

# ADVANCED BIOCHEMISTRY – CHEM 5320.001

Spring 2026

Thr 6:00PM - 8:45PM

RBS 2024

Instructor	Room No.	Telephone	E-Mail	Office Hours
Jiyong Lee	RBS 3007	903-566-6275	jiyonglee@uttyler.edu	M/W 10:30 am – 1:00 pm

## Course description:

Advanced Biochemistry course covers topics including protein synthesis, protein function, protein degradation, biomolecular interactions, enzyme reactions and inhibitions, metabolism, interplay between human gut microbiome and host metabolism, and modern technologies for biochemistry.

## Course Resources:

There is no textbook for this course. Materials will be provided as either handouts or through the course Canvas site.

## Learning outcomes:

Upon completing this course, students will be able to:

1. Understand structures and properties of proteins.
2. Achieve knowledge to study and analyze biomolecular interactions.
3. Understand enzyme reaction, kinetics, regulation, and inhibition.
4. Obtain knowledge in metabolic pathways and regulations.
5. Understand carbohydrate metabolism.
6. Understand lipid metabolism.
7. Understand amino acid metabolism.
8. Decipher interplay between the human gut microbiome and host metabolism.
9. Understand in vivo imaging technologies
10. Obtain knowledge in modern technologies for biochemistry.

## Class schedule Spring 2024:

Jan 15	Introduction
Jan 22	Proteins: From Synthesis, Structure and Function to Degradation
Jan 29	Enzymes: reaction, kinetics, regulation, and inhibition
Feb 05	Biomolecular Interactions
Feb 12	Carbohydrate metabolism
Feb 19	Midterm exam
Feb 26	Lipid metabolism
Mar 05	Amino acid metabolism
<b>Mar 12</b>	<b>No Class – Spring Break</b>
Mar 19	Human gut microbiome and host metabolism
<b>Mar 26</b>	<b>No Class</b>
Apr 02	In vivo imaging I
Apr 09	In vivo imaging II
Apr 16	Research article presentation I
Apr 23	Research article presentation II
Apr 30	Final Exam

## Course Assessment/Methods of Evaluation:

The overall grade will be determined by the student's performance on a midterm exam, an

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individual research article presentation, and a final exam. Examinations will cover all materials from text, lectures, and any assigned materials. Individual's research article presentation will review a current topic in modern biochemistry technologies. The breakdown of these components to your final grade is as follows:

Midterm Exam	30%
Final Exam	30%
Research Article Presentation	40%
Total	100%

Final grades will be determined on a standard grading scale of A 90-100%, B 80-89%, C 70-79%, etc.

## Course Policies:

Make-up exam: There will be NO make-up exam except for the most extreme of documented circumstances. If you do miss an exam, the score will be recorded as 0.

Make-up research article presentation: There will be NO make-up except for the most extreme of documented circumstances. If you do miss research article presentation, the score will be recorded as 0.

**I reserve the right to make modifications as needed to the course. This will be done in accordance with university bylaws.**

## UT Tyler Honor Code

Every member of the UT Tyler community joins together to embrace: Honor and integrity that will not allow me to lie, cheat, or steal, nor to accept the actions of those who do.

## Students Rights and Responsibilities

To know and understand the policies that affect your rights and responsibilities as a student at UT Tyler, please follow this link: <http://www.uttyler.edu/wellness/rightsresponsibilities.php>

## Campus Carry

We respect the right and privacy of students 21 and over who are duly licensed to carry concealed weapons in this class. License holders are expected to behave responsibly and keep a handgun secure and concealed. More information is available at <http://www.uttyler.edu/about/campus-carry/index.php>

## UT Tyler a Tobacco-Free University

All forms of tobacco will not be permitted on the UT Tyler main campus, branch campuses, and any property owned by UT Tyler. This applies to all members of the University community, including students, faculty, staff, University affiliates, contractors, and visitors.

Forms of tobacco not permitted include cigarettes, cigars, pipes, water pipes (hookah), bidis, kreteks, electronic cigarettes, smokeless tobacco, snuff, chewing tobacco, and all other tobacco products.

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There are several cessation programs available to students looking to quit smoking, including counseling, quitlines, and group support. For more information on cessation programs please visit [www.uttyler.edu/tobacco-free](http://www.uttyler.edu/tobacco-free).

## **Disability/Accessibility Services**

In accordance with Section 504 of the Rehabilitation Act, Americans with Disabilities Act (ADA) and the ADA Amendments Act (ADAAA) the University of Texas at Tyler offers accommodations to students with learning, physical and/or psychological disabilities. If you have a disability, including a non-visible diagnosis such as a learning disorder, chronic illness, TBI, PTSD, ADHD, or you have a history of modifications or accommodations in a previous educational environment, you are encouraged to visit <https://hood.accessiblelearning.com/UTTyler> and fill out the New Student application. The Student Accessibility and Resources (SAR) office will contact you when your application has been submitted and an appointment with Cynthia Lowery, Assistant Director of Student Services/ADA Coordinator. For more information, including filling out an application for services, please visit the SAR webpage at <http://www.uttyler.edu/disabilityservices>, the SAR office located in the University Center, # 3150 or call 903.566.7079.

## **Student Absence due to Religious Observance**

Students who anticipate being absent from class due to a religious observance are requested to inform the instructor of such absences by the second class meeting of the semester. Revised 05/17 Student Absence for University-Sponsored Events and Activities If you intend to be absent for a university-sponsored event or activity, you (or the event sponsor) must notify the instructor at least two weeks prior to the date of the planned absence. At that time the instructor will set a date and time when make-up assignments will be completed.

## **Social Security and FERPA Statement**

It is the policy of The University of Texas at Tyler to protect the confidential nature of social security numbers. The University has changed its computer programming so that all students have an identification number. The electronic transmission of grades (e.g., via e-mail) risks violation of the Family Educational Rights and Privacy Act; grades will not be transmitted electronically.

## **Emergency Exits and Evacuation**

Everyone is required to exit the building when a fire alarm goes off. Follow your instructor's directions regarding the appropriate exit. If you require assistance during an evacuation, inform your instructor in the first week of class. Do not re-enter the building unless given permission by University Police, Fire department, or Fire Prevention Services.

## **Student Standards of Academic Conduct**

Disciplinary proceedings may be initiated against any student who engages in scholastic dishonesty, including, but not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an examination for another person, any act designed to give unfair advantage to a student or the attempt to commit such acts. i. "Cheating" includes, but is not limited to:

- copying from another student's test paper;
- using, during a test, materials not authorized by the person giving the test;
- failure to comply with instructions given by the person administering the test;

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- possession during a test of materials which are not authorized by the person giving the test, such as class notes or specifically designed “crib notes”. The presence of textbooks constitutes a violation if they have been specifically prohibited by the person administering the test;
  - using, buying, stealing, transporting, or soliciting in whole or part the contents of an unadministered test, test key, homework solution, or computer program;
  - collaborating with or seeking aid from another student during a test or other assignment without authority;
  - discussing the contents of an examination with another student who will take the examination;
  - divulging the contents of an examination, for the purpose of preserving questions for use by another, when the instructors has designated that the examination is not to be removed from the examination room or not to be returned or to be kept by the student;
  - substituting for another person, or permitting another person to substitute for oneself to take a course, a test, or any course-related assignment;
  - paying or offering money or other valuable thing to, or coercing another person to obtain an unadministered test, test key, homework solution, or computer program or information about an unadministered test, test key, home solution or computer program;
  - falsifying research data, laboratory reports, and/or other academic work offered for credit;
  - taking, keeping, misplacing, or damaging the property of The University of Texas at Tyler, or of another, if the student knows or reasonably should know that an unfair academic advantage would be gained by such conduct; and
  - misrepresenting facts, including providing false grades or resumes, for the purpose of obtaining an academic or financial benefit or injuring another student academically or financially.
- ii. “Plagiarism” includes, but is not limited to, the appropriation, buying, receiving as a gift, or obtaining by any means another’s work and the submission of it as one’s own academic work offered for credit.
- iii. “Collusion” includes, but is not limited to, the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any section of the rules on scholastic dishonesty.
- iv. All written work that is submitted will be subject to review by plagiarism software.

## UT Tyler Resources for Students

- UT Tyler Writing Center (903.565.5995), [writingcenter@uttyler.edu](mailto:writingcenter@uttyler.edu)
- UT Tyler Tutoring Center (903.565.5964), [tutoring@uttyler.edu](mailto:tutoring@uttyler.edu)
- The Mathematics Learning Center, RBN 4021, this is the open access computer lab for math students, with tutors on duty to assist students who are enrolled in early-career courses.
- UT Tyler Counseling Center (903.566.7254)