CHEM 417: Advanced Biochemistry
Course Syllabus, Fall 2024

INSTRUCTOR INFORMATION

Instructor: Dr. Thomas West
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Phone: 903-886-5399
FAX: 903-468-6020
Office Hours: MTWR 10:45 am-12 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 oflipids, amino acids as well as nucleotides.

Course Definition: The biochemical function and regulation of metabolic pathways in thesynthesis 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%	A = 90-100 points
B = 80%-89%	B = 80-89 points
C = 70%-79%	C = 70-79 points
D = 60%-69%	D = 60-69 points
F = 59% or below	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 arenot 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 31.**

COURSE CALENDAR FOR CHEM 417

Date/Chapter
August
27-Review of Basic Biochemistry
29-Review of Basic Biochemistry
September
3-Review of Basic Biochemistry
5-Review of Basic Biochemistry
10-Review of Basic Biochemistry
12-Review of Basic Biochemistry
17-Review of Basic Biochemistry
19-EXAM 1 (Thursday)
24-Chapter 10

26-Chapter 11
October
1-Chapter 11
3-Chapter 12
8-Chapter 12
10-Chapter 13
15-Chapter 13
17-EXAM 2 (Thursday)
22-Chapter 14 (prerecorded online due to 2024 ACS SW Regional Meeting)
24-Chapter 14
29-Chapter 16
31-Chapter 16
November
5-Chapter 16
7-Chapter 16
12-Chapter 16
14-EXAM 3 (Thursday)
19-Chapter 17
21-Chapter 17
26-Chapter 18
27-29 No Class – Thanksgiving Holiday
3-Chapter 18
December
5-EXAM 4 (Thursday)
12-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 Texas A&M University-Commerce 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

YouSeeU Virtual Classroom Requirements:
https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements

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 TAMUC 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 befound 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 thatyou 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 assignmentswill be given during this course.** Dishonest scholarship will earn an automatic zero (0) and initiateprosecution to the fullest extent. Incomplete grades may be given only if the student has a currentaverage 70% and is precluded from completion of the course by a documented illness or family crisis.

Syllabus Change Polic

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.

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 (see Student Guidebook, Policies and Procedures, Conduct, Procedure 13.02.99.R0.06).
http://www.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf
Any student engaging in disruptive behavior will be dismissed from class on a first offense. A second offence may constitute dismissal from the course with a failing grade.

TAMUC Attendance
All students are expected to attend classes on a regular basis. The Department of Chemistry adheresto 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 TAMU-Commerce Procedure 13.99.99.R0.01, if a student has excessive absences, the instructor may drop the student from the course**.
http://www.tamuc.edu/admissions/registrar/generalinformation/attendance.aspx

The instructor will only excuse an absence if the student provides, with appropriate documentation, an excusable reason allowed by the TAMU-Commerce Procedure 13.99.99.R0.01.
http://tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity
Academic cheating, plagiarism and other types of academic misconduct may result in the student being removed from the class with a failing grade. Extreme cases of academic misconduct may result in suspension or expulsion from the University as described in the Code of Student Conduct section of the Student's Guidebook (Procedure 13.99.99.R0.10). For more detail and the definitionof academic dishonesty see the following procedures:
Undergraduate Academic Dishonesty 13.99.99.R0.03
http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03

ADA Statement

Students with disabilities
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 the provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

Office of Student Disability Resources and Services Texas A&M University-Commerce
Waters Library, Room 162
Phone: (903) 886-5150 or (903) 886-5835
Fax: (903) 468-8148
E-Mail: StudentDisabilityServices@tamuc.edu

Website: Office of Student Disability Resources and Services
http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Please advise the instructor of any special problems or needs at the beginning of the semester.

Counseling Services Statement
The Counseling Center at A&M-Commerce, 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

Nondiscrimination Notice
Texas A&M University-Commerce 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, 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
Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce 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 A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations. For a list of locations, please refer to (http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf) and/or consult your event organizer). Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

AI Use Policy
Texas A&M University-Commerce 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.

13.99.99.R0.03 Undergraduate Academic Dishonesty
13.99.99.R0.10 Graduate Student Academic Dishonesty