

CHEM 4331

BIOCHEMISTRY



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Office Hours: MWRF 11-12, M 1-2, or by appointment. Due to social distancing guidelines, office hours will primarily be held by email, over the phone, or online using Blackboard Collaborate. Please email me with your name, course, suggest possible time(s), and also the topic, and I will be happy to meet with you virtually.

Course Information

Course Description

The chemistry of living organisms. Carbohydrates, lipids, proteins, vitamins, and related cellular constituents are considered.

Prerequisite and Co-requisite Courses

CHEM 3452 Organic Chemistry II and its prerequisites (General Chemistry I and II, Organic Chemistry I)

Student Learning Outcomes

After completion of this course students will be able to:

- analyze complex chemical problems and draw logical conclusions.
- understand and apply scientific reasoning in the chemical sciences.
- Demonstrate technical and analytical skills in chemistry and biochemistry.

Course Objectives

During this course, students will be:

- Gaining factual knowledge (terminology, classifications, methods, trends)
- Learning fundamental principles, generalizations, or theories

- Learning to apply course materials (to improve rational thinking, problem solving and decisions)

Course Delivery

This is a face-to-face course with online components that students are expected to access in [Blackboard](#).¹ Exams and quizzes will primarily be given face-to-face during class times, but they may also be given either face-to-face or online Thursday evenings from 5:30-7:30 pm.

Required Texts and Materials

David L. Nelson; Michael M. Cox, Achieve for Lehninger Principles of Biochemistry, 8 ed., ISBN 9781319230890

Technology Requirements

To successfully complete this course, students need to purchase access to Macmillan Achieve, including David L. Nelson and Michael M. Cox, Lehninger Principles of Biochemistry 8th ed. This is a combination of online and an ebook.

While some exams and quizzes will be given face-to-face, access to some exams and quizzes will be through Respondus Lockdown Browser and will be video recorded via Respondus Monitor. Respondus requires a desktop computer or laptop (not a Chromebook) and a webcam. For best results, use an ethernet cable to connect to your Internet source instead of relying on Wifi. Refer to the Blackboard course for Respondus installation instructions. Respondus monitor requires the use of a web cam to record video.

You also need access to a printer. You will be required to print some documents, complete them by hand, and then scan them in using a scanner or smartphone. You will then need to be able to create a pdf and upload it to Blackboard.

For office hours, we will be using Blackboard Collaborate.

Communication

Faculty will respond to email and/or telephone messages within 24 hours during working hours Monday through Friday. Weekend messages may not be returned until Monday.

Written communication via email: All private communication will be done exclusively through your ASU email address. Check frequently for announcements and policy

changes. In your emails to faculty, include the course name and section number in your subject line.

Virtual communication: Office hours and/or advising may be done with the assistance of the telephone, Collaborate, Skype, etc.

Grading

Evaluation and Grades

Course grades will be determined as indicated in the table below.

Assessment	Percent of Total Grade
Daily grades and homework	15
Quizzes	20
3 Regular Exams	45
Comprehensive Final Exam	20
Total	100%

Grading System

Course grades will depend on completing course requirements and meeting the student learning outcomes.

This course uses the following grading scale:

A = 90.00-100 percent

B = 80.00-89.99 percent

C = 70.00-79.99 percent

D = 60.00-69.99 percent

F = 0-59.99 percent (Grades are not rounded up)

Assignment and Activity Descriptions

Exams: There will be three 100 point regular exams during the semester and a comprehensive final exam of 150 points during the final exam period. **Regular exams may be given in class or Thursday evening from 5:30-7:30.** Exam questions will most likely be multiple choice and matching, but there may also be some short answer questions. Due to the cumulative nature of the course, some concepts from previous chapters may be necessary to solve problems in later chapters. Exams will not be curved. During exams, all items except your nonprogrammable calculator and pencil will be placed at the front of the room. You may not wear hats during the exam.

Make-up exams: No make-up exams will be given except for university-sponsored events. If you miss an exam for an accepted excuse, i.e. a death in your family or personal illness, the final exam score will be used to replace the missed exam. Only one exam can be replaced in this fashion. If you miss two exams, you will not pass the course. If you miss the final, you will not pass the course. If you have taken the three hour exams, you may use the final exam percentage score to replace your lowest exam score. Example: your exams are 60 pts, 70 pts, and 80 pts and your final is 100 pts. The final exam is worth 150 points, so 100 points is $100/150 \times 100 = 67\%$, so you can replace the 40 pt exam with 67 pts.

Quizzes: Your quiz grade will consist of short daily Blackboard quizzes and longer Blackboard or paper quizzes. In order to complete the quizzes, you must attend class in person and bring a smart phone or computer on which to complete the daily quizzes. No reference materials (notes, worked problems or text) may be used on quizzes. The daily Blackboard quizzes will consist of 2-5 multiple choice, matching, or fill-in-the blank questions. Review your notes from the previous class to study for these quizzes. Quizzes must be completed during the first 5 minutes of class, so please be on time. Longer Blackboard or paper quizzes will cover questions similar to, but not exactly like, the problem sets posted on BlackBoard. The focus of longer quizzes will be announced in class or on Blackboard. In calculating your grade, your two lowest long quiz scores will be dropped, as well as two or more of your lowest daily quiz scores. Your quiz grade will consist of 80% long quizzes and 20% daily quizzes. Because some quizzes will be dropped, no credit will be given for quizzes missed for any reason, including tardiness. Consideration of absences for some university activities will be given if advanced notice and documentation are given.

Homework and activities: Online homework through Macmillan Achieve will be assigned. There will also be some on-line activities and homework on Blackboard. In calculating your grade, I will drop 10% of this category of points, so some assignments can be missed without it negatively affecting your grade. Therefore, homework extensions will rarely be given.

Grading corrections: Any discussion of corrections must be made within three weekdays of the return of the assignment.

Courtesy: For in class activities, please be on time, refrain from eating, and turn off cell phones. Attendance will be taken at the beginning of each face to face meeting.

General Policies Related to This Course

All students are required to follow the policies and procedures presented in these documents:

- [Angelo State University Student Handbook](#)²
- [Angelo State University Catalog](#)³

Academic Integrity

Students are expected to maintain complete honesty and integrity in all work. Any student found guilty of any form of dishonesty in academic work is subject of disciplinary action and possible expulsion from ASU.

The College of Science and Engineering adheres to the university's [Statement of Academic Integrity](#).⁴

Accommodations for Students with Disabilities

ASU is committed to the principle that no qualified individual with a disability shall, on the basis of disability, be excluded from participation in or be denied the benefits of the services, programs or activities of the university, or be subjected to discrimination by the university, as provided by the Americans with Disabilities Act of 1990 (ADA), the Americans with Disabilities Act Amendments of 2008 (ADAAA) and subsequent legislation.

Student Disability Services is located in the Office of Student Affairs, and is the designated campus department charged with the responsibility of reviewing and authorizing requests for reasonable accommodations based on a disability. It is the student's responsibility to initiate such a request by contacting an employee of the Office of Student Affairs, in the Houston Harte University Center, Room 112, or contacting the department via email at ADA@angelo.edu. For more information about the application process and requirements, visit the [Student Disability Services website](#).⁵ The employee charged with the responsibility of reviewing and authorizing accommodation requests is:

Dr. Dallas Swafford
Director of Student Disability Services
Office of Student Affairs
325-942-2047
dallas.swafford@angelo.edu
Houston Harte University Center, Room 112

Incomplete Grade Policy

It is policy that incomplete grades be reserved for student illness or personal misfortune. Please contact faculty if you have serious illness or a personal misfortune that would keep you from completing course work. Documentation may be required. See ASU Operating Policy 10.11 [Grading Procedures](#)⁶ for more information.

Plagiarism

Plagiarism is a serious topic covered in ASU's [Academic Integrity policy](#)⁷ in the Student Handbook. Plagiarism is the action or practice of taking someone else's work, idea, etc., and passing it off as one's own. Plagiarism is literary theft.

In your discussions and/or your papers, it is unacceptable to copy word-for-word without quotation marks and the source of the quotation. It is expected that you will summarize or paraphrase ideas giving appropriate credit to the source both in the body of your paper and the reference list.

Papers are subject to be evaluated for originality. Resources to help you understand this policy better are available at the [ASU Writing Center](#).⁸

Student Absence for Observance of Religious Holy Days

A student who intends to observe a religious holy day should make that intention known in writing to the instructor prior to the absence. See ASU Operating Policy 10.19 [Student Absence for Observance of Religious Holy Day](#)⁹ for more information.

Title IX at Angelo State University

Angelo State University is committed to providing and strengthening an educational, working, and living environment where students, faculty, staff, and visitors are free from sex discrimination of any kind. In accordance with Title VII, Title IX, the Violence Against Women Act (VAWA), the Campus Sexual Violence Elimination Act (SaVE), and other federal and state laws, the University prohibits discrimination based on sex, which includes pregnancy, and other types of Sexual Misconduct. Sexual Misconduct is a broad term encompassing all forms of gender-based harassment or discrimination and unwelcome behavior of a sexual nature. The term includes sexual harassment, nonconsensual sexual contact, nonconsensual sexual intercourse, sexual assault, sexual exploitation, stalking, public indecency, interpersonal violence (domestic violence or dating violence), sexual violence, and any other misconduct based on sex.

You are encouraged to report any incidents involving sexual misconduct to the Office of Title IX Compliance and the Director of Title IX Compliance/Title IX Coordinator, Michelle Miller, J.D. You may submit reports in the following manner:

Online: [Incident Reporting Form](#)¹⁰

Face to Face: Mayer Administration Building, Room 210

Phone: 325-942-2022

Email: michelle.miller@angelo.edu

Note, as a faculty member at Angelo State, I am a mandatory reporter and must report incidents involving sexual misconduct to the Title IX Coordinator. Should you wish to speak to someone in confidence about an issue, you may contact the University Counseling Center (325-942-2371), the 24-Hour Crisis Helpline (325-486-6345), or the University Health Clinic (325-942-2171).

For more information about resources related to sexual misconduct, Title IX, or Angelo State's policy please visit the [Title IX website](#).¹¹

Information About COVID-19

Please refer to ASU's [COVID-19 \(Coronavirus\) Updates](#)¹² web page for current information about campus guidelines and safety standards as they relate to the COVID-19 pandemic.

Modifications to the Syllabus

This syllabus, including grade evaluation and course schedule, is subject to modification on potentially short notice based on developing circumstances.

Course Schedule

Date	Topic or Module
8/23	Chapter 1 The Foundations of Biochemistry
8/30	Chapter 1 continued Chapter 2 Water
9/6	Chapter 2 continued Chapter 3 Amino Acids, Peptides, and Proteins
9/13	Chapter 3 continued Chapter 4 The Three-Dimensional Structure of Proteins
9/20	Chapter 4 continued Exam #1 Approximate composition Chapters 1-3, in-class Monday 9/20 or Tuesday 9/21
9/27	Chapter 5 Protein Function
10/4	Chapter 6 Enzymes
10/11	Chapter 6 continued

10/18	Chapter 6 Enzyme Kinetics
	Test #2 - Approximate composition Chapters 4-6a, in-class Tuesday 10/19 or Wednesday, 10/20
10/25	Chapter 7 Carbohydrates and Glycobiology
11/1	Chapter 7 and Chapter 8 Nucleotides and Nucleic Acids
11/8	Chapter 9 DNA-Based Information Technologies
11/15	Chapter 10 Lipids
	Test #3 – Approximate composition Chapters 6b-9, Tuesday, 11/16 or Wednesday, 11/17
11/22	Chapter 10 continued
	Last day to drop – 11/22 Thanksgiving holiday 11/24-11/26
11/29	Ch 10 continued and review
12/6	Final exams

¹ <https://blackboard.angelo.edu/>

² <https://www.angelo.edu/current-students/student-handbook/>

³ <https://www.angelo.edu/academics/catalog/>

⁴ <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

⁵ <https://www.angelo.edu/current-students/disability-services/>

⁶ <https://www.angelo.edu/content/files/14197-op-1011-grading-procedures>

⁷ <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=96>

⁸ https://www.angelo.edu/current-students/writing-center/academic_honesty.php

⁹ <https://www.angelo.edu/content/files/14206-op-1019-student-absence-for-observance-of>

¹⁰ <https://www.angelo.edu/incident-form>

¹¹ <https://www.angelo.edu/title-ix>

¹² <https://www.angelo.edu/covid-19/>