

A few tips on how to Keep a good Lab Book

- The purpose of the lab book is to record all the information relevant to the experiment, such that any experienced person could reproduce exactly what has been done. It is hard to underestimate the importance of a good lab book, and learning how to keep a good research record is an important skill. It may seem simple, but in reality it requires deep understanding of all parts of the experimental instrumentation and procedures. For example, in the middle of an experiment it is very easy to overlook some parameters that will be important for data analysis later. A well-maintained lab book can save a lot of time on trouble-shooting the apparatus, or on preparation of a lab report or a research paper.
- Start every record with the date, title of the experiment and the list of group members present.
- There is no such thing as a too detailed lab book! Ideally every step and every detail are recorded - but it is often too time consuming and unrealistic. Yet, it is important to make sure that in the process of experiment all relevant quantities are measured and recorded. Also, it is a good practice to write down the background parameters, such as room temperature and humidity, every time you are starting an experiment. Electronic equipment is often sensitive to even a few degree change in surrounding temperature, and monitoring the changes can help to identify those systematic effects. Also, don't forget to record all the default settings on the electronic devices!
- Your lab book must contain an accurate and detailed records of all experimental activities. When performing experiments, one has to keep a running log of everything that happens in the lab book. Data should be recorded as they are collected. Do not try to beautify your lab book by writing the results on a piece of scratch paper to copy them later to the lab book! Try to keep your records straight and clear, but neatness is not the most important quality of a lab book. If you are really obsessed with having everything perfect keep two lab books - one to fill in during experiments, and one for copying everything to without mess.
- Never erase any data from your lab book. If you convinced that some part of the records is incorrect, cross it with a single line such that the text underneath is readable. These “bad” data may be useful for troubleshooting, or they may even turn out not to be wrong. In fact, many of the interesting physical effects were discovered because of some irregularities in the experimental data!
- A lab book is not only for recording the data, it also should be used for data analysis. If you use any external references, put them down as well. That way your lab book will contain all the information related to the experiment.