

Your laboratory notebook should be an accurate record of what you do in the lab, and should contain notes and calculations as well as appropriate comments to the lab you're working on. **A major function of a lab notebook is to allow another competent scientist to reproduce exactly your experiment.** I will use your notebook to write papers and make decisions of experiments in the future. If I can't read the notebook then I can not reproduce the experiment!

If the experiment worked or did not - you **MUST** include the results and a short interpretation in the lab notebook. Waiting until the experiment is over and then writing it up is **NOT** appropriate or allowed. If an experiment failed, there is info that will help us. Write it down, don't skip it.

Finally, when taking notes for the lab (lecture or self made notes) or when doing protein structure work and bioinformatics searches, these should each have their own entry in the lab book. Your lab book is a place to keep ideas for your project and notes for what to do. Your notebook is an all-inclusive repository of your science. Simply give the notes their own entry in the table of contents.

START each experiment with your lab book. If there is a printed protocol, tape it in. **BUT** still use a flow diagram or simple bullets to record the flow into your notebook. Rarely does a protocol describe every step as you do it. **MAKE SURE** you write down changes from the protocol and actual times, concentrations, temperatures that deviate from the protocol. Write down volumes, concentrations and other pertinent information as you go. Record everything as soon as possible. **DO NOT** save on a separate piece of paper for later.

ELECTRONIC DATA: images, blots and other data that is electronically saved **MUST** also be printed and placed in the book. **INCLUDE** the file name of each image with the printed version. The electronic filename must include the experiment date and your initial so we can trace between the lab book and the file. Gel one, or Jane's CHP blot is not enough. At the same time - keep a neat file with your name on the computer to maintain a record of your data. Random files on the desktop is not an appropriate way to archive your data.

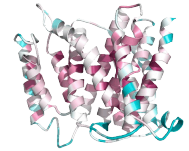
Table of Contents: The first five pages are for the table of contents. Use a roman numeral for these pages on the bottom right. Each entry will have the title, date and page of the start of the experiment.

Experiment Number

- In the upper right hand corner of each page of your notebook you should indicate the experiment number.
- Experiment number will be the date the experiment started and your initial.

- Example, if Dr P starts an experiment on June 3rd 2015. The *experiment number* is **JP6/3/2015** or **JP June 3 2015** use this experiment number on all further experimental entries.

Be consistent in your numbering.



- For experiments that last more than one day, include the page number the experiment is continued if there is an intervening experiment. For example an experiment that you start to starve cells, treat them overnight, add hormone on day two and then blot for some phosphorylation may take four days with a couple of days before the blot is conducted. All portions of the experiment will be associated with the start of the experiment and not get a new start date for each part of the experiment. All samples and files from that experiment will use the experimental date... even if you blot something one week after starting the experiment, the sample and notebook entry will use the start date/experiment number and not the date the blot was conducted.

Date: The date should be given in the upper right hand corner of each page of the notebook, immediately below the experiment number.

Title: Use an intelligent title, not just the name of the experiment copied from the laboratory manual. Pick a title that describes the content of your work.

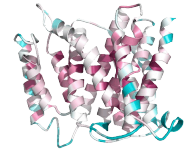
Introduction/Purpose This section should include a two or three sentence statement of the purpose(s) and objective(s) of the exercises being performed.

Procedure / Protocol or Methods

- Write a description of procedures used including any deviations from the information presented in the laboratory handout.
- If there is a published exact protocol, then reference the protocol or procedure AND include a simple outline, flow chart or description of the referenced protocol. DO NOT PRINT AND TAPE the protocol into the notebook.
- When you have to repeat a routine operation several times, such as a protein assay, you can skip the details and refer to the specific page in the notebook where the procedure was originally described.
- If you are repeating a protocol already performed or taped into the book, reference with "as done JP 3 June 2015 page 34" AND include any changes or alterations. There will always be changes and alterations.
- **The title, introduction/purpose and materials and methods sections should be completed before starting lab.**

Data and Results

- All data and observations that are generated should be recorded in your laboratory notebook at the time of the exercise. This should include recopying any tables, graphs, formulas or other information from the laboratory manual. Also, tables of the data collected that day and graphs of that data should be included if appropriate. This section should include all calculations, averages and corrections to the recorded data.
- All information should be neatly presented with graphs and tables labeled appropriately. Graphs can be prepared using the computers in the laboratory and then taped into notebooks.
- for antibodies - include the company and cat number.
- If there are changes in incubation times, washes or culture - include this information.



- Cell culture information to include: cell passage, density at time of experiment. If using bacteria was the culture started from a freshly transformed cell or from glycerol stock... all of these observations will help with consistency and interpretation

Discussion and Conclusions

- This section should include any interpretations, conclusions, or suggestions regarding the results of that day's exercise. A discussion of the expected results and why they were or were not obtained should be included. THIS IS NOT A SUMMARY OF EVERYTHING THAT HAPPENED DURING THE EXPERIMENT THAT DAY. THIS IS A ONE OR TWO SENTENCE DISCUSSION OF THE DATA AND FINAL RESULTS. NOTE ODDITIES OR ABERATIONS OF THE EXPERIMENT. WHY DID YOU DO THE EXPERIMENT? RESULT ON THAT TOO...
 - A good discussion might include:
 1. What were the major points illustrated by the data?
 2. Do the results agree with previously published works?
 3. Is the data contradictory in itself?
 4. Does your research have potential for follow-up experiments?
 5. Do your results support or disprove your hypothesis?
 6. Are your results dramatically different than what was anticipated and if so why?

References

- Include any references that were consulted for the experiment or cited in the report. Minimally, this should include your laboratory manual.
- References should be presented in alphabetical order by the last name of the first author.

Other Notes

1. Use only pen.
2. If mistakes are made in recording information into the notebook, do not erase or use white out. Instead, draw a line through the mistake and then continue recording the correct information.
3. Since this is a course, taking notes in the laboratory notebook is allowed. Simply give the notes a number and a title.
7. Do not use different color pens or pencils in different parts of the notes or figures. Colors do not photocopy effectively.
8. Tape computer-generated graphs into your notebook.
9. This is not a personal diary and references to that affect should not be included.
10. Show your calculations in the data/results section. Often if an experiment does not work it can be tracked down to a miscalculation.
11. Remember your results from the exercise are important. You are not being graded on the outcome of experiments therefore you should strive for the most accurate and intelligent representation of your data possible.
12. Don't leave blank spaces and use space efficiently.