



BIOCHEMISTRY AND
MOLECULAR BIOLOGY
COLORADO STATE UNIVERSITY

LIFE210 – Introductory Eukaryotic Cell Biology

Course Syllabus

INSTRUCTOR INFORMATION

Instructor: Prof. Lubna Tahtamouni

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Phone: 970-491-5531

Communication Policy: Responses to emails will be provided within 24 hours

Graduate Teaching Assistants:

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PREREQUISITES FOR COURSE

CHEM 111 and CHEM 112 and LIFE 102

COURSE DESCRIPTION & OBJECTIVES

Course Description: Cell biology is the molecular and chemical underpinnings of how and why life (cells and organisms) works. Life 210 “Introductory Eukaryotic Cell Biology” only explores the “tip of the iceberg” but will provide a springboard for anyone who wants to delve into cell biology in greater depth. This course will introduce the structure and function of macromolecules focusing on proteins and phospholipids. In addition, the course will discuss cellular composition, organelles, and trafficking between them. These concepts will be discussed in the context of basic metabolism, cell signaling, and control of cell proliferation and death.

Upon the completion of LIFE 210, a successful student will be able to:

- Learn major components and (bio)chemical reactions involved in the basic cellular processes.
- Understand essential concepts and fundamental definitions in cell biology that are necessary to further grasp biochemistry, and broader biomedical issues.
- Learn to apply the acquired knowledge to problems and questions through critical thinking and problem-solving exercises.

- List the universal characteristics of cells, know cell parts and organelles, and illustrate the different chemical bonds between cellular molecules.
- Explain the properties and functions of proteins as an example of cellular macromolecules, and the various cellular processes driven by proteins as catalysts.
- Illustrate the structure and function of phospholipids as an example of cellular macromolecules and sketch the structure of the lipid bilayer and predict the role of membrane proteins.
- Summarize the laws of thermodynamics and sketch the steps of cellular respiration and infer the differences between normal and cancer cells in terms of cellular metabolism and recommend targets for anticancer drugs based on these differences.
- Integrate the structure and function of proteins in cellular communication and cell shape and movement.
- Explain the balance between cell division and cell death in regulating cell growth and health and recommend targets for anticancer drugs based on misregulation of these two processes (cell cycle and apoptosis).

TEXTBOOK / COURSE READINGS

Molecular Biology of the Cell, 6th edition 2015 or 5th edition by Alberts et al. 2008, or Essential Cell Biology, 4th edition By Alberts et al. 2013. The course textbook is available through the CSU Bookstore.

COURSE MATERIALS & EQUIPMENT

Organization of content: Life 210 consists of 8 modules/units comprised of readings, lectures, recordings, quizzes, written assignments and one group project. Students should complete all tasks in each module before moving on.

I will provide materials on Canvas to help you grasp my organization of the course content. These materials define what concepts I want you to know and understand. The materials also aid your study outside of class.

1. 8 Module/Units outlines
2. Lecture slides with and without notes (PDF)
3. Lectures Recordings
4. Homework-written assignments

LECTURE FORMAT

Recorded lectures will be posted to the Canvas class page *no later than 2 hours prior to normal class time*: 2:00-2:50 PM MWF.

IN PERSON RECITATION

Optional in-person recitations will be held in Clark A201 during normal class time (2:00-2:50 PM MWF). The class has been divided into 3 sections (sections A through C; see the Canvas class page “Announcements” to determine to which section you have been assigned, and for the schedule), and each section/group has the option of attending one recitation every week. **Given limitations in classroom occupancy, you are only permitted to attend recitation during your designated time.**

VIRTUAL OFFICE HOURS

4:00-5:00 pm R; will take place with the Instructors via Zoom (link will be posted on Canvas).

How to Study

Come to the lectures prepared (know something about what I will talk about) having read the textbook pages and looked over the lecture outlines. First and foremost, space out your studying. Do not “cram” in the day or before an exam. Rather spend time each day studying the course material. Use the quizzes as practice for the exams. Study your notes including key terms and concepts, and then take the quiz the first time without your notes. If you do not do as well as you would like, review your notes again and take the quiz a second time with your notes and book open. Finally, I strongly suggest that you practice diagramming the biochemical processes on a notebook or a white board multiple times rather than just looking over them to study them. You will find the information sticks in your memory much more quickly and you will recognize gaps in your understanding more readily. Using this approach in a study group is even more effective.

Please review the core rules of netiquette for some guidelines and expectations on how to behave in an online learning environment.

COURSE POLICIES

There will be no make-up exams offered. Unexcused absences from an exam or quiz will be given a *zero*. If you have an excused absence (based on written or other verifiable evidence) from an exam or quiz, your final grade will be based on a percentage of the total possible points for the exams and quizzes you did take. ***Alternatively, students can schedule to take the exam early with the instructor if they know they cannot take the exam at the regularly scheduled date and time.*** If you have questions concerning the grading of any of your exams or quizzes, the questions you want re-graded should be discussed with the instructor within a week of grading. You must also provide a **written** explanation as to why you feel the question should be re-graded. Exams

will not be accepted for re-grading after this one-week period, so go over your exam carefully soon after it has been returned to you.

GRADING POLICY

There is a total of 600 points from Exams, 100 points from Quizzes, 160 points from the written assignments and 140 points from the group project.

ASSIGNMENT*	GRADE POINTS	GRADE PERCENTAGE
Exams	8x75=600	60%
Quizzes	8x12.5=100	10%
Written assignments	8x20=160	16%
Group project	1x140=140	14%
Total:	1000	100%

**Keep a copy of all work created for the course, including work submitted through Canvas course learning management system.*

Each of the 8 exams in LIFE 210 will be worth 75 points (600 total), and the 8 quizzes on Canvas are worth 12.5 points each (100 total). In addition, there will be 8 written assignments required, each worth 20 points (160 total), you will choose 2 assignments from a pool of 2-4 assignments for each module. Finally, one group project worth 140 points will be submitted at the end of the semester, for a cumulative total of 1000 points possible.

If you achieve the following point totals for LIFE 210 you will be assured the **minimum** letter grade shown:

1. 900-1000 ($\geq 90\%$) A
2. 800-899 (80-89.9%) B
3. 700-799 (70-70.9%) C
4. 600-699 (60-60.9%) D
5. <600 (<60%) F

Each exam or quiz will not be curved individually, but the final total points required for a course grade might be curved depending on the averages and distribution of points. In addition, your grade for LIFE 210 will be determined based on the total 1000 points (combined). Students in LIFE 210 have averaged around 80% of the total points possible over the past several years. As a result, there is usually no grading curve.

As a student enrolled in this course, one of your responsibilities is to submit course work by the due dates listed in Canvas. With that said, I take my role as your instructor very seriously, and, in fact, I care about how well you do in this course and that you have a satisfying, rewarding experience.

To that end, it is my commitment to you to respond individually to the work you submit in this class and to return your work in a timely manner. Assignments will be returned within 1 week and the group project will be returned within 2 weeks. (If, however, due to unforeseeable circumstances, the grading of your work takes longer than the times I have listed here, I will keep you informed of my progress and make every effort to return your work with feedback as soon as I can.)

CANVAS INFORMATION & TECHNICAL SUPPORT

Canvas is the where course content, grades, and communication will reside for this course.

- [Login for Canvas](#)
- [Canvas Support](#)
- For passwords or any other computer-related technical support, contact the [Central IT Technical Support Help Desk](#).
 - (970) 491-7276
 - help@colostate.edu

The [Technical Requirements](#) page identifies the browsers, operating systems, and plugins that work best with Canvas. If you are new to Canvas quickly review [the Canvas Student Orientation](#) materials.

IMPORTANT INFORMATION FOR STUDENTS

All students should fill out a student-specific symptom checker each day before coming to class (<https://covidrecovery.colostate.edu/daily-symptom-checker/>). In addition, please utilize the symptom checker to report symptoms, if you have a positive test, or exposed to a known COVID contact. If you know or believe you have been exposed or are symptomatic, it is important for the health of yourself and others that you report it through this checker. You will not be in trouble or penalized in any way for reporting. If you report symptoms or a positive test, you will receive immediate instructions on what to do and CSU's Public Health Office will be notified. Once notified, that office will contact you and most likely conduct contact tracing, initiate any necessary public health requirements and/or recommendations and notify you if you need to take any steps.

For the latest information about the University's response, please visit the **CSU COVID-19 site** <https://covidrecovery.colostate.edu/>.

ACADEMIC INTEGRITY & CSU HONOR PLEDGE

This course will adhere to the CSU [Academic Integrity/Misconduct](#) policy as found in the General Catalog and the [Student Conduct Code](#).

Academic integrity lies at the core of our common goal: to create an intellectually honest and rigorous community. Because academic integrity, and the personal and social integrity of which

academic integrity is an integral part, is so central to our mission as students, teachers, scholars, and citizens, I will ask that you affirm the CSU Honor Pledge as part of completing your work in this course.

Further information about Academic Integrity is available at CSU's [Academic Integrity - Student Resources](#).

Universal Design for Learning/Accommodation of Needs

I am committed to the principle of universal learning. This means that our classroom, our virtual spaces, our practices, and our interactions be as inclusive as possible. Mutual respect, civility, and the ability to listen and observe others carefully are crucial to universal learning.

If you are a student who will need accommodations in this class, please contact me to discuss your individual needs. Any accommodation must be discussed in a timely manner. A verifying memo from [The Student Disability Center](#) may be required before any accommodation is provided.

The Student Disability Center (SDC) has the authority to verify and confirm the eligibility of students with disabilities for the majority of accommodations. While some accommodations may be provided by other departments, a student is not automatically eligible for those accommodations unless their disability can be verified and the need for the accommodation confirmed, either through SDC or through acceptable means defined by the particular department. Faculty and staff may consult with the SDC staff whenever there is doubt as to the appropriateness of an accommodative request by a student with a disability.

The goal of SDC is to normalize disability as part of the culture of diversity at Colorado State University. The characteristic of having a disability simply provides the basis of the support that is available to students. The goal is to ensure students with disabilities have the opportunity to be as successful as they have the capability to be.

Support and services are offered to student with functional limitations due to visual, hearing, learning, or mobility disabilities as well as to students who have specific physical or mental health conditions due to epilepsy, diabetes, asthma, AIDS, psychiatric diagnoses, etc. Students who are temporarily disabled are also eligible for support and assistance.

Any student who is enrolled at CSU, and who self-identifies with SDC as having a disability, is eligible for support from SDC. Specific accommodations are determined individually for each student and must be supported by appropriate documentation and/or evaluation of needs consistent with a particular type of disability. SDC reserves the right to ask for any appropriate documentation of disability in order to determine a student's eligibility for accommodations as well as in support for specific accommodative requests. The accommodative process begins once a student meets with an accommodations specialist in the SDC.

Third-party Tools/Privacy

Please note that this course may require you to use third-party tools (tools outside of the Canvas learning management system), such as Skype and others. Some of these tools may collect and share information about their users. Because your privacy is important, you are

encouraged to consult the privacy policies for any third-party tools in this course so that you are aware of how your personal information is collected, used and shared.

Copyrighted Course Materials

Please do not share material from this course in online, print, or other media. Course material is the property of the instructor who developed the course. Materials authored by third parties and used in the course are also subject to copyright protections. Posting course materials on external sites (commercial or not) violates both copyright law and the CSU Student Conduct Code. Students who share course content without the instructor's express permission, including with online sites that post materials to sell to other students, could face appropriate disciplinary or legal action.

Undocumented Student Support

Any CSU student who faces challenges or hardships due to their legal status in the United States and believes that it may impact their academic performance in this course is encouraged to visit [Student Support Services for Undocumented, DACA & ASSET](#) for resources and support. Additionally, only if you feel comfortable, please notify your professor so they may pass along any additional resources they may possess.

Title IX/Interpersonal Violence

For the full statement regarding role and responsibilities about reporting harassment, sexual harassment, sexual misconduct, domestic violence, dating violence, stalking, and the retaliation policy please go to: [Title IX – Sexual Assault, Sexual Violence, Sexual Harassment](#).

If you feel that your rights have been compromised at CSU, several resources are available to assist:

- Student Resolution Center, 200 Lory Student Center, 491-7165
- Office of Equal Opportunity, 101 Student Services, 491-5836

A note about interpersonal violence: If you or someone you know has experienced sexual assault, relationship violence and/or stalking, know that you are not alone. As instructors, we are required by law to notify university officials about disclosures related to interpersonal violence. Confidential victim advocates are available 24 hours a day, 365 days a year to provide support related to the emotional, physical, physiological and legal aftermath of interpersonal violence. Contact the Victim Assistance Team at: 970-492-4242.

Religious Observances

CSU does not discriminate on the basis of religion. Reasonable accommodation should be made to allow individuals to observe their established religious holidays. Students seeking an exemption from attending class or completing assigned course work for a religious holiday will need to fill out the [Religious Accommodation Request Form](#) and turn it in to the Division of Student Affairs, located on the second level of the Administration building.

Once turned in, the Division of Student Affairs will review the request and contact the student accordingly. If approved, the student will receive a memo from the Dean of Students to give to their professor or course instructor.

Students are asked to turn in the request forms as soon as the conflict is noticed. Similarly, unanticipated conflicts requiring a religious observance, such as a death in the family, can also be reviewed.

CSU Principles of Community

Inclusion: We create and nurture inclusive environments and welcome, value and affirm all members of our community, including their various identities, skills, ideas, talents and contributions.

Integrity: We are accountable for our actions and will act ethically and honestly in all our interactions.

Respect: We honor the inherent dignity of all people within an environment where we are committed to freedom of expression, critical discourse, and the advancement of knowledge.

Service: We are responsible, individually and collectively, to give of our time, talents, and resources to promote the well-being of each other and the development of our local, regional, and global communities.

Social Justice: We have the right to be treated and the responsibility to treat others with fairness and equity, the duty to challenge prejudice, and to uphold the laws, policies and procedures that promote justice in all respects.

DIVERSITY AND INCLUSION

The [Mission, Vision, and Focus](#) webpage of the Vice President for Diversity includes a comprehensive statement of CSU's commitment to diversity and inclusion.