

BIOL/CHEM 328 LAB

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Course Information:

- Laboratory on Thurs 12:45-3:45 in HOSCI 209

Course Goals

- To gain hands-on experience with (and understand the basic theory behind) some of the laboratory methods used to isolate and investigate biochemical systems
- To become familiar with a variety of data bases that contain information about the structure and function of these biological molecules (bioinformatics)
- To develop more problem-solving and critical thinking in the laboratory

Required Materials

- A USB memory stick to save copies of lab data and other pertinent electronic course files

Black Board Web Site

Throughout the semester laboratory procedures, pertinent links, reminders and other material will be posted to the course blackboard page. Please access this page early and often!

Attendance Policy

Your presence is expected in all laboratories). As a reminder, the college policy on attendance can be found in the 2008-2009 student handbook¹, p. 21. If you anticipate an unavoidable absence (due to an extenuating and documented² circumstance), please notify the instructor as soon as possible, particularly since makeup laboratories are likely not an option.

Academic Honesty Policy

Please be familiar with the college policy on academic honesty (in the 2008-2009 student handbook¹, pp. 8&33-38) that applies to this course. In addition, throughout this course, each student may exchange experimental details and data with her/his lab partner and classmates. However, any work submitted in your name is to be your work alone. You may discuss work with others on assignments and labs, but merely copying answers is not acceptable.

Grading

Your performance in, analysis of, and scientific writing about laboratory experiments are the basis for a significant portion of your assessment in this course (**25% of your course grade**). Since I can only assess your work in lab if you are present, and you will only have writing material for your lab assignments if you actually perform the experiments, you should be present for and intellectually active every laboratory meeting of this course.

Part of your lab grade will come from how well you **perform** in lab. Factors affecting this grade include your preparation, safety, work efficiency/technique, and equal task-sharing with your partner in the lab. To prepare for lab each week, please:

- Read each experiment before coming to lab (procedures will be posted to course web site ahead of time)
- Have a general idea of what you will do in lab that day (and in what sequence)
- Look up the MSDS (see blackboard link) for each potentially hazardous chemical that you have not worked with before

¹ <http://www.moravian.edu/studentLife/handbook/Handbook08.pdf>

² Your instructor will expect documentation from a health professional or academic dean regarding missed exams or laboratories.

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Your **electronic laboratory notebook (ELN)** serves many purposes. It is a diary of your time spent in lab, and a complete record of your experimental procedure, data, observations and ideas. Proper documentation of your work could provide the information needed for publishing a paper, writing a thesis, obtaining an award (NOBEL ! \$), getting a raise from your employer (\$), or receiving a patent (\$ \$). While experiments in this lab are unlikely to result in any of the above, we must practice! Please observe the following in your laboratory record-keeping (any of these aspects are fair game for assessment):

- Write legibly with the stylus. Do not erase any mistakes. You may cross-out erroneous entries but they must remain legible. Be sure to explain any such errors.
- Write directly into your notebook. When preparing for lab, reading literature for lab, and during lab, be sure to take notes directly into your notebook. A clear outline format in your notebook, without full sentences, is just fine. Be concise!
- Include references. If you find an important/pertinent piece of information someplace else (such as in a book, catalogue, journal article, or on a reputable web site) copy the reference information directly into your notebook – Include enough information so you could find it again if you had to!
- Format. The notebook entry for an experiment will generally include:
 - TITLE, DATE, LAB PARTNER.
 - OBJECTIVES/GOALS. Outline the important aspects behind the experiment, its design, and what you hope to accomplish. **This should be original work from each lab partner.**
 - PROCEDURE. Outline what you DID in lab, not what you SHOULD HAVE done. For procedure details you may hyperlink the lab handout, but be sure to note any modifications of the procedure.
 - RAW DATA. Record all data directly into your notebook or an Excel spreadsheet and never on loose paper. Data should be clearly and neatly labeled.
 - RESULTS. Show sample calculations for all spreadsheets. Label all data tables and graphs clearly, including relevant units. When possible, insert images of all spectra obtained on other instruments.
 - DISCUSSION. This is the section for critical analysis. You can list the main conclusions (full sentences not necessary!) and support them by referring back to specific results. Where appropriate, identify potential sources of error and predict how each would affect your results, and indicate further work that could be done and briefly explain its impact on the study. **This should be original work from each lab partner.**

Your completed **ELN (20 pts/week)**, or an alternative lab assignment is due by 5pm on the Monday following laboratory.

TENTATIVE Laboratory Schedule

<u>Week of....</u>	<u>Laboratory</u>	<u>Week of....</u>	<u>Laboratory</u>
1/19	Membrane Assymetry	3/9	LDH
1/26	Membrane Transport	3/16	Proteomics
2/2	Membrane Transport	3/23	Proteomics
2/9	Enzyme Coupled System	3/30	Proteomics
2/16	Thermodynamics by NMR	4/6	EASTER BREAK
2/23	NMR of Glycolysis	4/13	Proteomics
3/2	SPRING BREAK	4/20-4/27	Proteomics