

SYLLABUS
CHEM-405L Biochemistry I Lab
Dr. Osborne

Course Objective. The objective of this 400 level lab course is to develop independent skills in protein and lipid biochemical techniques.

Office Hours. My office is in room 313 SciC and office hours are posted. My email is jposborne@manchester.edu and I will try to respond to your queries within 24 hours, either by email or by addressing them in class.

Course Description. The laboratory experiments in this course are relatively elaborate. Often, the experimental procedure will require that you work for an hour or two, wait a few hours, and then come back to work some more. Since the equipment we have is often a rate-limiting step in a procedure, you will need to coordinate with each other's schedules. Lab experiments and pre-lab assignments will be posted by the week before class on Canvas. Print them out and bring them to lab.

Course Policies.

Safety. Safety procedures must be followed at all times. In particular, goggles need to be worn and lab ware or chemicals may not be removed from the lab. Failure to follow these safety instructions can result in failure of the course.

Academic Dishonesty. Cheating and plagiarism in the form of taking credit for someone else's work, thoughts, or conclusions without giving that individual proper credit will not be tolerated. Some other examples of cheating include using notes or looking at a classmate's paper during a quiz or exam, copying portions of someone else's work in your enzyme paper, or using the published ideas of another person without assigning credit to them by using a reference. For more specific information concerning the consequences of cheating and plagiarism, read the college catalog on "Plagiarism" and "Academic Dishonesty." Also, the "Academic Dishonesty and Grievance" document on Canvas has more details.

Diversity. To maintain a welcoming and respectful classroom environment, disrespect of other students, in the form of verbal or written threats, attacks, or insults on the basis of gender, race, physical disability, physical stature, culture, socio-economic class, creed, sexual preference, mental disability or any form of social group membership will not be tolerated.

Student Disability and Reasonable Accommodation Statement. Manchester University, in compliance with federal guidelines, is committed to assuring students with disabilities equal access to programs and activities that are provided to students without disabilities.

Any student who feels she or he may need an accommodation based on the impact of a disability should contact Audrey Hampshire, the Director of Academic Support and Disability Services, to establish eligibility and to coordinate reasonable accommodations. It is the student's responsibility to self-disclose the disability. Students whose accommodation requests are approved will be provided with confidential letters to deliver to their professors which verify the nature of the student's disability and document the need for auxiliary aids and services and/or academic adjustments/accommodations. Students are encouraged to meet with each professor early in the semester to discuss the academic implications of the disability as they relate to the specific course and to request appropriate accommodations. The Disability Support Services Office is located in the Success Center

(second floor of the Switzer Center). Students may call (260) 982-5036 or (260) 982-5888 to schedule an appointment.

Medical Emergency Evacuation Schedule. Students should speak to the instructor immediately if (1) they may require medical attention during class, or (2) they have a disability, chronic condition, or a temporary injury that may limit or affect their ability to evacuate the classroom/building in an emergency. The student and the instructor should discuss the student's specific needs and the types of precautions that should be made in advance of such an event. In the event of a fire or other situation requiring emergency evacuation, students with ambulatory disabilities are to go with or without assistance to the nearest stairwell area. Faculty and staff will assist with evacuation management efforts until such time as the Campus Safety and/or Police and Fire Departments arrive on the scene to assist in student evacuation from the building. Elevators are not to be used for evacuation by any persons.

Students who need special arrangements in the event of an evacuation should also register with Audrey Hampshire as early as possible in the semester to help facilitate the provision of needed emergency assistance.

Diversity. Disrespect of other students in the form of verbal or written threats, attacks, or insults on the basis of gender, race, physical disability, physical stature, culture, socio-economic class, creed, sexual preference, mental disability or any form of social group membership will not be tolerated.

Title IX reporting requirements. While students should feel comfortable approaching the professor with issues they may be struggling with or concerns they may be having, students should be aware that faculty members have some reporting requirements that are part of their job duties at Manchester University.

For example, if a student informs a faculty member of an issue of sexual harassment, sexual assault, or discrimination, the faculty member will keep the information as private as possible, but the faculty member is required to bring it to the attention of the institution's Title IX Coordinator (x. 5052 ajmachielson@manchester.edu) or the Human Resources office (ext. 5038). Additionally, students can report incidents or complaints to Campus Safety (ext. 5999 or in Fort Wayne: 260-266-1800). Students can also obtain support from the University Counseling Services (260-982-5306).

Finally, students should know that if, for some reason, the interaction between a student and faculty member involves a disruptive behavior or potential violation of policy, the faculty member will inform the appropriate student experience staff, even when the student and faculty member may have reached an informal resolution to the incident. The purpose of this is to keep University leaders apprised of any behaviors and what was done to resolve them.

Campus resources.

Health Services

260-982-5306

<http://www.manchester.edu/OSD/Health/Index.htm>

Counseling Center

260-982-5306

<http://www.manchester.edu/OSD/Counseling/Index.htm>

Safety

NM: 260-982-5999; FW: 260-266-1800

<http://www.manchester.edu/OSD/Security/index.shtml>

Grading. Grades will be based on results, not effort, following the same straight percentage scale as CHEM-405 lecture. Lab reports are due the week after the lab is completed.

Regular Lab Reports	6	@ 25 pt	150
Double Lab Reports	2	@ 50 pt	100
Pre-labs	9	@ 4 pt	36
Total			286

Date	Lab
5, 7 Sep	Check-in
12, 14 Sep	Buffers
19, 21 Sep	Mb Stability
26, 28 Sep	Alkaline Phosphatase Kinetics
3 Oct, 5 Oct	Fall Break
10, 12 Oct	FoldIt
17, 19 Oct	Mb Purification 1 (lab report)
24, 26 Oct	Mb Purification 2
31 Oct, 2 Nov	Mb Purification 3 (double lab report: 2,3)
7 Nov, 9 Nov	Mb Purification 4
14, 16 Nov	Mb Purification 5 (double lab report: 4,5)
21, 23 Nov	Thanksgiving Break
28, 30 Nov	Mb Purification 6 (lab report)
5, 7 Dec	Enzyme Paper Presentations

Pre-Lab. The prelab worksheet is due *at the beginning* of each lab period and covers the upcoming experiment. The assignment will be a worksheet that is distributed prior to each lab meeting. Prelab worksheets will not be accepted after the prelab lecture begins.

Lab Notebook. Write in an organized, clear manner, describing what you did during the lab. On each page, include a title, date, name, and your initials. Turn in the lab notebook yellow sheets at the end of each lab session.

The Biochemistry Lab Report. The following sections parallel those in a peer-reviewed publication in the field of biochemistry. Everything must be typed, double-spaced, single-sided, with perfect spelling and grammar, including citations and a reference page when used.

Introduction [3 pt Regular, 6 pt Double]. *Tell the goal of the experiment.* Be concise, but complete, using one full paragraph. *Explain the goals and technique principles of the experiment.* Explain the goals in 1-2 paragraphs. *Explain the principle(s) behind the major technique(s) in the experiment on which you have not previously reported and for which readings are usually assigned,* using 2-3 paragraphs.

Materials and Methods [4 pt, 8 pt]. *Report what was done.* Include an account of your procedure with enough detail that another student could reproduce your work. Many of the procedures used are long, but be sure to describe them in detail without directly copying them from the lab handout.

Results [6 pt, 12 pt]. *Analyze what happened.* Include plots of data and show calculations for data analysis. If you are pooling your data with that of other classmates, be sure to indicate which data was collected by you and which was collected by others. Include

references to data obtained elsewhere. Carry out calculations in enough detail that the work can be checked. Sources cited must be from published journal articles.

Discussion [5 pt, 10 pt]. *Interpret what happened.* Did the experiment turn out the way it should have? Do the results have any significance? Follow all answers with a statement regarding its significance in the scheme of the experiment. Discuss possible sources of experimental error and their effects. Sources cited must be from published journal articles.

Conclusion [3 pt, 6 pt]. *Tell what you objectively conclude from this experiment.* For example, include what the measured concentration of hemoglobin was, how the reaction followed Michaelis-Menton kinetics, and what the K_M and K_{cat} values were. Do not say whether or not you enjoyed the experiment, or if it was valuable to you personally. Summarize any major possible sources of experimental error. A reader should be able to go directly to your conclusion and get the important information from the experiment. Write the Conclusion second to last.

Lab Notebook Sheets [4 pt, 8 pt]. The *duplicate sheets from your lab* book include what you did during the lab, written in an organized, clear manner, and should be turned in at the end of lab each week. Each page must include the experimental title, date, and your name.