

Laboratory Notebook, Field Notebook, or Research Notebook

Paper-based written notes used by many research fields

Paper notebooks are a major documentation method for researchers. As much as possible, notebooks should contain all information pertinent to the research project. When data is digital and can't be added to a paper notebook, the notebook should document where data is stored and how it's organized. All written notes within the notebook should be legible and comprehensible to a peer, in case someone in your research group needs to fill in on your research project.

e-Lab Notebook (ELN)

Enhanced electronic replacement for the paper laboratory notebook (e.g. LabArchives)

e-lab notebooks are digital surrogates of paper laboratory notebooks that offer additional features, such as embedded data files, metadata, and searching. As with paper notebooks, e-lab notebooks should be comprehensive and understandable to peers. While e-lab notebooks are incredibly useful, they should only be used as part of a system set up and administered by a PI and/or the institution. This ensures that files and notes aren't lost and can be exported as needed.

README.txt

Flexible documentation type used for contextualizing digital content

A README file is the starting point for understanding the group of files it accompanies, stating in the name that it should be read first. README files are digital text files in a common format (often .txt or .md, but not exclusively) that provide information about a group of files. README's are flexible and can be used for anything from describing a whole project (giving a project overview and general file layout) to providing nuanced documentation for a small subset of files. For those using a paper notebook, README's can supplement written notes by keeping a copy of the documentation alongside digital data.

Templates: Data Sheet, Collection Sheet, or Field Sheet

Pre-determined format for information to record during a routine procedure such as data collection

Templates help record consistent information for repeated research processes and can be paper or digital. To create a template, determine what categories of information need to be recorded each time you run the research procedure, what units or codes will be used to document the information, and in what order the information will be collected in. Using a template ensures you, and your team, record all necessary information the same way each time.

Data Dictionary

Document describing variables in a tabular dataset

Spreadsheets are rich in data but short on details. A data dictionary provides necessary context for interpreting tabular datasets by defining variables, units, codes, and more. Data dictionaries generally record the following:

- Variable name and description
- Variable units
- Variable coding values and meanings
- Known issues with the data (systematic errors, missing values, etc.)
- Relationships between variables
- Other details needed to better understand the data

Codebook

Documentation for interpreting survey data or analyzing qualitative data

Like data dictionaries, codebooks are supplemental documents that contextualize an, often encoded, dataset. Codebooks are regularly used to document survey data, and can include the same information as a data dictionary as well as summary statistics and further documentation on the survey and its methodology. Codebooks can also be used for analyzing qualitative data, where they describe: codes used to categorize the data; the code definitions; relationship between codes; and examples for when each code applies.

Metadata Schema, Standard, or Taxonomy

Consistent data terminology and/or formatting promoting interoperability and reuse of data (e.g. the ISO 8601 standard for dates, the .pdb file format, or the Linnaean taxonomy)

Wherever possible, use existing standards for documenting research data. This can include a set list of terminology (sometimes called a “taxonomy”), a specific file format, or a documentation/metadata standard. When many researchers use the same format to document their data, it becomes easier for everyone to understand and reuse data. There are different metadata schemas, standards, and taxonomies for different disciplines, so you will need to learn what’s applicable to your data – the Library can help with this!