CHEM327
Biochemistry II
Spring 2025

Dr. Aimee L. Miller
717-871-7414
aimee.miller@millersville.edu

Lecture: Roddy 153
Tue & Thur: 10:50 - 12:05
Lab: Caputo 225
Wed: 2:00 - 4:50

Office Hours: Caputo 325
Mon & Wed: 9:00 - 10:00
Tues & Thur: 12:15 - 1:45
Alternate times by appointment

Course Description

Chemistry 327 is the second semester course in biochemistry. The major focus is to understand the chemistry behind the function of biological compounds involved in cellular processes. Specific topics include enzyme mechanisms and energetics, membrane dynamics, replication, transcription, protein translation, and signal transduction. Additionally, metabolism of lipids, amino acids, and nucleotides is studied in detail. (3 hrs lecture/3 hrs lab)

Prerequisite: CHEM326 (C- or higher)

Materials and Supplies

D2L course access (Millersville University)

Achieve Essentials access (available online) for required online homework

Open access texts for reference are available in D2L. Hard copy texts with Biochemistry titles would also be suitable.

Laboratory background & protocols (available in D2L)

Laboratory notebook: permanently-bound composition notebook

Course objectives:

After completing this course, students actively engaging in the learning process should:

Integrate chemical characteristics of a wide range of biochemical molecules with their biological relevance

Describe 3D protein structure, chemical mechanisms, and energetics relevant to enzyme function

Recognize and outline biosynthetic pathways and metabolism for amino acids, proteins, nucleotides, nucleic acids, and lipids

Describe chemistry relevant to nucleic acid structure, function, and processing

Describe cellular transport and signal transduction processes and the relevance of dynamic membrane structures

Read and evaluate published primary research in biochemistry

Develop advanced laboratory skills and apply relevant biochemical principles for understanding and troubleshooting work in the biochemistry lab

Record and analyze biochemical data accurately and effectively

Course Policies

This class adheres to policies as outlined by Millersville University (*links to full policies in D2L*).

Class Attendance: Students are responsible for material presented in class or distributed via D2L or MU e-mail. Only work missed for an absence excused based on Millersville's approved guidelines may be made up. Any exam conducted outside the scheduled time may differ significantly in form and content from the in-class exam, including an oral portion.

Academic Honesty: Students are expected to conduct all course work in an honest and ethical manner, consistent with Millersville's policy. Cheating on coursework bypasses the learning process and will NOT be tolerated. Anyone caught cheating will be assigned a score of zero

Lab Evaluation:

Attendance/Completion/Citizenship (60 pts):

Students are expected to attend every lab session and participate in the outlined work. Please contact me immediately if you have an excused absence that conflicts with your scheduled work. All data and analysis must be submitted for each experiment. Most experiments will involve work over more than one week. Your lab summary will generally be due the week following the *completion* of the last lab work for a given experiment. However, notebook page scans showing weekly progress should be submitted at the end of each lab workday. Worksheet activities should be completed by the end of the lab day. Scores will be reduced for late or incomplete submissions.

Multiple sections of labs work in the same space each week, so students are expected to treat the lab space and equipment with care. Scores will be reduced for failure to maintain a safe and clean environment for everyone to use.

Purpose/Pre-Lab Questions (10 pts):

Instructions