



Lab Notebooks

Documenting Your Work

L01.02



What is a Lab Notebook?



Complete record of procedures, data, and thoughts for your own reference, your team members, and to pass on to other researchers.

- Document why experiments were initiated, how they were performed, expected results, actual results, and comments on results
 - Place to compile data/charts/photos/ideas
 - Place to collect clues & troubleshoot problems
 - Place to observe the whole picture and think

Additional reasons lab notebooks are kept by scientists and engineers

- To provide evidence for patents, legal records, etc.



How will you use this Lab Notebook?



All the work you do and all the information you are provided each week is cumulative.

Proper documentation of processes & results will enable you to transfer information with relative ease to:

- Lab Reports (first up: Calibration Report and Semester Capstone Report)
- Design Documents (PDR, CDR, FRR Written & Oral Presentations)

Lab notebooks will be reviewed periodically by LaACES staff to ensure you are making adequate progress. Regular documentation of your work will:

- Secure your continued placement in the program
- Ensure your submitted hours are approved



Your Notebook is actually *The Lab's* Notebook



Lab Notebooks will remain in the Lab(Room 326) at all times, unless otherwise instructed by a staff member.

- Pictures and Copies are permitted if you want to take information home to review (especially over longer breaks)
- Lab books will be periodically reviewed by faculty/staff and must be accessible to your team members when we move into the design phase.



Preparing a New Lab Notebook



Front and/or Inside Cover

- Name (John Doe), Context (LaACES @ LSU), Beginning Date (September 9, 2021)

Create Table of Contents (ToC)

- # first 6 pages(front and back): ToC-1 to ToC-6

Number all Pages

- Beginning with #1, number all pages following ToC pages
- Establish Entry/ToC Format
- Start/End Times, Date, Context, Entry Title
 - The Title should be a meaningful description of activities in the entry, ie not just LaACES Session Sept. 9, 2025



What goes in your Lab Notebook?



Lecture & Discussion Notes

- Enter these notes sparingly. Lecture slides are available for future reference, but some equations or principles will be worth noting. Anything your instructors repeat is likely worth capturing.

Activities

- Document the process and procedures of any in-house activities, explain why the experiment/activity is being conducted, document results, and annotate explanations for successes and failures.

Research / Project Development

- EVERYTHING! All the articles you read, hypotheses you develop, experiments you undertake, expected results, actual results, etc.



Insert Attachments into your Lab Notebook



Use tape or glue to insert crucial materials into your lab book:

- Photos of experimental setups
- Printed tables and graphs from computer analysis
- Important excerpts from datasheets (part specs, pinouts, etc)
- Assignment Sheets/Instructions
- Notes (or pasted copies) of discussions, conversations, readings related to experiment design or goals
- Bibliographic information for resources
- Annotations for names/locations of larger files (ex. CAD model stored on a shared cloud storage platform)

Always write the date and other identifying information on these materials in case they get separated! And be sure to log these insertions into your Table of Contents.



Frequency of Entries in Your Lab Notebook



Daily

- Every day that you are working in the lab on exercises or project development, you should use the lab book as a general log. Document questions, observations, preliminary results, even failures.

Weekly

- Review the previous week's entries and add notes/clarifications as needed. Ensure continuity and connectivity between entries. Especially crucial in the second half of the project cycle.

Monthly

- Review all entries to date and add notes/clarifications as needed. Ensure continuity and connectivity throughout the lab book.



Tips to Make Best Use of your Lab Notebook



- **Never, ever, remove a page**
- Fill consecutive pages
- Cross out unused parts of pages
- Record all info as accurately as possible
- Do NOT omit any result, no matter how odd
- Leave some space between lines and in the margins for future notes and elaborations (**initial & date these**)
- Cross out mistakes with a single straight line (allows them to be read afterwards)
- Write legibly (avoid felt tip pens or other ink that bleeds through the pages)
- Put a full date (avoid ambiguous date format problems) with month spelled out and year included (Sept 9, 2021)
- Time/Date stamp beginning and end of entry



Lab Notebook FORMAT

Review Checklist



- ☐ Black or Blue ballpoint pen used
- ☐ Other colored pens/highlighters used within reason
- ☐ Legible handwriting
- ☐ Table of contents up-to-date
- ☐ Entries fully dated (Oct. 13, 2014)
- ☐ Clear headings identifying content areas
- ☐ Written in first person
- ☐ Complete sentences
- ☐ Active verbs and precise description
- ☐ Could the work be followed by another scientist
- ☐ Is the researcher “thinking in the notebook”
- ☐ Is the notebook stored safely & properly when not in use



Lab Notebook CONTENT Review Checklist



- ☐ Plans: tests to run, research to review, questions to answer
- ☐ Ideas: a notebook is a repository of creativity (You are not limited to the ideas you implement)
- ☐ Realities: deviations from the plan; adjustments
- ☐ Observations: risk mitigation; procedures eliminated
- ☐ Illustrations: sketches, graphs, and photographs
- ☐ "Links" to the notebooks of others in your group
- ☐ "Links" to instrument logbooks and data on disks
- ☐ E-mails from collaborators (tape or paste them in)
- ☐ Summaries of papers you have read (full citation)
- ☐ Hints and tips you may get from science friends
- ☐ Concerns, questions, failures, conundrums, etc



Getting Started with your Lab Notebook



Tonight

- Enter your name & course info, create a 6 pg ToC, and number the rest of the pages.

Moving Forward

- Use the lab book as a general log every time you are in the lab. Document questions, observations, preliminary results, failures.
- Get to the lab at least 15 minutes early and review your lab book: read previous entries to refresh your mind and clean up errors AND transfer any relevant information that was independently obtained outside of the lab.
- Once every week or two, review previous week's entries and add notes/clarifications as needed. Once a month review all entries to-date and add notes/clarifications as needed.
- Buddy up with one or two other students and exchange lab notebooks regularly. Offer each other feedback and tips for improving the notebook.