Biological Chemistry 270 Laboratory

Hamilton College, Spring 2015
Wednesday or Thursday 1-4PM, TSC 1080

Instructor:	Prof. Adam W. Van Wynsberghe avanwyns@hamilton.edu TSC 1063 (315-859-4309) Skype or gchat: avanwyns
Office Hours:	MT 11AM-12PM; T 3PM-4PM, TSC 1063 or by appointment
Required Materials:	Laboratory notebook, pen(*no pencils!*), safety glasses, lab coat, and calculator

Attendance

Attendance in laboratory is required for every experiment during your assigned time. The Dean of Students must approve all absences from lab, even because of illness. If you suddenly become ill before lab, call or email me and go to the Health Center. Contact me as soon as possible to schedule makeup labs. Unexcused absences will result in a grade of zero. ***You must receive a passing grade in the laboratory section to pass Chemistry 270!***

Laboratory Safety

Appropriate clothing including safety glasses, close-toed shoes, and long pants must be worn at all times. Failure to comply will result in dismissal from the lab. No drink bottles, food, or gum is permitted. If you have a condition that might result in a seizure, loss of consciousness, or other situation that might endanger your safety or the safety of others in the laboratory, please inform Professor Van Wynsberghe as soon as possible.

Students with Disabilities

Hamilton College will make reasonable accommodations for students with properly documented disabilities. If you are eligible to receive an accommodation(s) and would like to make a formal request for this course, please discuss it with me during the first two weeks of class. You will need to provide Allen Harrison, Associate Dean of Students (Elihu Root House; ext. 4021) with appropriate documentation of your disability.

Lab Notebook

It is important to keep a neat and well-organized lab notebook. The lab notebook serves as a record of what you have done. In essence, it is your laboratory diary. For the notebook, function is much more important than formatting; however, a notebook that contains all the necessary information but is impossible to read or follow is useless. At the end of every week you will hand in the original pages of your notebook while you keep the copies. All notebook entries should be made in pen and the first pages should include a Table of Contents for easy reference to your experiments. The format of the rest of your notebook should roughly follow the following scheme:

Prior to Lab:

Title and Date of Experiment

Introduction:
This consists of a few sentences that clearly state the biochemical goal and techniques you will use to achieve that goal.

Methods:
You should clearly describe *in detail* the procedure you will be using to perform your experiment. Necessary details include solution concentrations, pH, ionic strengths, and temperatures. Be succinct but include all useful information. You may write in either sentence/paragraph form or bullet-list, but I find a step-by-step list to be more easily readable and useful while in lab.

During Lab:

Data and Observations:
Record all raw data in an easily-read format (tables!). Record any observations and interesting experimental notes that you make during the experiment. These are important for reflection if troubleshooting of any experiment is necessary. Also include any alterations of the procedure as you actually perform it. The Methods section you prepare before lab helps you organize your work, but you also need to record what you actually do. Plans always (and should) evolve as you perform an experiment; keep track of that here.

Conclusions:
Provide a conclusion that summarizes the outcome of the experiment, any important alterations you made in the methods, and any difficulties you encountered.

Lab Report

Each week you will write up your findings from your experiments in a lab report. Your reports only need to contain a Results and Discussion and a Conclusion section. Your work will be evaluated on the professional presentation of your data, the analysis of the data, and the conclusions you draw from your analysis. Each report should contain the following sections.

Results and Discussion:
In this section you should present and interpret your data as well as answer any questions from the lab handout. Nontrivial calculations should be presented and explained. Data should be presented neatly in labeled Figures or Tables with appropriate captions. For help in making high-quality figures, consult the Data presentation Style Guide posted on Blackboard. Interpreting your data necessarily includes a discussion of how experimental error (not human error!) may have affected your results.

Conclusion:
Summarize the key ideas from your experiment in approximately a paragraph. Were you able to successfully answer the question the experiment was designed to answer? Why or why not?

Lab reports in this section will be turned in, graded, and returned entirely electronically. Lab reports are due at the beginning of your lab section the week following the completion of the experiment. Reports **must** be PDF documents and adhere to the following naming convention: *LastName_FirstName_ExptName.pdf*. In the header of your lab report be sure to include your name and email address.

To submit your lab report, connect to the Hamilton academic server (directions for doing so are here: http://www.hamilton.edu/its/rc/accessing-the-academic-server) and navigate to Departments/Chemistry/Chem 270/AVW_Lab_Sections. In this directory you will find a directory labeled "Dropbox". Simply drag and drop your lab report into this folder. You will not be able to see your file once it is put in the Dropbox. Treat this very much like an actual physical box with a hole in it. Once you place a document into it, you will not be able to see, edit, or retrieve it.

Honor Code

All Hamilton College policies regarding ethics and honorable behavior apply to this course. Academic dishonesty, including any form of cheating, is regarded as a very serious offense and may result in a failing grade in the course. Both your lab notebook and lab reports must be in compliance with the honor code. Directly **copying** from either a handout or the lab manual is considered academic dishonesty. Presenting data that you did not personally collect without citing its source is academic dishonesty. Please review the Code of Student Conduct if necessary: http://www.hamilton.edu/college/student_handbook/guidingprinciples.html.

Grading Scheme

5 lab reports	40%
12 sets of notebook pages	24%
Project Proposal	10%
2 Project Progress Reports	6%
Project Presentation	20%

Laboratory Schedule

Week of	Laboratory Exercise
Jan. 19th	Check-in
Jan. 26th	Experimental Determination of amino acid pKa's
Feb. 2nd	Experimental Determination of amino acid pKa's*
Feb. 9th	Separations
Feb. 16th	Separations*
Feb. 23rd	Protein Quantitation*
Mar. 2nd	Molecular Modeling*
Mar. 9th	Kinetics
Mar. 16th	No Lab-Spring Break
Mar. 23th	No Lab-Spring Break
Mar. 30th	Kinetics and Project Proposal Due
Apr. 6th	Visualization of Tyrosinase*
Apr. 13th	Independent Project
Apr. 20th	Independent Project
Apr. 27th	Independent Project
May 4th	Project Presentations

*indicates the completion of work for a report