

Introduction to Laboratory

Expectations

Because we are conducting actual research, you must take responsibility for the quality of your data and analysis. This does not mean that you will make no mistakes. Of course you will strive to avoid mistakes, but more importantly you must attempt to identify any results that are less than reliable. A small amount of high-quality information is preferable to a mountain of data or analysis that we can't trust. If you get no results on your first attempt, or if you detect contamination, you may need to work outside of scheduled laboratory hours.

Homework

I will post information on the web for you to read before you come to lab. You do not need to print these things out, but please read the laboratory protocols and any assigned background material before you come to lab.

In the past, I re-wrote manufacturer's protocols so that they were easier for students to follow. I have decided that that approach does not adequately prepare you for real life, so we will work from manufacturer's protocols whenever possible.

Experience from previous years has taught me that quizzes will be necessary to make sure that students come prepared to lab. These quizzes may be unannounced.

Lab notebooks:

My philosophy is that the lab notebook has two purposes:

- 1) to keep a record of exactly what was done and when
- 2) to facilitate trouble-shooting

My requirements for lab-notebook keeping may appear to be more lax than those in other courses you have taken. For example, we do not expect you to write objectives or interpretations in your lab notebook. I do expect:

1. A table of contents that refers to page numbers.
2. The date in your book should match the date on any tubes you generate.
3. A description of methods. It is ok to say "used Qiagen columns as directed on pages xx" when your methods don't differ from those of the manufacturer AT ALL. Make sure to include the name of the manufacturer of any products that we use (other than basic reagents). Make sure to indicate what you did if there were any optional steps or choices.
4. The quantities of ingredients of any recipes must be specified exactly in your notebook, even if they are the same as those listed. These are not usually provided by any manufacturer.

5. If at any time you depart from the written protocol you must indicate this in your notebook. (For example, waited 3 extra minutes before second centrifugation.)
6. You will need to include labeled photographs of your gels. Be sure that it is easy to identify what has been run out in each lane, and indicate the length of bands used in the molecular size marker ("ladder"). Be sure to indicate how you quantified DNA or PCR products. I would not recommend drawing the gel...just wait till you get the photo and then label it thoroughly. You will save yourself a lot of grief if you always load samples in alpha-numeric order.

Grading

Your laboratory grade will be worth 1/4 of your total course grade. The laboratory grade will be based on the following:

1. Quality of notebook, according to the above guidelines, as assessed by random checks.
2. Quizzes.
3. Neatness. I will deduct two points off of your lab grade every time I need to clean up after you have left. The lab should look as clean and orderly after you leave as when you came in.
4. Results: Did you obtain clean data? Did you repeat work if necessary? Is your analysis of the data thoughtful and complete? Did you produce a high quality poster or presentation?