

Chem 420 Biochemistry Laboratory Spring 2022

When and where: Tuesday from 1:00 to 4:50 PM in ISC 1036

Instructor: Douglas Young

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Office Hours: by appointment

During the initial experiments of the semester, the focus will be on protein biochemistry: protein purification, quantitation, characterization and enzyme kinetics. The remaining experiments of the lab will be devoted to molecular biology techniques and DNA manipulation. After completing this course, you should have a solid grasp of the "tools" that biochemists use to study biological macromolecules.

Schedule of Experiments*

Experiment	Dates	Experiment Title
Introduction	2/01/22	Syllabus and Pipette Practice
1	2/08/22 2/15/22	Isolation of Spinach Chloroplasts
2	2/22/22 3/01/22 3/08/22	Purification and Characterization of Lactate Dehydrogenase
	3/15/22	BREAK!!!!
PAPER	3/22/22	Paper Discussion
3	3/29/22	Chymotrypsin Kinetics
4	4/05/22	Transformation of <i>E. coli</i> with pGLO/GFP expressions; UAA introduction
	4/12/22	Purification of Green Fluorescent Protein expressed in <i>E. coli</i> and characterization of fluorescence
4,5	4/19/22	GFP SYMPOSIUM; Plan Experiment 5
5	4/26/22	DNA Techniques
	5/03/22	<i>Closing Ceremonies; Final Report Due</i>

* Due to the considerations of COVID this is a tentative schedule, and some experiments may be added/removed based on the ability to attend lab in-person.

Supplementary Course Materials Catalogs from companies such as Promega, ThermoFisher and Bio-Rad are valuable resources for information about biochemistry and molecular biology products and techniques. These companies also have very helpful websites where you can download information.

You will be graded as follows:

Laboratory Reports

Experiment 1 - report with flowchart and questions to answer	15%
Experiment 2 - report with calculations and questions to answer	15%
Experiment 3 - calculations worksheet, report and questions to answer	10%
Experiment 4 - oral presentation and report	15%
Experiment 5 - report and questions to answer	10%

Laboratory Notebook and Technique 35%

Laboratory Reports are due at the beginning of lab on the Tuesday following completion of the experiment. For example, Experiment 1 will be completed on 2/15/22. Therefore, the report is due on 2/22/22. These written reports will be **brief** with only 2-3 pages of text plus additional pages for tabulated data calculations and figures. Late assignments will incur a 10% deduction. An additional 10% deduction will be taken for each day that the assignment is late.

Laboratory Notebook and Technique: Rather than using a bound notebook, every student **will be required** to keep an organized 3-ring binder with all lab handouts as well as all raw data gathered in lab. Handouts for each experiment will be posted on Blackboard. Raw data should be tabulated and clearly recorded; sample calculations should also be shown. Remember - the purpose of a notebook is to record what you did so that the experiment could be repeated successfully. Graphs and computer printouts should be kept in this binder. Lab binders will be inspected routinely and suggestions for improvement will be given.

Absences: There are no make-up labs. If you must be absent from a lab because of illness or another acceptable excuse (as determined by the instructor), you should consult the instructor before the lab if at all possible. In this situation, your other completed assignments will count for a greater percentage of your grade. Unexcused absence will result in a grade of zero for that lab.