Biology 3334.001
Cell Biology Lecture
Course Syllabus
Fall 2022

INSTRUCTOR: Ali Azghani, Ph.D.
Professor of Biology
Office: BEP 105; (903) 566-7332
eMail: aazghani@uttyler.edu
http://www.uttyler.edu/Biology

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 - Access and Box
ISBN: 9781119601609 Edition**:** 9TH 20

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/

Attendance/Participation

Attendance, either in-person or via live Zoom, (in case of any restrictions), and **participation** 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 to class Q/A and **discussion** questions on Canvas. To read other students' posts, you will need to enter your answer first. You can then respond to others' or even edit your own answers if you wish. I encourage working together both in class, on the online homework assignments, and 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 past lectures in the beginning of each class.

If you miss class, it is your responsibility to contact other students 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.

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.

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	10%
Online Discussions	10%
Assigned Research Articles	10%
Exams - In-person, Scantron.	
Midterm (3-4 exams)	50%
Final	20 %
Cumulative: Questions from recent chapters (70%) and conceptual queries from earlier chapters (30%)	
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

Assignments and Weights/Point values

Attendance and Participation (10%): 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 topics on Canvas. Students are allowed to miss one lecture/each exam period without penalty.

Online Quizzes on Canvas (10%): 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.

Article Assignments (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.

Three Midterm Exams (50%): Multiple choice questions will cover material from corresponding chapters. No make-up exams will be given without prior notification except medical emergencies with physician note. Chapter readings are to be used as reference material to class lectures and PPs.

Comprehensive Final exam (20%): M/C questions from recent chapters as well as queries from earlier chapters.

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.

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=txutrmlib

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 covert 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 23 , 25	Syllabus overview Introduction to the study of Cell and Molecular Biology	 1
Aug 30- Sept 1st Sept 2nd	The Chemical Basis of Life Metabolism Sept 2nd: Census date	2 3
6 – 8	Structure & Function of The Plasma Membrane	4
13 15	Plasma Membrane **Exam 1 - in-person, Scantron**	4 **1 - 4**
20 - 22	Aerobic Respiration	5
27 - 29	Cell –Environment Interactions	7
Oct 4 - 6	Cell signaling	15
11 13	Exam 2, in-person, Scantron Cytoplasmic Membrane Systems	5,7,15 8
18 - 20	Cytoplasmic Membrane Systems	8
25 - 27	Cytoskeleton	9
Nov 1 3	Cellular Motility Exam 3, in-person, Scantron	9 8 & 9
4	Last day to withdraw without penalty	
8 -10	The Gene and the Genome	10

	Lecture Schedule	
Date	Topic	Chapter
15 - 17	The Central Dogma	11
21 - 25	Thanksgiving Holidays	-
Nov-29 Dec 1	Control of Gene Expression	12
Dec 6 -10	Final Exams	Compre hensive