

# **BIOL 3510.001 Cell Biology Syllabus**

## **FALL 2024**

### **General Information**

Class Time & Location: Tuesdays and Thursdays, 9:30-10:50am

Wooten Hall (Wh) 222

Mode of delivery: **Face-to-face**

### **Instructor: Dr. Bojun Chen**

- E-mail: [bojun.chen@unt.edu](mailto:bojun.chen@unt.edu)

- Phone: (940) 565-3359

- Office: Life Sciences Complex B(LSCB), Room 320

- Office Hours: Wednesdays 9:30-11:00am; Thursdays 3:00-4:30pm; or by appointment

- Communication Expectations: Email and Canvas are the primary tool that will be used to communicate directly with students. Personal concerns or questions should be sent by email. Students can expect to receive a response within 24h. I reserve the right to not respond to emails on the weekends unless it is an emergency situation.

### **Welcome to UNT!**

As members of the UNT community, we have all made a commitment to be part of an institution that respects and values the identities of the students and employees with whom we interact. UNT does not tolerate identity-based discrimination, harassment, and retaliation. UNT's full Non-Discrimination Policy can be found in the UNT Policies section of the syllabus.

### **Prerequisites:**

BIOL 1710 (Biology for Science Majors I)

BIOL 1720 (Biology for Science Majors II)

BIOL 1760 (Biology for Sciences Majors Lab)

One of the following: BIOL 2041/2042 (Microbiology with lab) or BIOL 2140 (Principles of Biology) or BIOL 2241 (Biology of Higher Plants) or BIOL 2251 (Biodiversity and Conservation of Animals) or BIOL 2302/2312 (Anatomy and Physiology II with lab)

CHEM 2370/3210 (Organic Chemistry with lab). **If it has been a while since your last chemistry class, I strongly recommend reviewing Chapter 2.**

### **Course Description and Objectives**

Cells are the smallest units of life, capable of performing and coordinating a seemingly endless variety of tasks and functions. In this course, we will review the synthesis and function of macromolecules such as DNA, RNA, and proteins. We will study how cells create and use energy, investigate how cells communicate, and explore how they transport substances both within and across their borders. We will learn about mitosis, the cell cycle, and how these processes are controlled. Finally, we will discuss apoptosis, the most common form of programmed cell death.

Discoveries made by modern cell biologists contribute to our basic understanding of how cells function as well as provide advancements in disease diagnostics and treatment, biotechnology, and agriculture. We will use examples from these different disciplines to learn about cell biology in a real-life context. Mastering the material presented in this course will aid students planning careers in medicine, research, or biotechnology as well as contribute to making them informed citizens in our technologically advanced society.

After completing this course, students will have a deeper understanding of the parts of the cell and how they function. They will be familiar with many methodologies used to study cell biology. In addition to being able to define a variety of terms related to cell biology, students will be able to apply and synthesize concepts learned throughout the semester.

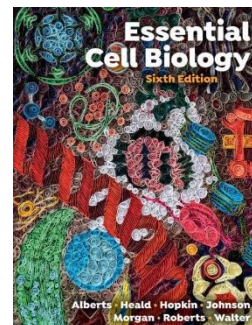
#### Rules of in-class Etiquette:

- *Use of electronic devices for social and/or recreational purposes during class is strictly prohibited.* Cellular devices should be silenced and put away before the beginning of each class. The use of cell phones is absolutely **prohibited during exams** and will result in a failure (F grade) for the exam.
- *Try to be on time (early) to class and **avoid leaving the classroom during class** unless it is absolutely necessary.* It is very distracting to me and your classmates if you are walking around and coming in and out of the classroom. If you have a medical condition or know that you are going to have to leave the room, please sit near the door to minimize the disturbance to the rest of the class.
- *Be respectful to your professor and classmates.* This includes *attending class regularly* and being *engaged and attentive*. **Please do not have whispered conversations during lecture.**
- *If you communicate via email, please be respectful and use proper English.* A little courtesy goes a long way! Avoid using all caps while communicating digitally. This may be interpreted as “YELLING!”. Avoid using “text-talk”.
- *Please view this document on [effective online communication](#).*

#### Course Materials

##### Required Textbook

Essential Cell Biology, Sixth Edition, (2023), Alberts, Heald, Hopkin, Johnson, Morgan, Raff, Roberts, Walter, W. W. Norton & Company Publisher. This book is available for purchase or rental at the UNT bookstore and can also be bought or rented from various local and on-line retailers. Readings from the textbook will be announced and will follow the topic order in the course schedule. In order for you to get the most out of the lecture, it is important that you complete the assigned readings before coming to class since lectures will build on the reading assignment.



##### UNT's Canvas for Class Website and Homework Assignments

The class website is hosted on UNT's Canvas. Items that will be posted online include this syllabus, class announcements, slides used during lecture, homework assignments, and exams. As visual aids in the course, I will use Microsoft Power Point to convey definitions, concepts, important points, and to show illustrations. I will make every possible attempt to post my lecture slides on Canvas before the corresponding lecture, so they may be printed before class. Slides do NOT contain the full information provided in class and it is your job to obtain this extra information—preferably by being present during lecture and by taking notes—I highly recommend that you have access to the slides during lecture so you can write on them.

Online homework assignments will be posted on Canvas in the form of “Quizzes”. You may use course materials when taking the quizzes, this includes your textbook, lecture notes and your handwritten notes. You are not allowed to “google” or otherwise search the web for answers. **You should not ask other students for the answers.** These assignments are intended to help you learn the material. Send me an email if you are locked out or have other computer difficulties that prevent you from completing the assignments on time. If your computer is having issues or your Wi-Fi is a problem, remember that there are computers in the library and elsewhere on campus that you can use. You can also check out a laptop from the library for an entire semester to do your coursework. You will have several days to complete

these assignments; **do not wait until the last 10 minutes to do them!** There will be **no excused “make-ups” of the online assignments.**

#### iClicker for Attendance and in-class Activities

iClicker REEF polling application will be used for in-class interactions (<https://app.reef-education.com>). Engagement, participation, and interaction are important elements of the learning process. To that end, we will be using REEF Polling, so each student must be registered for REEF and have a device (computer, smartphone, or tablet) for polling responses for this course. You will create an account with REEF, enter your EUID (your Canvas login ID) in the student ID (optional) space, select University of North Texas as your institution, and search for this course which is listed as follows: **BIOL 3510.001**. Add this course to your REEF course list. Click on the course and JOIN when we are in session. You must be present in the classroom, and connected via Wi-Fi in UNT classrooms to be able to join.

Attendance and participation will be monitored throughout the semester using iClicker. Each face-to-face lecture class that you attend is worth 0.5 attendance points up to 10 points total. You will earn the full 10 points for coming to lecture at least 20 times we meet for lectures. Therefore, there is **no make up for missed attendance**. Note that attendance/participation points are not earned on Exam days or review days. Attendance and participation will be based on iClicker data and location, so make sure you **use your UNT credentials to sign up and that you are inside the classroom**; you must be logged in for at least 60 minutes and participate in polling responses to earn attendance/participation credit.

A student needing assistance verifying absences due to illness or extenuating circumstances for all courses should contact the Dean of Students office. The Dean of Students office will verify the student's documentation and advocate on the student's behalf, as appropriate, to instructors for excused absences.

#### Exams

There will be four intermediary exams and one cumulative final (100 points each). All exams will be a mix of multiple choice, matching, and true or false. The copy of the questions must be returned with your scantron; in the absence of the copy, your exam won't be graded. The lowest score you earn on your four intermediary exams will be dropped. You **must** take the final exam. I recommend that you take all exams, so you at least have the chance to practice answering questions on the material even if you plan to drop the exam. You are welcome to check your copy during my office hours: the copy of a given exam is only accessible until the day of the following exam.

Make-up exams will only be given in extreme circumstances that involve serious illness (hospitalization), death in your immediate family, or incarceration. Dr. Chen must be contacted **within 24 hours** of the missed exam with the **appropriate official documentation** to discuss the possibility of a make-up exam. The instructor retains the right to make additional inquiries concerning the documentation, and to give a make-up exam that is different in exact content and/or style than the missed coursework (i.e. an oral or written exam)!

#### Grading

Your final letter grade will be based on the cumulative points that you get from the three highest scores in your intermediary exams (3 x 100 points), the final exam (100 points), homework assignments (90 points), and attendance/participation (10 points).

Assignment	Possible points	% final grade
<b>Exams 1-4</b> (your 3 highest scores)	300 pts	60%
<b>Final Exam</b> (comprehensive)	100 pts	20%
<b>Graded Homework</b>	90 pts	18%
<b>Attendance/Participation</b>	10 pts	2%
<b>TOTAL Points Possible</b>	<b>500 pts</b>	<b>100%</b>

Grades will be assigned based on the percentage of the total points you earn in the class:

A 90-100%	[450.0-500.0]
B 80-89.99%	[400.0-449.9]
C 70-79.99%	[350.0-399.9]
D 60-69.99%	[300.0-349.9]
F <60%	<300.0

Late work won't be accepted and will be graded 0.

### Course Schedule

Section	Date	Lectures	Textbook
<b>1</b>	Tues., August 19	01 Intro and Cell	Chapter 1
	Thurs., August 21	02 Proteins I	Chapter 4, 1 <sup>st</sup> half
	Tues., August 26	03 Proteins II	Chapter 4, 2 <sup>nd</sup> half
	Thurs., August 28	04 DNA and Chromosomes	Chapter 5
	Tues., September 2	05 DNA to Protein I	Chapter 7, 1 <sup>st</sup> half
	Thurs., September 4	06 DNA to Protein II	Chapter 7, 2 <sup>nd</sup> half
	<b>Tues., September 9</b>	<b>Exam 1 (Lect. 01-06)</b>	
<b>2</b>	Thurs., September 11	07 Membrane Structure	Chapter 11
	Tues., September 16	08 Membrane Transport I	Chapter 12, 1 <sup>st</sup> half
	Thurs., September 18	09 Membrane Transport II	Chapter 12, 2 <sup>nd</sup> half
	Tues., September 23	10 Cell Energy I	Chapter 3
	Thurs., September 25	11 Cell Energy II	Chapter 13
	Tues., September 30	12 Mitochondria	Chapter 14, 1 <sup>st</sup> half
	<b>Thurs., October 2</b>	<b>Exam 2 (Lect. 07-12)</b>	
<b>3</b>	Tues., October 7	13 Chloroplasts	Chapter 14, 2 <sup>nd</sup> half
	Thurs., October 9	14 Intracellular Transport I	Chapter 15, 1 <sup>st</sup> half
	Tues., October 14	15 Intracellular Transport II	Chapter 15, 2 <sup>nd</sup> half
	Thurs., October 16	16 Cell Signaling I	Chapter 16, 1 <sup>st</sup> third
	Tues., October 21	17 Cell Signaling II	Chapter 16, 2 <sup>nd</sup> third
	Thurs., October 23	18 Cell Signaling III	Chapter 16, 3 <sup>rd</sup> third
	<b>Tues., October 28</b>	<b>Exam 3 (Lect. 13-18)</b>	
<b>4</b>	Thurs., October 30	19 Cytoskeleton I	Chapter 17, 1 <sup>st</sup> half
	Tues., November 4	20 Cytoskeleton II	Chapter 17, 2 <sup>nd</sup> half
	Thurs., November 6	21 Cell Division I	Chapter 18, 1 <sup>st</sup> third
	Tues., November 11	22 Cell Division II	Chapter 18, 2 <sup>nd</sup> third
	Thurs., November 13	23 Cell Death	Chapter 18, 3 <sup>rd</sup> third
	Tues., November 18	24 Wrap Up	
	<b>Thurs., November 20</b>	<b>Exam 4 (Lect. 19-23)</b>	
	Tues., November 25	Fall Holiday—No class	
	Thurs., November 27	Thanksgiving Break—No class	
	Tues., December 2	25 Review for final I	
	Thurs., December 4	26 Review for final II	
	<b>Thurs., December 11 (8:00 to 10:00am)</b>	<b>FINAL EXAM</b>	

The course consists of face-to-face lectures. There are four main sections (1-4) of 3.5 weeks each. An intermediary exam is given at the end of each section. The final exam is cumulative. The Table above is a tentative list of topics for the semester. I reserve the right to change the schedule as needed. Any modifications will be notified through Canvas.

## **UNT Policies**

### **Academic Integrity Policy**

Academic Integrity Standards and Consequences: According to UNT Policy 06.003, Student Academic Integrity, academic dishonesty occurs when students engage in behaviors including, but not limited to cheating, fabrication, facilitating academic dishonesty, forgery, plagiarism, and sabotage. A finding of academic dishonesty may result in a range of academic penalties or sanctions ranging from admonition to expulsion from the University.

### **ADA Policy**

UNT makes reasonable academic accommodation for students with disabilities. Students seeking accommodation must first register with the Office of Disability Accommodation (ODA) to verify their eligibility. If a disability is verified, the ODA will provide a student with an accommodation letter to be delivered to faculty to begin a private discussion regarding one's specific course needs. Students may request accommodations at any time, however, ODA notices of accommodation should be provided as early as possible in the semester to avoid any delay in implementation. Note that students must obtain a new letter of accommodation for every semester and must meet with each faculty member prior to implementation in each class. For additional information see the [ODA website \(https://disability.unt.edu/\)](https://disability.unt.edu/).

### **Prohibition of Discrimination, Harassment, and Retaliation (Policy 16.004)**

The University of North Texas (UNT) prohibits discrimination and harassment because of race, color, national origin, religion, sex, sexual orientation, gender identity, gender expression, age, disability, genetic information, veteran status, or any other characteristic protected under applicable federal or state law in its application and admission processes; educational programs and activities; employment policies, procedures, and processes; and university facilities. The University takes active measures to prevent such conduct and investigates and takes remedial action when appropriate.

### **Emergency Notification & Procedures**

UNT uses a system called Eagle Alert to quickly notify students with critical information in the event of an emergency (i.e., severe weather, campus closing, and health and public safety emergencies like chemical spills, fires, or violence). In the event of a university closure, please refer to Canvas for contingency plans for covering course materials.

### **Retention of Student Records**

All records such as exams, answer sheets (with keys), and written papers submitted during the duration of the course are kept for at least one calendar year after course completion. Course work completed via the Canvas online system, including grading information and comments, is also stored in a safe electronic environment for one year. Students have the right to view their individual record; however, information about student's records will not be divulged to other individuals without proper written consent. Students are encouraged to review the Public Information Policy and the Family Educational Rights and Privacy Act (FERPA) laws and the University's policy. See UNT Policy 10.10, Records Management and Retention for additional information.

### **Acceptable Student Behavior**

Student behavior that interferes with an instructor's ability to conduct a class or other students' opportunity to learn is unacceptable and disruptive and will not be tolerated in any instructional forum at UNT. Students engaging in unacceptable behavior will be directed to leave the classroom and the instructor may refer the student to the Dean of Students to consider whether the student's conduct violated the Code of Student Conduct. The University's expectations for student conduct apply to all instructional forums, including University and electronic classroom, labs, discussion groups, field trips, etc. Visit UNT's [Code of Student Conduct](https://deanofstudents.unt.edu/conduct) (<https://deanofstudents.unt.edu/conduct>) to learn more.

### **Access to Information – Eagle Connect**

Students' access point for business and academic services at UNT is located at: [my.unt.edu](https://my.unt.edu). All official communication from the University will be delivered to a student's Eagle Connect account. For more information, please visit the website that explains Eagle Connect and how to forward e-mail [Eagle Connect](https://it.unt.edu/eagleconnect) (<https://it.unt.edu/eagleconnect>).

### **Student Evaluation Administration Dates**

Student feedback is important and an essential part of participation in this course. The student evaluation of instruction is a requirement for all organized classes at UNT. The survey will be made available during weeks 13, 14 and 15 of the long semesters to provide students with an opportunity to evaluate how this course is taught. Students will receive an email from "UNT SPOT Course Evaluations via IASystem Notification" ([no-reply@iasystem.org](mailto:no-reply@iasystem.org)) with the survey link. Students should look for the email in their UNT email inbox. Simply click on the link and complete the survey. Once students complete the survey they will receive a confirmation email that the survey has been submitted. For additional information, please visit the [SPOT website](http://spot.unt.edu/) (<http://spot.unt.edu/>) or email [spot@unt.edu](mailto:spot@unt.edu).

### **Sexual Assault Prevention**

UNT is committed to providing a safe learning environment free of all forms of sexual misconduct, including sexual harassment sexual assault, domestic violence, dating violence, and stalking. Federal laws (Title IX and the Violence Against Women Act) and UNT policies prohibit discrimination on the basis of sex, and therefore prohibit sexual misconduct. If you or someone you know is experiencing sexual harassment, relationship violence, stalking, and/or sexual assault, there are campus resources available to provide support and assistance. UNT's Survivor Advocates can assist a student who has been impacted by violence by filing protective orders, completing crime victim's compensation applications, contacting professors for absences related to an assault, working with housing to facilitate a room change where appropriate, and connecting students to other resources available both on and off campus. The Survivor Advocates can be reached at [SurvivorAdvocate@unt.edu](mailto:SurvivorAdvocate@unt.edu) or by calling the Dean of Students Office at 940-565- 2648. Additionally, alleged sexual misconduct can be non-confidentially reported to the Title IX Coordinator at [oeo@unt.edu](mailto:oeo@unt.edu) or at (940) 565 2759.

### **Student Verification**

UNT takes measures to protect the integrity of educational credentials awarded to students enrolled in distance education courses by verifying student identity, protecting student privacy, and notifying students of any special meeting times/locations or additional charges associated with student identity verification in distance education courses.

See [UNT Policy 07-002 Student Identity Verification, Privacy, and Notification and Distance Education Courses](https://policy.unt.edu/policy/07-002) (<https://policy.unt.edu/policy/07-002>).