

CSAT 6076 Eucaryotic Molecular Biology

Fall 2018

CLASS DAYS and TIME: Wednesdays 8:30 – 10:50 AM and Thursdays 8:30 – 10:50 AM from October 17 to December 13, 2018

CLASSROOM: TBD

COURSE FACULTY: Course Director: Dr. Pamela Larsen

OFFICE HOURS: By email, please schedule a date and time to meet. I am happy to meet with you and scheduling an individual office hour allows us to be efficient with your time and mine (no waiting or missed drop-ins).

EMAIL: Dr. Pamela Larsen larsenp@uthscsa.edu

TELEPHONE NUMBER: Dr. Pamela Larsen 210-567-0608

READ THIS DOCUMENT CAREFULLY - YOU ARE RESPONSIBLE FOR ITS CONTENTS.

COURSE DESCRIPTION AND OBJECTIVES

This 8-week didactic course will not only introduce the student to the fundamentals of molecular biology but will familiarize the student with the principles of modern molecular biology techniques used in research laboratories.

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

1. Describe the structure and function of nuclear and mitochondrial DNA and its packaging/organization into chromosomes and chromatin.
2. Describe molecular mechanisms underlying DNA replication, repair and recombination.
3. Describe the process of transcription and translation and identify the major players.
4. Describe the various mechanisms underlying the regulation of gene expression.
5. Describe protein structure and post-translational modifications.
6. Describe and evaluate the methods used to analyze and manipulate DNA and RNA
7. Describe and evaluate the methods used to purify and analyze proteins
8. Describe genetic variation and linkage analysis.
9. Describe and evaluate the generation and use of various animal models
10. Describe DNA and RNA viruses and their applications in molecular and cell biology.
11. Evaluate the various bioinformatics tools available for data mining.
12. Describe the methods used for gene therapy

Pre-requisites: None

Semester credit hours: 2 credit hour for successful completion of the course

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.

Computer Requirements:

- Students are required to have a laptop computer (Macintosh or PC) for class presentations and CANVAS access for course materials.
- Software required: Microsoft Powerpoint, 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.

Reading Assignments: To be provided via Canvas and/or email as PDFs of research publications, reviews or book chapters.

ATTENDANCE

Attendance at each class session for the entire class period is mandatory. More than 1 unexcused absence will result in a 5% penalty on the final score for each missed class. Makeup of excused absences is allowed at the discretion of the Course Director.

Excused absences may be granted, at the discretion of the Course Director. Any request for an excused absence should be emailed to the Course Director and should include details regarding the circumstances and specific dates. For pre-scheduled events, students must provide the request at least one week before the absence to the Course Director. In case of illness or personal emergency, please notify the Course Director prior to the beginning of the class or as soon as possible. The Course Director will evaluate each absence on a case-to-case basis to determine whether it is excused or unexcused.

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 10 calendar days of the course. 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.

TEXTBOOKS

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

Recommended: None

GRADING POLICIES AND EXAMINATION PROCEDURES

1. Graded activities will be Exam 1, Exam 2, presentation and participation in discussions.

2. Final grades will be based on scores received on Exam 1 (45%), Exam 2 (45%) and presentation and participation in discussions (10%).
3. More than 1 unexcused absence will result in a 5% penalty on the final score for each missed class.
4. Students will take exams in the assigned rooms at the assigned time.
5. If a student arrives late for an examination, he/she will not be given any additional time to complete the examination unless so decided by the Course Director after evaluating the circumstances surrounding the late arrival.
6. No backpacks, purses, notes or any printed material will be allowed in the examination room. Possession of cell phones, headphones or any electronic device during the examination is STRICTLY PROHIBITED. 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.
7. 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.
8. A student who receives an F grade must retake the course in order obtain a change of grade.

Grading System

For graded items, the student's individual score for each will be displayed on Canvas. For calculation of the final course score, the weighting of the graded items will be: 45% Exam 1, 45% Exam 2 and 10% presentation and participation in discussions. The conversion of the final score to a letter grade will be:

- A for 90 to 100%
- B for 80 to 89%
- C for 70 to 79%
- D for 60 to 69%
- F for 0-59%

The final letter grade for the course may be based on a curve.

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/eoo/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 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/>

EMAIL POLICY

Every student is issued a University email address and account at the time of enrollment (i.e. your livemail.uthscsa.edu account). This account will be the official means of communications between students and faculty and as a matter of University Policy is considered official business. Therefore, students are expected to check their university email inboxes on a regular basis so that any announcements, instructions or information regarding this course will be received in a timely manner. Missed communications due to inadequate monitoring of incoming emails on the University’s email server will not be a valid excuse for unsatisfactory academic progress.

USE OF RECORDING DEVICES

Recording of lectures or other learning activities during class sessions is not allowed by any means, e.g. video, audio, etc. An exception may be permitted by the Course Director if a request at least 24 hours before class is agreed upon or if required for compliance with Americans with Disabilities Act (ADA).

ELECTRONIC DEVICES

Cell phones should be turned off or put away during class. Computers and electronic tablets are allowed only for participating in class activities, e.g. viewing slides, taking notes, looking up the occasional unfamiliar term, and performing other activities directly related to the course material. Texting, tweeting, emailing, 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 may be excused from the learning environment and marked absent for the day, if disruption of learning occurs.

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Schedule for Fall 2018
Room TBD

Week	Day	Time	Date	Topic
1	Wed	8:30 – 10:50 AM	Oct 17	DNA, Chromosomes & Genomes
	Thurs	8:30 – 10:50 AM	Oct 18	DNA Replication
2	Wed	8:30 – 10:50 AM	Oct 24	DNA Repair & Recombination
	Thurs	8:30 – 10:50 AM	Oct 25	Transcription
3	Wed	8:30 – 10:50 AM	Oct 31	Translation
	Thurs	8:30 – 10:50 AM	Nov 1	Regulation of Gene Expression
4	Wed	9:00 – 10:50 AM	Nov 7	Exam 1
	Thurs	8:30 – 10:50 AM	Nov 8	Animal Models
5	Wed	8:30 – 10:50 AM	Nov 14	Protein Structure
	Thurs	8:30 – 10:50 AM	Nov 15	Post-translational Modifications
6	Wed	8:30 – 10:50 AM	Nov 28	Analyzing & Manipulating DNA, RNA and Proteins
	Thurs	9:00 – 10:50 AM	Nov 29	Genetic Variation & Linkage Analysis
7	Wed	9:00 – 10:50 AM	Dec 5	Genomics & Proteomics
	Thurs	8:30 – 10:50 AM	Dec 6	Introduction to Gene Therapy Class presentations
8	Wed	9:00 – 10:50 AM	Dec 13	Exam 2
				Student Course Evaluation