

CHEM 4332

INTERMEDIARY METABOLISM



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Office Hours: T 10-noon and 1-2pm, WF 11-noon, or by appointment

Course Information

Course Time and Location

MWF 10:00 am – 10:50 am in Cavness 215

Course Description

Coordinated examination of enzymatic processes in the living cell.

Prerequisite and Co-requisite Courses

CHEM 4331 Biochemistry

Student Learning Outcomes

Upon 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 course will use a split delivery model that combines face-to-face teaching with synchronous remote instruction. The goal is to provide face-to-face instruction to students who want to return to campus, while also allowing students who may need to learn remotely to participate via virtual class sessions. Due to the small size of this class, all students can attend face-to-face. Whether students attend face-to-face or remotely, class participation will be required. All quizzes and exams will be given face-to-face unless there are extenuating circumstances.

When you are not in the physical class, you will attend live remote sessions at the same time as our scheduled course. You will also be expected to complete coursework via [Blackboard](#).¹

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.

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
Activities and homework	15
Paper and presentation	5
Regular exams (100 points each)	40
Paper Quizzes	10
Daily Blackboard Quizzes	10
Comprehensive final exam	20
Total	100

Grading System

Course grades will be dependent upon completing course requirements and meeting the student learning outcomes.

The following grading scale is in use for this course:

A ≥ 90%

B ≥ 80%

C ≥ 70%

D ≥ 60%

F < 60% (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. Exam questions may be multiple choice, short answer, matching, and may require application of the covered material. 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.

Pathway Quizzes: Quizzes on selected pathways will be given throughout the semester. On the pathway quizzes, you will draw out the selected pathway in its entirety. This will allow more time for fair evaluation of other important course materials on the exams. No reference materials (notes, worked problems or text) may be used on paper quizzes. The lowest two quiz scores will be dropped. Quizzes missed for university-sponsored events or other excused absences must be made up within one week of the missed quiz.

Daily Blackboard Quizzes: Open note daily Blackboard quizzes will be given. In calculating your grade, I will drop 10% of this category of points, so some quizzes can be missed without it negatively affecting your grade. Therefore, makeup quizzes will rarely be given.

Homework and activities: Online homework from Sapling Learning 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 and normalize to 50 points for the category.

Paper and presentation: Information from reputable websites (MedlinePlus, Protein Databank, NIH, pharmaceutical manufacturers), texts, and peer-reviewed journal articles will be used to write a short paper and prepare a short presentation to describe a metabolism related topic. More information about the assignment will be posted on Blackboard.

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 (Page 97).

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 Statement](#)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

Week of	Topic
January 17	Introduction Chapter 11 Biological Membranes and Transport
January 24	Ch 11 continued
January 31	Ch 12 Biosignalling February 9: Metabolism Paper Topic Due
February 7	Ch 12 continued Chapter 13 Bioenergetics and Biochemical Reaction Types
February 14	Ch 13 continued Chapter 14 Glycolysis, Gluconeogenesis, and the Pentose Phosphate Pathway Exam One, Chapter 11-13

February 21	Ch 14 continued Chapter 15 Principles of Metabolic Regulation
February 28	Chapter 16 The Citric Acid Cycle
March 7	Chapter 17 Fatty Acid Catabolism
March 14	Spring Break
March 21	Chapter 18 Amino Acid Oxidation and the Production of Urea Exam Two
March 28	Chapter 19 Oxidative Phosphorylation
April 4	Chapter 19 continued
April 11	Chapter 21 Lipid Biosynthesis
April 18	Chapter 22 Biosynthesis of Amino Acids, Nucleotides, and Related Molecules Exam Three
April 25	Chapter 23 Hormonal Regulation and Integration of Mammalian Metabolism April 30: Last Day to Drop
May 2	Ch 23 continued
May 9	Final Exam – Monday, May 9 at 10:30 am

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=97>

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

⁶ <https://angelo.policystat.com/policy/10659448/latest/>

⁷ <https://www.angelo.edu/live/files/27603-student-handbook-2020-21#page=97>

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

⁹ <https://angelo.policystat.com/policy/10659368/latest/>

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

¹¹ <https://www.angelo.edu/title-ix>

¹² <https://www.angelo.edu/covid-19/>