key interactions with group leaders, collaborators, or colleagues to provide an informational reference and protect your intellectual property.
2. **Original ideas and inventions**—Document ideas that could lead to inventions. Describe what inspired the idea, who you told about the idea, and who contributed to the idea.
3. **Literature surveys**—Record observations or notes during your review of scientific literature.
4. **Training records**—Record your notes during training sessions with new equipment or protocols

Notebook Issuance and Closure

Information about the notebook issuer and author should be filled out before first use of this notebook.

Notebooks should be submitted to storage after the author's position in the lab is terminated, a project is completed or discontinued, or the incomplete notebook is left unused for two years. Laboratory personnel responsible for notebooks

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should complete the following before submitting the notebook to storage:

1. Double check that each entry is titled, dated, and signed by the author and an independent witness.
2. Mark off blank pages and excessive white space throughout notebook.
3. Fill in the notebook's closing date on the title page.
4. If appropriate, make a backup copy of the notebook for reference to help preserve and protect this original copy.
5. Store notebook accordingly.

Common forms of backup copies for notebooks include photocopies and more durable microfilms. Backup copies provide a more accessible way to view laboratory data while preserving the original copy. The original copy can then be kept in long-term storage.

Notebooks should be stored in conditions that help ensure their longterm preservation. The storage room or facility should be room temperature or cooler with controlled humidity. The room or facility should be optimized to reduce the risk of notebook damage from fire, pests, floods, and theft.