



BSC 519 Advanced Gene Regulation, CRN: 82316

Instructor: Dr. Venu Cheriya

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eCompanion Site: eCollege @ MyLeo

Tue, and Thu 11.00 AM – 12.15 PM

Lectures: **STC 136**

Office Hours: Tue, Thu, and Fri 4 PM – 5 PM

Or by appointment, include BSC 519 in subject line of E-mails.

COURSE OVERVIEW:

This course is designed for graduate students with a thorough background in biology and cell biology. Therefore, this course provides students with a greater understanding of molecular mechanisms of cellular function. Emphasis will be placed on internal organization and cooperative functions of cellular organelles. Understanding of basic methodologies used in cell biology will be sought.

STUDENT LEARNING OUTCOMES (SLO):

At the end of this course students will be able to:

1. Differentiate the key differences between prokaryotic and eukaryotic gene regulation.
2. Understand various molecular mechanisms that control gene transcription and translation.
3. Learn how to critically read, interpret, present and summarize the important findings of gene regulation research articles.

TEXTBOOKS:

LEWIN'S GENES XI, 11th Edition, by Krebs, ISBN- ISBN: 9781449659059

Although this is a required book, readings of additional materials such as journal articles will be required for the successful completion of this course.

ATTENDANCE & PARTICIPATION IN ONLINE DISCUSSION:

Attendance and active participation in class discussions are expected in all classes. Because we will discuss materials outside of text book, it is important to attend classes. Your regular attendance and participation in discussions will be taken in account while grading discussion and presentation assignments. You are responsible for all material and assignments covered in class whether you attend classes or not.

Lecture Materials:

Power Point slides that I use for delivering lectures will be available at eCompanion site for this course at eCollege. Power Point slides are meant for me to deliver the lectures. You may use it as a guide to read the book and/or other reading materials but it is not the study material.

Exams and Grades:

The lecture part of the course will weigh 60%, and assignments, presentation, and discussions will weigh 40% the total. For the lecture part there will be three exams including a cumulative final (200 points each) throughout the term.

The exam will consist of three parts, multiple choice (50% of total score), short answer, correcting the statements or true or false etc. (50% of total score) and bonus questions (for 10% of total score). Multiple choice questions will test critical thinking, analytical ability, and the understanding of subject matter. Bonus questions may be chose from assignments.

Grading Policy:

3 exams including the final	750 points (75%)
Online Quizzes	150 points (15%)
Research paper discussion I	50 points (5%)
Research paper discussion II	50 points (5%)
Total	1000 points (100%)

Grading Scale:

A = 900 to 1000 points (>90%)
B = 800 to 899 points (80% to 89%)
C = 700 to 799 points (70% to 79%)
D = 600 to 699 points (60% to 69%)
F = 599 or fewer (<59%)

Overview of Assignments:

Online quizzes: Throughout the term of this course, several quizzes will be assigned online and you need to complete them in eCollege. These quizzes will consist of either T/F, multiple choice, matching and/or short answer questions. Once you complete them on review date you will be able to see answer key. Quizzes are submitted on or before the due date will be graded. After the due date you won't be able to access quizzes and if you miss them there won't be any make up quizzes.

Research Paper Discussion: I believe active and Socratic Method of learning are better ways to learn molecular and cellular biology. So in this course, each student will be assigned two seminal research papers on gene expression. While student assigned with the research paper act as the discussion leader for that particular paper, all other students must be prepared thoroughly to discuss the experimental procedures and results of the paper on discussion. The leader of discussion may use PowerPoint to provide the background and significance the topic as well as to show the figures of the research article. In order to stimulate our thinking, the discussion leader also needs to post questions for discussion in eCollege, at least three days before in-class discussion. In order to lead and participate actively in discussion, each one has to clearly understand the paper assigned for discussion. Your participation in discussion, presentation and how effectively you lead discussion will weigh towards your grade.

To calculate where you stand: You can find out up-to-date information from the gradebook available at the eCompanion site. To manually calculate, find the average of your exam score. To this add your final score of assignments, which will be your total score in 1000. Calculate the percentage. This will be your grade.

Course Calendar/Exam Schedule

Units	Date	Topic
Unit 1	Aug 25 - 29	Various levels of gene expression control
Unit 2	Sept 1 – Sept 5	Methods in gene regulation
Unit 3	Sept 8 – Sept 19	RNA polymerases and Eukaryotic Gene Transcription
Unit 4	Sept 22 – Sept 26	Transcriptional control in prokaryotes - operons
Unit 5	Sept 29 – Oct 10	Transcriptional control in eukaryotes
Exam I – October 9		
Unit 6	Oct 13 – Oct 17	Post transcriptional processes – RNA splicing and processing
Unit 7	Oct 20 – Oct 24	Post transcriptional regulation – Regulatory RNAs
Unit 8	Oct 27 – Oct 31	Structure of chromatin
Unit 9	Nov 3 – Nov 7	Chromatin structure and gene regulation
Exam II – November 6		
Unit 10	Nov 10 – Nov 14	Gene control and Cell Signaling
Unit 11	Nov 17 – Nov 21	Tissue specific gene regulation
Unit 12	Nov 24 – Dec 5	Gene regulation on cancer cells

Exam III – Final Exam – December 9, 10.30 AM to 12.30 PM

ALL DATES AND ASSIGNMENTS ARE TENTATIVE AND MAY SUBJECT TO CHANGES

Academic Integrity: A Texas A&M Commerce student does not lie, cheat, steal, and does not tolerate those who do. A violation of the Texas A&M honor code and academic integrity involves any of the following offenses: cheating, fabrication, falsification, multiple submissions, plagiarism, and complicity in any of these offenses. The first instance of cheating will result in **“ZERO”** on the exam and/or on the assignment. The second instance of cheating will result in **“ZERO”** on the course. Cheating involves copying information from another student, non-allowable materials or source and plagiarism. Once again, violations of academic integrity will not be tolerated. This class will be conducted in strict observance of the Honor Code. Refer to your Student Handbook for details.

Conduct Policy: All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. (See Student’s Guide Handbook, Policies and Procedures, Conduct).

Cell Phones/Pagers/Laptop/Tablets: Please turn your cell phone and/or pager (and other electronic devices) off during class. If you are on-call for your work, please place the cell phone or page on silent mode.

If you utilize a laptop to take class notes, please be aware of potentially distracting others around you and seat yourself accordingly. Additionally, you may be asked to leave the class if it is determined you are utilizing a computer to do outside work, surf the web inappropriately or communicate personal conversations. Texting is prohibited and devices will be collected and kept until the end of class.

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment (See Students’ Guide Handbook, Policies and Procedures).

Tapes and Notes: Prior permission are required to make recordings of this class for personal use, recordings may not be sold or distributed to others. While you may make copies of these notes for your personal use, no copy of these notes may be distributed to anyone other than persons who are currently enrolled in the class; nor may any copies be sold.

Students with Disabilities/Reasonable Accommodation: *The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact: Office of Student Disability Resources and Services*

Texas A&M University-Commerce

Gee Library, Room 132

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

StudentDisabilityServices@tamu-commerce.edu

Behavior: *All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Handbook, Policies and Procedures, Conduct).*

Plagiarism: *Plagiarism is a criminal activity. You must cite all sources of information. Unreferenced copying of material, whether parts of sentences, whole sentences, paragraphs, or entire articles can result in a score of zero for your assignment and may result in further disciplinary action. If you are copying material and citing references, you are expected to paraphrase and rewrite the sentences in your own words.*

Early Intervention for First Year Students: *Early intervention for freshmen is designed to communicate the University's interest in their success and a willingness to participate fully to help students accomplish their academic objectives. The university through faculty advisers and mentors will assist students who may be experiencing difficulty to focus on improvement and course completion. This process will allow students to be knowledgeable about their academic progress early in the semester and will provide faculty and staff with useful data for assisting students and enhancing retention. Grade reports will be mailed by the end of the sixth week of the semester.*