Spring 2011

BIOL/CHEM 328 LAB

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Course Information:

- Laboratory on Fri 1:15-4:15 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 skills in the laboratory
- To summarize experimental procedures, acquired data, analysis, and thoughtful discussion in an open access electronic format, a Wiki!

Required Materials

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:
Your presence is expected at all laboratories. As a reminder, the college policy on attendance can be found at http://www.moravian.edu/studentLife/handbook/academic/academic.html If you anticipate an unavoidable absence, please ***notify me ASAP before*** you are absent. Makeup labs are given at the discretion of the instructor.

Academic Honesty:
Please be familiar with the college policy on academic honesty http://www.moravian.edu/studentLife/handbook/academic/academic2.html Because this course involves small group learning, each student may exchange experimental details and data with her/his lab partner and classmates. You are encouraged to discuss work with others, but merely copying answers is not acceptable.

Learning Differences: Students should contact the Office of Learning Services for disclosure of a learning difference and to request appropriate amendments to this course http://www.moravian.edu/studentLife/handbook/academic/academic4.html

Grading
Your performance in, analysis of, and summary writing of laboratory experiments are the basis for a significant portion of your assessment in this course (**25% of your course grade, 333 pts**). Since I can only assess your work in lab if you are present, and you will only have writing material for your lab documents 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)

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Labs: Twelve laboratory experiences (25 pts for each lab) consisting of:

• ELN write up and summary data posted to the lab wiki	10pts
• Writing of assigned Wiki section	8pts
• Group participation, being on time, and working safely	3pts
• Contributing to other lab wiki sections	4pts

Your *lowest lab score will be dropped* at the end of the term.

• 11 lab scores	275 pts
• Presentation on Proteomics Project	58pts
Total	**333pts**

Each group will record lab notes for this course in an **electronic laboratory notebook (ELN)**. The ELN is typically a MS-word file with digital ink of what you did in lab. This document should be saved on the local T: drive incase your computer crashes during lab, and you will need to upload your groups notes to the class Wiki before you leave lab each week.

- 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.
    - PROCEDURE. Outline what you DID in lab, not what you SHOULD HAVE done. Note any modifications of the procedure given in the lab handout.
    - 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.

Lab Wiki: The class will develop a Wiki page on blackboard for each week of lab. The Wiki will have four parts. See http://usefulchem.wikispaces.com/Exp257 for an example

1. Summary Figure and Objective
2. Procedure
    a. A general description of the procedure should be placed in this section along with a link to the lab handout
    b. Detailed additions or modifications to the lab procedure should be noted here
3. Results
    a. Everyone will upload their ELN notes from lab to this section before leaving lab. For labs that require Excel calculations, spreadsheets will also be uploaded to this section.
    b. Summary figures and graphs go into this section
4. Discussion

a. This section will discuss the data and make summary conclusions about the lab.

Each week a group will be responsible for writing a section of the Wiki by 5pm on the Monday following lab.

After these initial Wiki entries are made, the rest of the class is expected to then add and edit the content of Wiki before 5pm on the Wednesday following lab. The Wiki will then be closed to editing, and will be graded.

TENTATIVE Laboratory Schedule

Friday	**Laboratory**	3/11	**SPRING BREAK**
1/21	Membrane Permeability	3/18	Proteomics 1
1/28	Membrane Transport 1	3/25	Proteomics 2
2/4	Membrane Transport 2	4/1	Proteomics 3
2/11	Enzyme Coupled System	4/8	Proteomics 4
2/18	Thermodynamics by NMR	4/15	Proteomics 5
2/25	NMR and GCMS of Glycolysis	4/22	**EASTER BREAK**
3/4	Maldi Protein Identification	4/29	Presentations