BSC 419 Gene Control, CRN: 40750
Summer I 2026

Instructor:	**Dr. Venu Cheriyath**
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Electronic Office hours:	**Tues and Thu 12 PM–1 PM** **Office hrs will be conducted via Chat or YouSeeU virtual class room in D2L.** Or by appointment, include BSC 519 or 419 Gene Regulation in subject line of E-mails.

COURSE OVERVIEW:
This is a cross listed course designed for graduate students and undergraduate seniors with a thorough background in biology and cell biology. Therefore, this course provides students with a greater understanding of molecular mechanisms of regulation of genes to determine cellular function. Emphasis will be placed on internal organization and cooperative functions of transcription factors and cellular signals. Understanding of basic methodologies used in molecular biology will be sought. Graduate students are expected to demonstrate higher order thinking, analytical, and problem solving skills.

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, and summarize the important findings of gene regulation research articles.
4. Use concepts in gene regulation to formulate a project to solve an existing problem or fill existing knowledge gap.
5. Critically analyze and present original research articles in gene regulation.

REQUIRED TEXTBOOK:

GENE CONTROL, 3rd Edition by David Latchman and Venugopalan Cheriyath
eBook ISBN: 978-1003382225; Hard copy ISBN:978-1040259290

Chapters from this textbook will be used. Purchasing textbook also will provide access to student resources.

INSTRUCTION METHOD
This syllabus is a suggested outline. It represents the minimum material that we will cover in this course. Dates are approximate and subject to change. If there is any major changes to the syllabus it will be

posted in D1L and the syllabus will be updated accordingly. You are responsible for keeping up with any changes made to the syllabus. *You may be tested on any material listed in the syllabus, on your class page and discussed during office hrs/webinars.* Considering this is a summer course, we will be covering atleast two chapters per week.

Web-Based Course: The structure of this course is predicated at student reading. Considering enormous volume of information available in Stem Cell Biology field, it is impossible to cover everything in a course. ***Since it is an online graduate level course lot of self learning will be involved and a minimum of one chapter of reading and associated work will be required per week. This means you need to spend a considerable amount of time in integrating the materials that been covered in this course.*** I have selected these chapters to provide a thorough understanding in gene regulation. PowerPoint slides, additional reading materials as well as activities will be included to help your learning. Your progress in this course will be measured using weekly quizzes, problem solving assignments, and three exams including a final. You may monitor your progress in D2L Gradebook.

How to Succeed in the Class: For successful course completion, your active and timely participation is essential. As an online class on Stem Cell Biology, I expect that you have a back ground in cell biology. You must read chapters prescribed for each week and go through additional lecture materials, assignments and activities. From my prior experience, exchanging e-mails are poor strategies of online learning, therefore, ***I encourage to clear any questions that you may have during electronic office hours via the "Zoom" feature available in D2L-Brightspace.***

Class Policies: In this online class, students are required to be self-learners and self-directed. The fact that you might be taking several online classes and working full time may put additional pressure on you, but it would not be considered as a reason for diluting the rigor of this course. **This class will keep the rigor, time line, and standards of a face-to-face class.**

E-mail and Communication: If you are e-mailing me please use your university e-mail account and please put BSC 517, Stem Cell Biology in subject line. If you use an e-mail account without an ".edu" extension, it may end up in my spam folder. During work days, I will respond to e-mails within 24 hrs and e-mails received during weekends will be responded on the next working day. Most of the correspondence will be announced on the course homepage, therefore check course homepage in D2L-Brightspace as-often-as possible.

Electronic Office Hours: You may access office hours on Mon, Wed, Fri at 1 –2 pm CST.

Lecture Materials: Power Point slides that I use for delivering lectures in face-to-face course will be made available in D2L (Brightspace). **Note that** ***lecture slides must not be treated as lecture notes. You may use it as a reference or guide to read the book but not as study material.*** **If you use PowerPoint slides as the main source for your study, you may not perform well in tests.** ***Materials provided in this course including lecture slides are copy righted and must not share them without obtaining permission.***

Grading Policy for Graduate Students:

2 exams including the final	600 points (60%)
Online Quizzes	150 points (15%)
Problem Solving Assignments	250 points (25%)
Total	1000 points (100%)

Grading Scale:
A = 900 to 1000 points (>90%)
B = 800 to 899 points (80% to 89.9%)

C = 700 to 799 points (70% to 79.9%)
D = 600 to 699 points (60% to 69.9%)
F = 599 or fewer (<59.9%)

Overview of Assignments:
Online quizzes (150 points): Throughout the term of this course, several quizzes will be assigned online and you need to complete them in D2L Brightspace. 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.

Problem Solving Assignments (250 points of total): Throughout the duration of this course several problems solving questions will be assigned, which will be due in a week after they were assigned. It works for your advantage to solve these problems by yourself, which will increase your success in weekly quizzes and later in exams. Solving problems will augment concepts covered in lectures and help you retain them. Also, some of these questions may serve as the basis for multiple choices and for short answer questions of exams. To receive credits, it is **mandatory to upload a typed copy of the solved problems in D2L in .doc or .docx format on or before its due dates. Hand written copies would not be accepted and** late submissions or problem sets submitted by any other means (E-mail) won't be evaluated.

Exams and Grades: For this course there will be three exams including a cumulative final (200 points each, or 20% each) throughout the term. Exam questions will test critical thinking, analytical ability, and the understanding of subject matter. Therefore, it is important to understand the concepts. If you miss an exam for reasons other than university-approved emergencies, make up exams would not be provided.

To calculate where you stand: You can find out up-to-date information from the gradebook in D2L. 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	June 1 – June 7	Levels of gene expression control Chapter 1 from the textbook Review Article (Provided)
Unit 2		Methods in gene regulation Chapter 1 from the textbook Review Article –https://www.sciencedirect.com/science/article/abs/pii/S1046202397904771?via%3Dihub - Full text access through ETAMU library
Unit 3	June 8 – June 14	Prokaryotic Transcription (Chapter 2 from the textbook)
Unit 4		Eukaryotic Transcription (Chapter 6 from the Textbook)
		Midterm June 19th (Wednesday)
Unit 5	June 15 – June 21	RNA Processing (Chapter 8 from the textbook plus provided reading material)

Unit 6		Prokaryotic Gene Regulation (Chapter 3 from the textbook)
Unit 7	June 22 – June 28	Eukaryotic Gene Regulation (Chapter 7 from the rextbook and Provided Reading Material)
Unit 8		Chromatin Remodeling and Gene Regulation (Chapters 4 & 5 from the textbook and Provided Reading Material)

Final Exam July 1st

***ALL DATES AND ASSIGNMENTS ARE TENTATIVE AND MAY SUBJECT TO CHANGES**

Sample Study Week:

Step 1–Download lecture slides and supporting materials from D2L.

Step 2–**Critically** read chapters and supporting materials, make notes (*simply going through the materials are not going to be enough, focus on concepts, molecular mechanisms etc..*)

Step 3–Complete assignments and upload into D2L by due date.

Step 4–Review materials and your notes and participate in officer hours to clear any questions that you may have.

Step 5–Take online quizzes in D2L when they are due.

Step 6–Review again before the test due date and take online tests.

Academic Integrity: A Texas A&M University-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 results in "ZERO" on the exam and/or on the assignment. The second instance of cheating will results 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).

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).*
http://www.tamuc.edu/academics/universityCollege/successCoaches/default.aspx

Plagiarism: Plagiarism is a criminal activity. You must cite all sources of information. Unreferenced and non-paraphrased 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.

Piracy: ***Materials provided in this course including lecture slides are copy righted and must not share them without obtaining permission.***

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@tamuc.edu

If you have not taken a course in e-College before, please use the tutorial provided for students in D2L. It will save you a lot of time and frustration and a lot faster than trial and error.

ACCESS AND NAVIGATION

D2L Brightspace Access and Log in Information

This course will be facilitated using D2L Brightspace, the learning management system used by Texas A&M University-Commerce. To get started with the course, go to myLeo and from App window select MyLeoOnline (D2L Brightspace) App. From home menu choose your course.

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: It is strongly recommended you perform a "Browser Test" prior to the start of your course.

TECHNOLOGY REQUIREMENTS

Browser support

D2L is committed to performing key application testing when new browser versions are released. New and updated functionality is also tested against the latest version of supported browsers. However, due to the frequency of some browser releases, D2L cannot guarantee that each browser version will perform as expected. If you encounter any issues with any of the browser versions listed in the tables below, contact D2L Support, who will determine the best course of action for resolution. Reported issues are prioritized by supported browsers and then maintenance browsers.

Supported browsers are the latest or most recent browser versions that are tested against new versions of D2L products. Customers can report problems and receive support for issues. For an optimal experience, D2L recommends using supported browsers with D2L products.

Maintenance browsers are older browser versions that are not tested extensively against new versions of D2L products. Customers can still report problems and receive support for critical issues; however, D2L does not guarantee all issues will be addressed. A maintenance browser becomes officially unsupported after one year.

Note the following:

Ensure that your browser has JavaScript and Cookies enabled.
For desktop systems, you must have Adobe Flash Player 10.1 or greater.

The Brightspace Support features are now optimized for production environments when using the Google Chrome browser, Apple Safari browser, Microsoft Edge browser, Microsoft Internet Explorer browser, and Mozilla Firefox browsers.

Desktop Support

Browser	Supported Browser Version(s)	Maintenance Browser Version(s)
Microsoft® Edge	Latest	N/A
Microsoft® Internet Explorer®	N/A	11
Mozilla® Firefox®	Latest, ESR	N/A
Google® Chrome™	Latest	N/A
Apple® Safari®	Latest	N/A

Tablet and Mobile Support

Device	Operating System	Browser	Supported Browser Version(s)
Android™	Android 4.4+	Chrome	Latest
Apple	iOS•	Safari, Chrome	The current major version of iOS (the latest minor or point release of that major version) and the previous major version of iOS (the latest minor or point release of that major version). For example, as of June 7, 2017, D2Lsupports iOS 10.3.2 and iOS 9.3.5, but not iOS 10.2.1, 9.0.2, or any other version. Chrome: Latest version for the iOS browser.
Windows	Windows 10	Edge, Chrome, Firefox	Latest of all browsers, and Firefox ESR.

- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:

- 512 MB of RAM, 1 GB or more preferred
- Broadband connection required courses are heavily video intensive
- Video display capable of high-color 16-bit display 1024 x 768 or higher resolution

- You must have a:
  - Sound card, which is usually integrated into your desktop or laptop computer
  - Speakers or headphones.
  - *For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.

- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. At a minimum Java 7, update 51, is required to support the learning management system. The most current version of Java can be downloaded at: JAVA web site http://www.java.com/en/download/manual.jsp

- Current anti-virus software must be installed and kept up to date.

Running the browser check will ensure your internet browser is supported.

Pop-ups are allowed.
JavaScript is enabled.
Cookies are enabled.

- You will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:
  - Adobe Reader https://get.adobe.com/reader/
  - Adobe Flash Player *(version 17 or later)* https://get.adobe.com/flashplayer/
  - Adobe Shockwave Player https://get.adobe.com/shockwave/
  - Apple Quick Time http://www.apple.com/quicktime/download/

- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or helpdesk@tamuc.edu.

Note: Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

COMMUNICATION AND SUPPORT

Brightspace Support

Need Help?

Student Support

If you have any questions or are having difficulties with the course material, please contact your Instructor.

Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778 or click on the **Chat** or click on the words "click here" to submit an issue via email.

Live

System Maintenance

Please note that on the 4th Sunday of each month there will be System Maintenance which means the system will not be available 12 pm-6 am CST.

COMMUNICATION AND SUPPORT

All e-mail received during normal business hours will be replied within 48 hrs and e-mails received during weekends will be responded on the following Monday.

COURSE AND UNIVERSITY PROCEDURES/POLICIES

Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

University Specific Procedures

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the Student Guidebook.
http://www.tamuc.edu/admissions/registrar/documents/studentGuidebook.pdf

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: Netiquette http://www.albion.com/netiquette/corerules.html

TAMUC Attendance

For more information about the attendance policy please visit the Attendance webpage and Procedure 13.99.99.R0.01. http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf

Academic Integrity

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

Undergraduate Academic Dishonesty 13.99.99.R0.03

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf

Graduate Student Academic Dishonesty 13.99.99.R0.10

http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf **Students with Disabilities**

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

Email: Rebecca.Tuerk@tamuc.edu

Website: Office of Student Disability Resources and Services

http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

Campus Concealed Carry Statement

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun.

Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the Carrying Concealed Handguns On Campus document and/or consult your event organizer.

Web url: http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M- Commerce campuses. Report violations to the University Police Department at 903- 886-5868 or 9-1-1.