

Biochemistry Lab, Fall 2016 (CHE4611)

Purchase College

Professor Information

Professor Elizabeth Middleton
Elizabeth.Middleton@purchase.edu
Office: NS 3040
Office phone: 914-251-6692
Office hours: Mon and Thu 2:15-3:15pm, Wed 2-3pm, or by appointment

Learning Assistant

Solomon Johnson, solomon.johnson@purchase.edu

Course Meetings

Wednesdays 8:30am-12:10pm
We will meet in NS 3046 (Einstein Corner) for a prelab lecture at the beginning of lab. The experiment will then be carried out in NS 3018.

Required Texts and Materials

- Experiments will be posted on the course Moodle site for you to access and print.
- You are required to obtain a lab notebook for this course. It should be a carbon copy notebook that produces white or yellow copies (not blue) that tear out.
- You should also bring your own set of lab goggles to wear if you have them. Extras will be available to borrow if you forget yours.
- You should bring a calculator, pen, and drawer key (provided week 1) to lab every week.

Course Description

This course will provide you with a base of experience conducting biochemical experiments. You will perform techniques such as column chromatography, protein purification, enzyme assays, gel electrophoresis, and fluorescence spectroscopy. You will practice good laboratory technique, keep an organized notebook, and write laboratory reports.

Student Disabilities

Students with documented physical, learning, psychological and other disabilities are entitled to receive reasonable accommodations. If you need classroom or testing accommodations, please contact the Office of Special Services at 251-6030 or COU.accommodations@purchase.edu. Students must also inform the professor **at the beginning of the semester** so arrangements can be made.

Purchase College Academic Integrity Policy

The purchase college academic integrity policy (www.purchase.edu/policies/academicintegrity.aspx) explicitly forbids cheating, plagiarism, and other forms of academic dishonesty. Plagiarism is the appropriation or imitation of the language, ideas, and/or thoughts of another person and the representation of them as one's own original work. **Students are responsible for familiarizing themselves with the definition of plagiarism and acceptable methods of attribution.** Students who have any questions or doubts about whether any activity is academically permissible should check with the instructor.

Collaboration

You will work with a partner for all lab experiments. You are welcome to collaborate with your fellow classmates on pre-labs and lab reports. However, **you should not copy work directly from someone else and should never submit a notebook or lab report that is identical or has identical portions to that of another student.** All calculations, graphs, discussions, etc. should represent your unique work in the course. **If you have any questions regarding this policy, please speak to Prof. Middleton.**

Lab Expectations

- Attendance in this class is required for every session.
- It is critical that you arrive on time so you don't miss important instructions during prelab and you can finish each experiment on time. **Late arrivals will affect your participation grade.**
- Cell phones, iPods, laptops, etc. may not be used in lab unless specifically authorized and should be stored under your bench or in a backpack. This will prevent distraction as well as damage to your electronics.

Lab Attire

- Clothes must cover from your knee to your neck
- You must wear close-toed shoes that cover your entire foot
- Long hair should be tied back
- Goggles must be worn at all times
- Additional lab safety items are addressed on a separate safety sheet

Communication

The best way to get in touch with your professor is by stopping by during office hours or by email. You can also call the office phone or set up an appointment to meet at another time. You are expected to check your Purchase email daily and the class Moodle site regularly for important information about the course. When emailing please write in complete sentences, use capitalization, and use correct grammar.

Lab Partners

You will each select a lab partner and work with that person for the entire course in the lab, though your professor may make changes to the lab partners during the semester. You and your partner will produce and turn in **separate and distinct notebooks and lab reports**, including unique discussions, calculations, graphs, etc.

Schedule of Experiments and Due Dates

Updates to the schedule will be posted on the course Moodle calendar and experiments will be available for download on Moodle.

Date(s)	Experiment
9/7	Check-in and safety Acid-base properties of amino acids
9/14, 9/21, 9/28, 10/5	Isolation and characterization of lactate dehydrogenase
10/12, 10/19	Protein gel electrophoresis or Intro to HPLC lab
10/26, 11/2	HPLC lab sample running
11/9, 11/16	Enzyme kinetics of carboxylesterase or HPLC lab analysis
11/23	No lab (Thanksgiving)
11/30	Fluorometer fruit juice lab and Check-out
12/7	May be used for rescheduling or Check-out

Course Requirements

Grade Distribution

Course Requirement	Percentage
Attendance and participation	10%
Notebook	40%
Lab reports (4)	50%

Final Grades

Highest	Lowest	Letter Grade
100	93	A
92.99	90	A-
89.99	87	B+
86.99	83	B
82.99	80	B-
79.99	77	C+
76.99	73	C
72.99	70	C-
69.99	60	D
59.99	0	F

Formal **Lab Reports** will be completed for four experiments; details to come!

Attendance and Participation

- On-time attendance and participation are required for every lab. If you miss a lab, you will receive a zero for that week.
- There will be **no make-up labs**. Accommodations for missed labs will be made only in the event of an emergency.
- Your attendance and participation grade will depend on your **on-time** arrival, behavior in lab (following verbal and written instructions, dressing appropriately, correct use of equipment, good safety procedures, etc.), and success in performing experiments (including competence with experimental techniques and quality of results).

Notebook

Your lab notebook is the permanent record of everything you do in lab and should contain enough detail that another student could replicate your experiments. The information in your notebook includes portions written before, during, and after lab. You should always write in pen, write legibly, and keep your notebook organized. You should never tear an original page out of your lab notebook; simply cross out any mistakes and keep going. Clearly write your name and your lab partner's name on the front cover of your notebook. If you have questions about what information or how much detail to include, please ask! A good rule of thumb: You should be able to complete the lab using only your lab notebook, not the lab handout.

Pre-lab

Before lab each week, you should thoroughly read the procedure for the lab and put the following information in your lab notebook. For multi-week labs, you only need to complete the pre-lab one week at a time. Your professor will sign off on your pre-lab notebook before the pre-lab lecture.

- **Date and Title**
- **Purpose:** What do you intend to accomplish by performing this lab? Why is it important? What will you learn? Generally 2-3 sentences is sufficient.
- **Materials:** List all reagents that will be used, any known hazards of these chemicals, calculations for preparing solutions (if instructed), and any other useful information. You should consult the MDS document for each chemical to learn about its hazards.
- **Methods:** List each step you will take to carry out the procedure as an instruction (Example: Pipet 1mL of buffer into the test tube). You might find it useful to number the steps. Do not copy directly from the experiment handouts; practice putting the procedure in your own words when possible so you best understand what you'll do in lab. You should write your methods on the left side of the page, leaving room to add observations/results on the right.

During lab

Each week, you will record your observations and experimental outcomes in the results section as you carry out the experiment and interpret those results in the discussion section.

- **Results and Observations:** note if steps were successfully completed, any deviation from protocol, exact volumes or masses used, color change or precipitation, any data collected (numbers, drawings, descriptions), calculations, charts or graphs, etc. These may be placed next to the relevant step in your methods or at the end of the methods if you run out of room. **You should have significant results and/or observations recorded after each lab.**
- **Discussion:** Write 1-2 paragraphs discussing your findings and/or what you accomplished that week. You should summarize your results, explain why they are significant, discuss your progress towards an overall goal for a multi-week experiment, note any possible causes of unexpected results, explain any sources of error, etc. You should write a discussion **every week**, even if you haven't completed all weeks of the lab. If any specific discussion questions are provided for a particular lab, be sure to address them!

After lab

At the end of each lab, you will turn in carbon copies from your notebook for grading, including all of your work from before and during lab. You will complete the discussion section before turning in these copies at the end of lab, unless there are extended calculations, graphs, or other reasons that you are given extra time to complete the discussion.