

Biology 3334.001
Cell Biology Lecture
Course Syllabus
Fall 2023

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Class time: Tue. Thur. 9:30- 10:50 am
Class Location: HPR 262

Office Hours: Tues & Wed. 11:00 am-12:00 Noon, BEP 105, or by appointment

Required/main Text

Karp, Cell and Molecular Biology 9th Edition.

Title: Cell and Molecular Biology
ISBN: 9781119601609 Edition: 9th

Below are a few videos FYI:

- **Student Registration** <https://bcove.video/2EEjvvY>
- **How to Complete a WileyPLUS Assignment:** <https://bcove.video/2AVjamL>
- **How to Complete a WileyPLUS Timed Assignment:** <https://bcove.video/2WJsAKA>

Optional/supplemental Read – Free/open access eBook:

Cell and Molecular Biology 4e: What We Know and How We Found Out
Gerald Bergtrom, Ph.D. Revised January 2020
ISBN# 978-0-9961502-5-5
https://dc.uwm.edu/biosci_facbooks_bergtrom/12/

Course Description

Biology 3334 is an upper division course that investigates the molecular basis for cellular structure and function, and assumes prior exposure to General Biology I (1306 or equivalent) and Organic Chemistry I. The course complements General Biology and other introductory courses by providing a more thorough presentation of some of the major aspects of cellular structure and function. It is also a great foundation course for other advanced biology courses including physiology and Immunology. Finally, you will be challenged to distill and communicate scientific knowledge. So, please enthusiastically read assigned articles, extract information, and synthesize a brief summary worth 10% of your course grade. Course material and assessments will be based on the learning goals and objectives of each lecture.

Course objectives and students learning outcomes

- Describe the principles of the structure and function of cellular components.
- Specify the regulatory mechanisms within and between cells at the molecular level.
- Develop critical thinking skills and problem-solving strategies.

Attendance/Participation

Attendance and **participation** in Q/A and class discussion are essential to succeed in this class. Your **attendance** will be recorded on Canvas for each session and your **participation** will be evidenced by your answers (correct or wrong is not an issue here) to class Q/A (correct or wrong is not an issue here) and discussion topics on Canvas - To read other students' discussion posts, you will need to enter your answer first. You can then go back and edit your own answer if you wish. I encourage working in teams in class as well as responding to online homework assignments as well as preparing for the exams. I will post course materials including PPs at the conclusion of each chapter and hold a review session (Q/A format) over the lectures in the beginning of each class.

If you miss class, it is your responsibility to contact your teammates to get notes and other announcements made during class.

Please make sure to turn-on the “**Announcement**” in your account Notification Preferences to receive emails regarding new course announcements on Canvas.

Grading Policy

The final grade will be determined as follows- Any modifications to this policy will be communicated to class ahead of time

Online Quizzes (time sensitive)	20%	
Assigned Research Articles (time sensitive)		10%
Exams - In-person, Scantron.		
Midterm (3 exams) & Final	70%	
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Total	100 %	

Letter Grades will be assigned based on the following point levels.

A: 90 - 100; B: 80 - 89; C: 70 - 79; D: 60 – 69; F < 60

Please note the Assignments and Weights/Point values on Canvas

Attendance and Participation: This will be an interactive class and students are expected to read the assigned material before lecture sessions, participate in class Q/A and discussion.

Online Quizzes on Canvas (20%): You will have a prescheduled class quiz at the conclusion of each chapter. No make-up quiz will be given. I will, however, drop 2 lowest quiz grades for each student. So, if you miss a quiz for any reason, including illness and excused travel absence, that quiz will be counted as a dropped quiz score.

Journal Articles (10%): For each posted article, you must write a short 3-paragraph essay. The first 2 paragraphs should summarize the hypothesis/goals & methods and the 3rd paragraph

should focus on data/study outcome that you found interesting. Each essay is worth 10 points, and you will need to upload them in the Assignment threads on Canvas before its closure time.

Exams, (70%): Multiple choice and T/F questions will cover material from corresponding chapters. No make-up exams will be given without prior notification except medical emergencies with physician's office note. Chapter readings are to be used as reference material to class lectures and PPs.

No additional work for extra credit will be given at the end of the semester.

Grade rounding: If your final course grade is within 0.5 point of the next letter grade, it will be rounded up automatically. The only other adjustment that will be made is if the final percentage is within one point of next letter grade and, the student has missed four or less lectures throughout the semester.

Academic Integrity: Students should be aware that absolute academic integrity is expected of every student in all undertakings at The University of Texas at Tyler. Failure to comply can result in strong university-imposed penalties.

Documentation

- University Note: Have your professor or coach email me a letter explaining the reason for the absence due to a prescheduled University excused absence.
- Doctors Note: If you are sick, please bring proof of your appointment, and have the doctor explain that you were indeed sick, and should not or could not attend class.
- Civil documentation: If there are other extenuating circumstances, please provide the obituary, police report, court documents, or other evidence explaining the absence.

Class Expectations

- Students will be expected to follow the University of Texas at Tyler rules regarding any infectious diseases- Simply, stay home and take care of yourself if you don't feel well.
- Be Courteous and on time.
- Silence cell phones and other electronic devices, and do not answer your phone or text while in class.
- Discussion is encouraged during the lecture, so please feel free to ask questions, seek clarification, etc. If you need extra help, or we are pressed for time during class, please see me during my office hours.
- You are strongly urged to read the material ahead of time as this is a fast-paced, interactive class and we will be covering a large amount of material. Tradition dictates 3 hours of study time per hour of classroom time. Therefore, you should plan to spend at least 9 hours a week outside of class time on this course. I encourage group reading and discussion both in- and out- of class.
- Office Hours: questions about the content, better understand the discipline, make career connections and more are welcomed during office hours. In some instances, we may be discussing grades or other private matters, so please wait for your turn.

Copy right- Recording of class sessions

Class sessions may be recorded by students enrolled in this course. Recordings that contain personally identifiable information or other information subject to FERPA shall not be shared with individuals not enrolled in this course unless appropriate consent is obtained from all relevant students. Class recordings are reserved only for the use of students enrolled in the course and only for educational purposes. Course recordings should not be shared outside of the course in any form without express permission.

I RESERVE THE RIGHT TO MODIFY THIS SYLLABUS AT ANY TIME. THEREFORE, YOUR ATTENDANCE AND ATTENTION TO THE ANNOUNCEMENTS IN CANVAS ARE CRUCIAL BECAUSE IT WILL ASSIST YOU TO REMAIN CURRENT ON THE MATERIAL AND KNOW WHEN THE SYLLABUS MAY BE MODIFIED.

General information _ *Resources for UT Tyler Students Success*

Please refer to “Student Resources” and “University Policies and Information” on the course Modules/Canvas.

Helpful Links FYI

Pubmed: A resource for accessing biomedical literature.

- UT-Tyler Portal: <http://www.ncbi.nlm.nih.gov/pubmed?holding=txutrlib>

Genome browsers: These websites are repositories for genetic information. You can look at an entire chromosome using the genome browser, or focus on more detailed information for a specific gene.

- National Center Biotechnology Information: <http://www.ncbi.nlm.nih.gov/>
- European Genome Browser: <http://www.ensembl.org/index.html>
- DNA Data Bank of Japan: <http://www.ddbj.nig.ac.jp/>
- UC Santa Cruz genome browser: <http://genome.ucsc.edu/>

Gene-specific informatics: These websites provide more detailed information on genes and genetic disorders.

- Online Mendelian Inheritance in Man (OMIM): <http://www.omim.org>
- Genecards: <http://www.genecards.org/>
- Gene Tests: <http://www.genetests.org>
- Gene Reviews: <http://www.ncbi.nlm.nih.gov/books/NBK1116/>

Selected Animal Specific Informatics: These websites focus on the most popular genetic animal models.

- Mouse (*Mus musculus*) Informatics: <http://www.informatics.jax.org/>
- Zebrafish (*Danio rerio*) Informatics: <http://zfin.org/>
- Fly (*Drosophila melanogaster*) Informatics: <http://flybase.org/>
- Caenorhabditis elegans* informatics: <http://www.wormbase.org/>
- Saccharomyces cerevisiae* informatics: <http://www.yeastgenome.org/>

Programs to look at DNA sequence: Sanger sequencing produces chromatograms, as a read out. This readout can be viewed using a number of programs. These will convert the data into a string of nucleotides that can be analyzed further.

- A Plasmid Editor (ApE) - <http://biologylabs.utah.edu/jorgensen/wayned/ape/>
- CLC sequence viewer - <http://www.clcbio.com/products/clc-sequence-viewer/>
- FinchTV - <http://www.geospiza.com/Products/finchtv.shtml>
- Sequence Manipulation Suite: <http://www.bioinformatics.org/sms2/index.html>

General Science Resources:

- HHMI Biointeractive: <http://www.hhmi.org/biointeractive/>
- CSHL DNA interactive: <http://www.dnai.org>
- Science Friday Life Science Education: <http://www.sciencefriday.com/teacher-resources/index.html?subject=3#page/full-width-list/1>
- GeneEd: http://geneed.nlm.nih.gov/topic_subtopic.php?tid=1

- Cell and Molecular Online: <http://www.cellbio.com/education.html>
- Cells Alive: <http://www.cellsalive.com>
- Khan Academy: <https://www.khanacademy.org/science/biology>
- NIGMS: <http://publications.nigms.nih.gov/order/>
- Evolution and cell biology:
<http://evolution.berkeley.edu/evolibrary/teach/undergradsyllabus.php>

Tentative Schedule: Please refer to next page:

Lecture Schedule		
Date	Topic	Chapter
Aug 22, 24	Syllabus overview, Introduction to the study of Cell and Molecular Biology	1
29, 31	Students read: The Chemical Basis of Life Pertained to plasma membrane Ch 4	2
	Structure & Function of The Plasma Membrane	4
Sept 1 st : Census date		
Sep 5, 7	Plasma Membrane – Neural impulse	4
12	Plasma Membrane – Clinical application	4
14	Exam 1 - in-person, Scantron	1& 4
19, 21	Cell signaling	15
26, 28	Cell signaling -inside-out	15/7
Oct 3, 5	Cell –Environment Interactions	7
10	Endoplasmic Membrane Systems (EMS)	8
12	Exam 2 review session based on students' questions	7,15
	Exam 2, in-person, Scantron	
17, 19	EMS	8
24, 25	Bioenergetic - Metabolism	3
30	Last day to withdraw without penalty	-
Nov 2, 7	Aerobic Respiration Review session in Q/A format	5

Lecture Schedule		
Date	Topic	Chapter
9	Exam 3, in-person, Scantron	3, 5, 8
14	Immune System	17
16	Immune System	17
20, 24	Thanksgiving Holidays	-
Nov 28, 30	Cancer Cell Biology Immunotherapy	16
Dec 4-9	Final Exams - in-person, Scantron	16 & 17