

UCSF Guidance for Electronic and Paper Lab Notebooks

What is a Lab Notebook?

A lab notebook is a(n):

- Complete record of procedures, reagents, data, calculations, and thoughts to pass on to other researchers
- Explanation of why experiments were initiated and how they were performed, as well as results
- Legal document to prove patents and defend your data against accusations of fraud
- Source of knowledge within a lab
- Property of the University

A lab notebook is not:

- A journal
- A record of communications
- A place to compile lab protocols/manuals
- Yours to remove from the lab

What should a lab notebook include? (for both paper and electronic)

- **Title page** with the researcher's name, project title, dates used, address of the lab, and signature
- **Table of Contents** listing the page numbers, dates, and titles of experiments
- **Experimental Entries** should include:
 - a. Dates and titles of experiments
 - b. Background information
 - c. Step-by-step procedures and protocols, calculations, reagents, equipment used during experiments
 - i. Reagents: source, product number, lot number, expiration date, how and where stored
 - ii. Solutions and how they were made
 - iii. Cells used: type, source, passage number, growth medium
 - iv. Instruments: type, name, location, serial number
 - d. Observations: anything planned or unplanned, raw data, permanently affixed information with reference to data location
 - e. Data analysis: Processing of raw data, graphs, interpretations
 - f. Results printed and permanently affixed. This includes graphs, tables, figures, and data analysis
 - g. Conclusions
 - h. Ideas for future experiments/edits to current experimental plan

Specific guidance for electronic notebooks:

- Electronic lab notebooks must go through the [IT Security Risk Assessment](#) and be approved to be implemented.
- Electronic lab notebooks should have
 - Robust note-taking capabilities and search functions
 - The ability to embed data and image files and link between pages
 - Secure login
 - An audit trail, including timestamps for when changes are made and by whom
 - The ability to sign and lock notebook pages
 - The ability to export to a common file type, e.g., PDF
- Create a coherent and easy-to-decipher folder hierarchy system to organize information
 - The top-level folder or directory could include the project title, unique identifier, and date (yyyy-mm-dd)
 - Directories/folders within the substructure should be divided by a common theme. For example, each folder may contain a run of an experiment or a different version of each dataset.

- Create a file naming convention
 - Use descriptive files names
 - Consider including the date, initials, and project name:
 - Notebook title: UserInitials-YYYY- Project
 - Experiment entries: NotebookName-ExperimentName-UserInitials-YYYYMMDD
 - Data file names: NotebookName-DataDescription- UserInitials-YYYYMMDD

Specific guidance for paper notebooks:

- Should be securely stored and accessible to the research team.
- Should be hard cover with stitched bindings
- Should be pre-numbered and no pages removed
- Entries must be in ink pen
- Blank space not used (> 3 lines) should be crossed out
- Complete notebook entries in consecutive page order, avoid blank pages or X-out unused pages
- Draw a single line through errors and write the correct information adjacent to it
- Never use white-out to fix error
- Sign/date entries

Lab Notebook Ethics:

All data gathered in the course of an experiment goes into the notebook, even “bad data,” outliers, or failed experiments. Researchers and lab members should not remove pages or mistakes, these should be crossed out and corrected with the dates and initials. Record facts, not opinions, be honest!

Lab Notebook Ownership and Intellectual Property

Laboratory notebooks are owned by the University of California. Individual PIs are responsible for collecting, managing, and retaining data on behalf of the institution. It is the researcher’s responsibility to maintain their laboratory notebook in a format that is intelligible to themselves, their lab, and future researchers. Notebooks and supplemental resources should remain at UCSF when a researcher, student, postdoc, or specialist leaves the University.

Lab Notebook Retention

Lab notebooks should be retained six years beyond close of study unless the funding mandates a longer retention. If the notebook supports a patent application, then it must be kept according to the patent retention period. If there is historic value, these notebooks should be considered permanent, and the records may be transferred to the UCSF Archives for long-term retention. If the lab notebook is subject to a litigation hold, it must be retained until the hold is released. If the data concerns clinical research involving minor or pregnant participants, the records must be retained for 10 years after close of study. Notebooks must be securely destroyed or deleted once retention has been met. [Contact the UCSF Archives for instructions on transferring notebooks with ongoing historical value to the archive collection.](#)

Please contact the [UCSF Records Coordinator](#) for questions beyond this guidance regarding lab notebook retention.

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