

Record Keeping

One of the most important skills for a scientist to acquire is the habit of keeping records of his or her experiments. Good experimental record keeping will be of direct value to you as you write up progress reports, manuscripts, and your thesis. It will also be of value to colleagues who try to follow your work and Dr. Garner as he writes up your work for publication and other purposes. Your laboratory notebooks and data are a permanent record of your research activities in our group. You should take care and pride in preparing them. The information contained therein should be readily accessible and usable even after you are gone from the group. To achieve this and maintain uniformity, the following standard protocol for record-keeping must be adhered to by ALL group members. Questions about this requirement should be addressed to Dr. Garner.

A comprehensive description of each experiment that you perform in the group must be recorded in ink in your laboratory notebook and the associated experimental data archived. Your notebook and data belong to Dr. Garner. They cannot leave the lab or be shared with anyone outside of the group without Dr. Garner's permission. Key electronic files MUST be backed up.

A write-up for a typical synthetic experiment typically includes the date of the experiment, literature or notebook references, graphical description, reagent table, detailed procedure, and conclusions. Chemical information, source (vendor or descriptor), raw data, calculations, observations, and notes are to be recorded in your notebook (not on loose scrap paper). Much of this information will not end up in your final narrative but it is an important part of the record nonetheless. Purification (TLC, HPLC, etc.) and characterization (NMR, MS, IR, UV) data are to be clearly labeled.

Each chemical sample from an experiment must be given a unique descriptor consisting of: [your initials].[notebook number].[experiment or page number].[sample number]. Anyone should be able to trace a chemical sample or piece of data to the original notebook experiment through its descriptor.

It should be possible for someone to read your notebook and understand exactly what you did, when you did it, as well as the outcome of the experiment. They should be able to access the associated data. In the case of failed experiments, a tentative hypothesis or explanation should be provided. Some experiments will not involve reactions per se, in which case, the write-up should be modified accordingly.

Your experiments should be written up in a timely manner. This will require you to spend a little time at the end of each day on record keeping. Please make sure that your notebook is up to date when you start work the following week.

Be aware that your ability to develop and maintain good record-keeping habits will determine how successful you will be as a professional scientist. Prospective employers will want to know whether you possess this skill!