

**CHEM 417: Advanced Biochemistry
Course Syllabus
Fall 2025**

INSTRUCTOR INFORMATION

Instructor: Dr. Thomas West

Office: STC 302

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Phone: 903-886-5399

FAX: 903-468-6020

Office Hours: MTWR 11 am-12:15 pm or by appointment

Class Meetings: TR 6:00 pm-7:15 pm; **Location:** STC 123

Preferred Form of Communication: email

Response Time: within 48 hours

COURSE INFORMATION

Required Text Book: Principles of Biochemistry, 5th edition, Authors: Horton, Moran, et. al., ISBN: 978-0-321-70733-8

Course Description: Advanced study of biochemistry from the standpoint of interrelationships between metabolic pathways and control mechanisms. Topics to be covered include the metabolism of carbohydrates anaerobically and aerobically, ATP synthesis and the metabolism of lipids, amino acids as well as nucleotides.

Course Definition: The biochemical function and regulation of metabolic pathways in the synthesis and degradation of biopolymers as well as the transfer of genetic information in living organisms. This course is intended for students majoring in chemistry and the life sciences especially those students seeking scientific, medical, or similar professional careers.

Credits: 3 Course Credits.

Prerequisites or Co-requisites: CHEM 314, CHEM 414 or consent of the instructor.

Student Learning Outcomes (SLO): The main objectives of this course are to provide an advanced understanding of the principles of modern biochemistry necessary for further work in the biochemical/biomedical areas. Unlike much earlier chemistry, the material is often conceptually complex and not yet amenable to straightforward mathematical interpretation. Accordingly, the students may find the material more heavily descriptive than in their earlier chemical studies. By the end of this course the students will have a better understanding of the structure and function of macromolecules in metabolism relative to biosynthesis and degradation. At the completion of this course students will be able to:

- Understand the concept of a metabolic pathway.
- Understand the biosynthesis and degradation of complex lipids.
- Understand the biosynthesis and degradation of proteins.
- Understand the biosynthesis of pyrimidine and purine nucleotides, RNA and DNA.

- Comprehend how RNA and DNA are degraded to nucleotides.
- Comprehend how purine and pyrimidine nucleotides are degraded to a source of carbon and nitrogen.
- Be able to relate the importance of biochemical and metabolic concepts to other scientific disciplines as well as to its role in daily lives.

COURSE REQUIREMENTS

Instructional Methods: Face to face in classroom and laboratory settings. Course structure will involve assessment using exams and laboratory reports at designated dates during the semester.

Student Responsibilities for Success in Course: Students should review notes daily and become familiar with the advanced concepts of biochemistry being presented to them. Waiting until the day before the exam to study the material covered is not a successful approach.

GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or below

A = 90-100 points

B = 80-89 points

C = 70-79 points

D = 60-69 points

F = 59 points or below

For students enrolled in CHEM 417, your final grade will be based on your performance in 3 out of 4 exams (25% each) and the final exam (25%). Your course grade will be based on 3 in-class exams (0.25 x exam grade) out of 4 representing 75% of your total course grade. The final comprehensive examination will represent 25% of your course grade (0.25 x final exam grade). *No make-up exams will be allowed. You will be allowed to drop one of the first 4 exams if you are not absent more than 8 lectures during the semester. Extra credit assignments will **NOT** be provided during this course. The last day to drop with a Q grade is Thursday, October 30.*

COURSE CALENDAR FOR CHEM 417

Date/Chapter

August

26-Review of Basic Biochemistry

28-Review of Basic Biochemistry

September

2-Review of Basic Biochemistry

4-Review of Basic Biochemistry

9-Review of Basic Biochemistry

11-Review of Basic Biochemistry

16-Review of Basic Biochemistry

18-EXAM 1 (Thursday)

23-Chapter 10

25-Chapter 11

30-Chapter 11

October

2-Chapter 11

7-Chapter 12

9-Chapter 12

14-Chapter 13 (Prerecorded online due to 2025 ACS MW Regional Meeting)

16-Chapter 13

21-EXAM 2 (Tuesday)

23-Chapter 14

28-Chapter 14 (Prerecorded online due to 2025 Welch Annual Conference)

30-Chapter 16

November

4-Chapter 16

6-Chapter 16

11-Chapter 16

13-EXAM 3 (Thursday)

18-Chapter 17

20-Chapter 17

25-Chapter 18

26-28 No Class – Thanksgiving Holiday

December

2-Chapter 18

4-EXAM 4 (Thursday)

9-FINAL EXAM (6:00 pm – 8:00 pm)

All dates and assignments of syllabus schedule for CHEM 417 are tentative and subject to change.

TECHNOLOGY REQUIREMENTS

LMS

All course sections offered by East Texas A&M University have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm

Zoom Video Conferencing Tool

https://inside.tamuc.edu/campuslife/CampusServices/CITESupportCenter/Zoom_Account.aspx?source=universalmenu

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at

903.468.6000 or helpdesk@tamuc.edu .

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a ETAMU campus open computer lab, etc.

COMMUNICATION AND SUPPORT

The instructor will provide grades of exams within a week of administration.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

COURSE AND UNIVERSITY PROCEDURE/POLICIES

Course Specific Procedures/Policies

The attendance record is taken from a daily sign-in sheet. A student who fails to sign the sign-in sheet will be counted as missing a lecture. The students will be expected to be available and prepared for the exams at the specified times. No make-up exams will be allowed. You will be allowed to drop one of the first 4 exams if you are not absent more than 8 lectures during the semester. Missing 8 lectures represents 30% of the lectures during the semester and indicates that you fully understand the material in the lectures. In this case, you won't be allowed to drop an exam and your grade will be based on all 4 exams and the final. **If you miss more than one exam, you will be assigned a grade of zero for that missed test. Again, NO extra credit assignments will be given during this course.** Dishonest scholarship will earn an automatic zero (0) and initiate prosecution to the fullest extent. Incomplete grades may be given only if the student has a current average 70% and is precluded from completion of the course by a documented illness or family crisis.

Syllabus Change Policy

The syllabus is a guide. Circumstances and events may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

Interaction with Instructor Statement – Primary and preferred communication is through email.

University Specific Procedures

Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.

<https://inside.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf> .

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: <https://www.britannica.com/topic/netiquette>

ETAMU Attendance

All students are expected to attend classes on a regular basis. The Department of Chemistry adheres to the attendance policy set by the University as stated in the most current Undergraduate Catalog. The attendance record is taken from a daily sign-in sheet. A student who fails to sign the sign-in sheet will be counted as missing a lecture. **According to the ETAMU Procedure 13.99.99.R0.01, if a student has excessive absences, the instructor may drop the student from the course.**

For more information about the attendance policy please visit the [Attendance](#) webpage and Procedures 13.99.99.R0.01

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

Academic Integrity

Students at East Texas A&M University are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

[Undergraduate Student Academic Dishonesty Form](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/documents/13.99.99.R0.03UndergraduateStudentAcademicDishonestyForm.pdf>

Graduate Students Academic Integrity Policy and Form

[Graduate Student Academic Dishonesty Form](#)

<https://inside.tamuc.edu/aboutus/policiesProceduresStandardsStatements/rulesProcedures/13student/graduate/13.99.99.R0.10.pdf>

Students with Disabilities--ADA Statement

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services

East Texas A&M University

Velma K. Waters Library Rm 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: studentdisabilityservices@tamuc.eduWebsite: [Student Disability Services](#)<https://www.etamu.edu/student-disability-services/>**Please advise the instructor of any special problems or needs at the beginning of the semester.****Nondiscrimination Notice**

East Texas A&M University will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in East Texas A&M University buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and East Texas A&M University Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all East Texas A&M University campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

East Texas A&M University Supports Students' Mental Health

The Counseling Center at East Texas A&M University, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit www.tamuc.edu/counsel

Mental Health and Well-Being

The university aims to provide students with essential knowledge and tools to understand and support mental health. As part of our commitment to your well-being, we offer access to Telus Health, a service available 24/7/365 via chat, phone, or webinar. Scan the QR code to download the app and

explore the resources available to you for guidance and support whenever you need it.



<http://telusproduction.com/app/5108.html>

AI use policy [Draft 2, May 25, 2023]

East Texas A&M University acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in any way. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

[Graduate Student Academic Dishonesty Form](#)