

Course syllabus

BZ 310- Cell Biology SM-2023 Canvas Page: <u>https://colostate.instructure.com/courses/164360</u>

Instructor

Salah Abdel-Ghany 408 Biology (Office) <u>Salah.abdel-ghany@colostate.edu</u> Please include "BZ 310-SM23" in the subject line when you email me.

Lectures

1:00 pm – 2:20 pm (MTRF), June 12 – August 6, Room E112 Anatomy/Zoology building.

Interaction with the instructor:

Students are encouraged to participate in discussions and present their feedback during:

- 1. Lectures: Do not hesitate to interrupt me and ask any class-related questions.
- 2. Weekly office hours: Thursday 3-4 pm (Room 128 Biology)
- **3.** <u>Review sessions</u> (TBD): I will hold review sessions before each exam to address questions and work through relevant quiz preparation materials.
- 4. <u>Special appointment</u>: To make an appointment outside of these times send me an e-mail with few options for when we can meet.

Textbook

"Essential Cell Biology, 5th edition, Alberts et al., (2019).

The textbook can be purchased as an e-book or a hard copy from the CSU Bookstore (<u>https://www.bookstore.colostate.edu/SelectTermDept</u>).

Lab

- The lab is complementary to the lecture, and you should pass the lab to pass the class. The lab grade represents 30% of the class grade.
- There is a separate syllabus for the lab and the lab syllabus is available on both lecture canvas page and the lab CANVAS page. Email me if you have questions regarding the lab.
- Labs meet on Mondays and Thursdays from 2:30-5:30 pm in room 303, Yates building.

Goals and Objectives for BZ310 - lectures and labs

The overall goal of this course is to give an overview of cell biology and to train students to think as biological scientists. Students will get insight into how problems are solved in modern cell biology and will learn about the workings of cells (mostly eukaryotic ones). This is an undergraduate, upper division course. I assume that students know fundamental concepts of biology, chemistry and biochemistry as covered in courses such as LIFE102 and introductory chemistry.

Overall Course Objectives:

After taking this course, students should be able to

- describe the most important cellular components and processes in the context of their structures to functions.
- demonstrate the connections between basic molecular structure and cellular functions.
- apply models to concepts in cell biology and be able to interpret and complete essential diagrams.
- explain methods and techniques in cell biology including their uses and limitations. This includes interpretation of cell biology data.

Developmental Objectives:

Students will gain experience with:

- active learning processes (lecture and lab)
- working in small groups as teams and sharing data (lab).
- the process of data documentation, analysis, and interpretation (lecture and lab).
- communicating complex ideas through writing (lab and lecture).
- time management skills including preparation and organization of parallel tasks (lab).
- analyzing connections between concepts (lecture).
- troubleshooting research problems that a scientist might encounter (lecture and lab).

Assessments

Quizzes and Final Exam (450 points total, 45%)

There will be **TWO** non-comprehensive midterm quizzes (150 pts each) and a comprehensive **final exam** (see dates below). The final exam worth 225 pts, with 150 pts specifically covering material since the second midterm and the remaining 75 pts spread evenly over the material from the entire course.

Quiz/Exam	Date	Points
Midterm 1	Tuesday, June 27	150
Midterm 2	Friday, July 14	150
Final	Monday, July 31	200

• Exams must be taken on the scheduled date.

- Makeup exams will only be given to students with a university-approved proof of excuse.
- If you belong to any University sponsored group, you must inform me of known conflicts with exams at least 48 hours before the exam day. It is your responsibility to follow up with a reminder email within 24 hours before the exam day.

Weekly assignments (150 points total, 15%)

You will have **six** weekly assignment (25 pts each). One assignment each week (except final exam week). Assignment will be posted on Canvas no later than the Sunday night preceding the week and will be due on Canvas by Sunday 11:59 pm following that week (i.e., seven days later).

- 1. Assignment 1: due on Sunday, 6/18
- 2. Assignment 2: due on Sunday, 6/25
- 3. Assignment 3: due on Sunday, 7/2
- 4. Assignment 4: due on Sunday, 7/9
- 5. Assignment 5: due on Sunday, 7/16
- 6. Assignment 6: due on Sunday, 7/23

Attendance and participation (50 points, 5%):

Every time you attend a lecture, you will be rewarded 2.5 points with maximum number of twenty lectures (50 points). <u>Excuses are not permitted unless a medical emergency associated with a doctor</u> <u>notice clearly requesting the absence or a university-sanctioned extracurricular activities.</u>

Grading Scale

Grades will be calculated according to the following breakdown:

•	Lab components	300 pts
•	Midterm 1	150 pts
•	Midterm 2	150 pts
•	Final exam	200 pts
•	Assignments	150 pts
•	Participation	50 pts

Total possible points 1000 pts

Individual assignment and individual exam grades will not be curved. At the end, the individual student's fractional grades percentage will be calculated and rounded to the nearest whole number (e.g., 69.6% = 70% and 69.4% = 69%). Then grades will be calculated according to the following scale:

>95	A+
90-95	А
85-89	A-
80-84	B+
75-79	В
70-74	B-
65-69	C+
60-64	С
55- 59	D
<54	F

And if the class average is less than 75% (B), final grades will be curved to bring the class average to 75%.

Regrading of Exams and Aassignments

If a student has concerns about grading, he/she must present the exam/assignment for regrading within one week of when it was returned. I am happy to discuss how an exam or assignment was graded at any point, but formal regrade requests will only be accepted within the one-week time window. For any regrade requests, the entire assignment (not just individual questions) will be regraded. Therefore, it is possible to lose points on a regrade if I find that credit was mistakenly given for incorrect answers.

Students with Special Needs

Students requesting exams or classroom accommodations should contact the student disability center located in room 121 TILT building (<u>https://disabilitycenter.colostate.edu</u>). The phone number is (970) 491-6385. They will approve the request and communicate with me.

Academic Integrity

Exams are to be completed by each student on their own without assistance from other individuals, including other students in the course. For weekly assignments, it is permitted to work with other students to arrive at an answer for each question. Also, you are permitted to ask the TA and the instructor assignment questions during office hours, and we will help you understand the answers. However, it is not acceptable to copy answers verbatim from another student, the textbook, online sources, or a solutions manual. Written answers must be provided in your own words. Recognizably copied answers will receive zero credit and be considered cheating. The use of online "homework helper" sites is not permitted in this course. Use of these types of resources will be considered receiving unauthorized assistance and, therefore, a violation of the student conduct code. This course will adhere to the CSU Academic Integrity Policy as found on the Student Responsibilities page of the CSU general catalog. http://catalog.colostate.edu/general-catalog/policies/students-responsibilities/#academic-integrity

Violations will result in a grading penalty in this course and a report to the Office of Conflict Resolution and Student Conduct Services.

Tentative Lecture Schedule and Topics

Week	Start Date	Modules	Chapter
		 Course introduction 	
1	June 12	 Visualizing cells and cell organelles (microscopy) 	1
		 Unity of life 	2
		 Chemical composition of the cell 	3
		 Cell Energetics and energy carriers 	
		 Protein structure and function 	4
2	June 19	 How proteins are studied 	
		 Enzymes and enzyme kinetics 	
		 DNA and chromosomes 	5
3	June 26	From DNA to protein	6
		 Control of gene expression 	9
		 Techniques used in analyzing the structure and function 	10
		of genes	
	July 3	 Membrane structure 	11
4	-	 Transport across membranes 	12
5	July 10	 How cells obtain energy from food 	13
	-	 Energy generation in mitochondria and chloroplast 	14
	July 17	 Intracellular compartments and protein sorting 	15
6	5	 Cell signaling 	16
		 Cytoskeleton 	17
7	July 24	Cell division and cell cycle	18
	-	Stem cells and Cancer biology	20
8	July 31	 Revision and final 	-