

CSAT 6077
Eucaryotic Cell Biology
Fall 2019

CLASS DAYS: Wednesdays and Fridays (August 21 – October 9, 2019)

CLASSROOM: 2.023V

COURSE DIRECTOR: Dr. Ramaswamy Sharma

OFFICE LOCATION and HOURS: MED 2.024V1; by appointment only

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READ THIS DOCUMENT CAREFULLY – YOU ARE RESPONSIBLE FOR ITS CONTENTS

COURSE DESCRIPTION AND OBJECTIVES

This 8-week didactic course will introduce the student to the fundamentals of cell biology, familiarize the student with current techniques used to manipulate cells, describe the higher order integration of cells to tissues and thereby the development of multicellular organisms.

By the end of this course, the student should be able to:

1. Describe the structure and function of the various components of eukaryotic cells, including the various organelles, the cytoskeleton and the cell membrane.
2. Describe how protein is sorted to reach its specific destination within the cell.
3. Describe the integration of cells into tissues, the cell-cell junctions and cell-extracellular matrix interactions.
4. Describe the cell cycle, including mitosis, meiosis and the checkpoints.
5. Describe the cellular machinery involved in membrane transport of small molecules including ATP pumps and ion channels.
6. Describe the general principles of intracellular and extracellular signaling.
7. Describe the morphogenesis and growth of multicellular organisms.
8. Describe cell death mechanisms such as apoptosis, autophagy and necrosis.
9. Describe tissue and cell renewal mechanisms including stem cells.
10. Describe and evaluate the various techniques used to grow and analyze cells.

PRE-REQUISITES – None.

SEMESTER CREDIT HOURS – 2.0

COURSE ORGANIZATION

Major teaching modalities used in this course include:

- Lectures
- Class discussions requiring active student participation.
- Independent Learning
- Class Presentations

Materials:

- Slides for each lecture will be made available in CANVAS as .pdf. Print copies will not be provided.

Computer Requirements:

- Students are required to have a laptop computer (Macintosh or PC) for class presentations, CANVAS access for course materials, and for exams.
- Software required: Microsoft Office, Adobe Acrobat Reader
- All laptops will connect to The UTHSCSA network via the HSCwave broadcast wireless connection.
- Authentication for wireless use is based on The UTHSCSA domain username and password.
- Verification of proper operation **prior** to the start of class is highly recommended.
- Assistance is available thru the IMS Service Desk
 - Telephone: 567-7777
 - E-mail: ims-servicedesk@uthscsa.edu

Assistance is also available at the IMS Student Support Center (4.421T, DTL).

Reading Assignments – Recommended reading will be listed in the Objectives section for each class.

ATTENDANCE

Attendance for every class session is mandatory. Excused absences may be granted at the discretion of the Course Director. For pre-scheduled events, students must provide advanced notice to the Course Director via e-mail to be excused. In case of illness, please notify the Course Director prior to the beginning of the class and provide a doctor's certificate at the next class. Other emergencies will be evaluated on a case-to-case basis. The e-mail request to the Course Director for consideration of an excused absence must provide details regarding the circumstances and specific dates.

If a student requests an absence for religious observances (which must meet the policy requirement of the University), he/she must notify the Course Director and file the appropriate form (Notification of Planned Absence to Observe a Religious Holiday) within the first 15 days of the term. The student is responsible for obtaining the form from the Registrar's Office, completing it and organizing to meet with the Course Director to have it signed and dated. Per University policy, the Course Director will stipulate a reasonable time within which the student must complete the missed course activities for that day.

More than 1 unexcused absence will result in a 5% penalty on the final grade for each missed class. Makeup of excused absences is at the discretion of the Course Director.

TEXTBOOKS

Required:

Molecular Biology of the Cell, Alberts et al., Sixth edition, Published by Garland Science.

Recommended:

Molecular Cell Biology, Lodish et al., Eighth edition, Published by W.H. Freeman and Company.

GRADING POLICIES AND EXAMINATION PROCEDURES

1. There will be a mid-term exam and a final exam, each worth 100 points. Students will take exams on their laptops in the assigned rooms at the assigned time. It is the student's responsibility to familiarize themselves with their equipment and/or the examination software. Remember to charge the laptop battery and bring the power cord. Please note that the commencement of the exam will not be delayed due to a hardware or software problem with any student's laptop nor will they be provided additional time to take their exam. Students having computer difficulty during the exam must notify the proctor immediately for instructions.
2. If a student arrives late for an examination, he/she will not be given any additional time to complete the test unless so decided by the Course Director after evaluating the circumstances surrounding the late arrival.

3. If a student feels that an examination question could have been answered in more than one way, then it is the student's responsibility to present the rationale for the correctness of alternate answers to the specified question to the Course Director within 3 days after the exam.
4. No backpacks, purses, notes or any written material will be allowed in the examination room. Possession of cell phones, pagers or any electronic device other than the computer laptop to be used for the test is STRICTLY PROHIBITED in the examination room. Any student in violation of these policies will be excused from the examination, marked absent for the day and given a grade of "0" for the examination.
5. Final grades will be based on scores received in the mid-term exam (50%) and final comprehensive exam (50%).
 A = >89.5-100% B = >79.5-89.4% C = >69.5-79.4% D = > 59.5% -69.4% F= <59.4%
6. The grade, "F", will be reported to the Registrar when a student is absent from a scheduled examination without permission from the Course Director and/or does not complete all course requirements.
7. A student who receives an F grade must retake the course in order obtain a change of grade.
8. Final grades will be reported to and recorded by the Registrar. Final grades may be obtained only from the Registrar. Under no circumstances will these grades be given to students by the teaching faculty.

E-MAIL POLICY

All correspondence will be sent to the student using the student's LiveMail address and via CANVAS. It is the responsibility of the student to make sure that there is sufficient space in their mailbox to receive any such notices. Course Directors will not attempt other means to provide you with a notice if they receive a course notice because of "an exceeded email limit". All correspondence from the student to the Course Director should be sent to the course director's e-mail as listed on the first page of this syllabus.

USE OF RECORDING DEVICES

Lectures may only be recorded with the permission of the Course Director, **obtained in advance**. Please do not show up to class and ask if that day's lecture may be recorded.

ELECTRONIC DEVICES

Cell phones should be turned off or put away during class. Computers and tablets may be used to follow along with slides, take notes, look up the occasional unfamiliar term, and perform other activities directly related to the course material. Texting, tweeting, e-mailing, web-surfing, gaming, or any use of electronic devices that is not directly connected with classroom activities is not permitted. Any student in violation of this policy will be excused from the learning environment and marked absent for the day. An e-mail will then be sent to the Associate Deans of Student Affairs apprising them of the incidence.

REQUESTS FOR ACCOMODATIONS FOR DISABILITIES

In accordance with policy 4.2.3, **Request for Accommodation Under the ADA and the ADA Amendments Act of 2008 (ADAAA)**, any student requesting accommodation must submit the appropriate request for accommodation under the American with Disabilities Act (ADA, form 100). To his/her appropriate Associate Dean of their School and a copy to the ADA Coordinator. Additional information may be obtained at <http://uthscsa.edu/eo/request.asp>.

ACADEMIC INTEGRITY AND PROFESSIONALISM

Any student who commits an act of academic dishonesty is subject to discipline as prescribed by the UT System Rules and Regulations of the Board of Regents. Academic dishonesty includes, but is not limited to, cheating, plagiarism, collusion, the submission for credit of any work or materials that are attributable in whole or in part to another person, taking an exam for another person, signing attendance sheets for another student, and any act designed to give unfair advantage to a student or the attempt to commit such an act. Additional information may be obtained at <http://catalog.uthscsa.edu/generalinformation/generalacademicpolicies/academicdishonestypolicy>

TITLE IX AT UTHSCSA

Title IX Defined:

Title of the Education Amendments of 1972 is a federal law that prohibits sex discrimination in education. It reads “no person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance.”

University of Texas Health Science Center San Antonio’s Commitment:

University of Texas Health Science Center San Antonio (UTHSCSA) is committed to maintaining a learning environment that is free from discriminatory conduct based on gender. As required by Title IX, UTHSCSA does not discriminate on the basis of sex in its education programs and activities, and it encourages any student, faculty, or staff member who thinks that he or she has been subjected to sex discrimination, sexual harassment (including sexual violence) or sexual misconduct to immediately report the incident to the Title IX Director.

In an emergency, victims of sexual abuse should call 911. For non-emergencies, they may contact UPD at 210-567-2800. Additional information may be obtained at <http://students.uthscsa.edu/titleix/>

CLASS SCHEDULE
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WEEK (N)	DATE (M/D)	TIME/FACULTY	ROOMS	SUBJECT
WEEK 1	8/21 Wed	1:15 – 3:30 pm	2.023V	ORGANELLES
	8/23 Fri	1:15 – 3:30 pm	2.023V	CELL MEMBRANE
WEEK 2	8/28 Wed	1:15– 3:30 pm	2.023V	CYTOSKELETON & CELL MOVEMENT
	8/30 Fri	1:15 – 3:30 pm	2.023V	MEMBRANE TRANSPORT OF SMALL MOLECULES
WEEK 3	9/04 Wed	1:15 – 3:30 pm	2.023V	PROTEIN SORTING AND INTRACELLULAR MEMBRANE TRAFFIC
	9/06 Fri	1:15 – 3:30 pm	2.023V	CELL METABOLISM
WEEK 4	9/11 Wed	1:15 – 3:30 pm	2.023V	CELL CYCLE
	9/13 Fri	1:15 – 3:15 pm	2.023V	MID-TERM EXAM
WEEK 5	9/18 Wed	1:00 – 3:30 pm	2.023V	CELL SIGNALING
	9/20 Fri	1:00 – 3:30 pm	2.023V	CELL DEATH
WEEK 6	9/25 Wed	1:00 – 3:30 pm	2.023V	CELL JUNCTIONS & EXTRACELLULAR MATRIX
	9/27 Fri	1:00 – 3:30 pm	2.023V	DEVELOPMENT OF MULTICELLULAR ORGANISMS
WEEK 7	10/01 Wed	1:30 – 3:30 pm	2.023V	STEM CELLS AND TISSUE RENEWAL
	10/04 Fri	1:15 – 3:15 pm	2.023V	ANALYSIS OF CELLS (Student Presentations)
WEEK 8	10/09 Wed	1:15 – 3:15 pm	2.023V	FINAL EXAM