



BSC 521 Epigenetics (CRN: 22947), Spring, 2016

Prerequisites: An undergraduate degree in Biology or related discipline, or permission from instructor.

Instructor: Dr. Venu Cheriya
Office: Science Building, STC: 261
Phone: 903-468-6064
E-Mail: Venu.cheriyath@tamuc.edu
Web Page: <http://faculty.tamu-commerce.edu/vcheriyath/>
eCompanion Site: eCollege @ MyLeo
Lectures: **On-Line; Tuesday and Thursday Nights 7:00 PM to 8:00 PM CST**
Electronic Office Hours: Tue and Thu 4 PM – 5 PM
(Or by appointment; include BSC 521, Epigenetics in subject line of E-Mails)

Course Overview:

BSc 521 Epigenetics Course will provide a rigorous foundation in epigenetics and epigenomics. It will emphasize various epigenetics process, how the epigenetic status of the genome forms and maintains, role of epigenetic processes in gene regulation, its involvement in disease development, therapies and recent advances in assessing epigenetic changes of the genome. Based on the review of the seminal works in epigenetics field, this course will familiarize the student with current technology and driving principles of the field of epigenetics.

Student Learning Outcomes (SLO):

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

1. Differentiate epigenetic inheritance from genetic inheritance and various methods to assess gene specific and genome wide epigenetic changes.
2. Understand the structure and organization of chromatin and how it plays a role in epigenetic regulation.
3. Understand the role of DNA methylation in epigenetic gene regulation.
4. Understand the connection between epigenetic changes and various disorders including cancer and the clinical use of chemicals that modulates epigenetic processes.

Required Reading:

Handbook of Epigenetics, First Edition, 2011, Edited by Trygve Tollefsbol, ISBN: 978-0-12-375709-8, Academic Press Publications, Elsevier Inc.

You are not required to buy the aforementioned text book. PDF copy of the chapters from the book and other resources that will be covered in the course will be posted in eCollege. You

could also download the electronic version of the book from internet.

Recommended Textbook:

Epigenetics by Armstrong (2013), ISBN: 9780815365112

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 e-College and the syllabus will be updated accordingly. You are responsible for keeping up with any changes made to the syllabus. Additional topics and materials may be discussed as our webinar discussions warrant. You may be tested on any material listed in the syllabus, on your class page and discussed in class.

Web-Based Course: The structure of this course is predicated at student attending the webinars, watching recording sessions and learning of the materials posted in Docsharing. You are expected to look at all materials discussed in webinars and posted in Docsharing. **If you have not taken a course in e-College before, please use the tutorial provided for students. It will save you a lot of time and frustration and a lot faster than trial and error.** I will also include animations, videos and PowerPoint slides to help your learning.

Webinars: This course has a twice weekly 1 hr webinars offered on Tuesday and Thursday nights from 7:00 pm CST to 8:00 pm CST. You are required to participate live or watch the recorded session. The webinar is your opportunity to have a live and interactive session with me and to check and extend your knowledge in this course. The links for Webinars will be provided via e-mail. You will need the following accessories to participate in webinars.

1) A Highspeed Internet Connection: To connect you must have a cable, DSL, or a high speed modem connection. Dial-up connection will not work and is not sufficient.

2) Web Camera and a Head Set with a microphone: Since we are using Voice-Over-IP (VOIP), you will need a head set with earphone and microphone and a good web camera. The headset combo may be purchased for less than \$20.00 at any electronic shops.

How to Succeed in the Class: As an online class on Epigenetics, I expect that you have a basic ground in Cell Biology/Molecular Biology and Genetics. You must read chapters prescribed for each week and go through additional PowerPoint slides and videos. Attend webinars and/or watch recordings of the webinars to enhance your understandings or clear any doubts that you may have. From my prior experience, online-discussions and exchanging e-mails are poor strategies of online learning. Progress in the class can monitored using Gradebook in eCollege

Class Policies:

In an 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 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 put

BSC 521, Epigenetics in subject line. If you use an e-mail account without “.edu” extension, it may end up in my spam folder as a result you may not receive a response. During work days, I will respond to e-mails that I receive within 48 hrs. Since I check e-mails occasionally on weekends, e-mails received on weekends will be responded on the next working day. Most of the correspondence will be announced on the course homepage, therefore check course homepage as-often-as possible.

Electronic Office Hours: You may access office hours on Tuesday and Thursday from 4 to 5 pm CST through the “Chat” feature. I strongly suggest you to use electronic office hours rather than e-mailing me. This is a live and interactive way for you to talk with me. If no students are in office hours by 4.15 pm CST; I will go offline

Lecture Materials:

PowerPoint slides that I use for delivering online lectures will be made available in eCollege. However, I would like to stress the point that **PowerPoint slides are meant for me to deliver lectures and 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 just use the PowerPoint slides for study, you may not perform well in tests.

Overview of Assignments and Exams:

Weekly Quizzes (25% of Total):

After covering each unit, there will be a quiz which needs to be taken online in eCollege. Quizzes are due @11.59 PM on every Monday. Each quiz will contain 10 - 20 questions and worth of 20 points. **If you miss a quiz or perform poorly, there won't be any makeup quiz.**

Exams and Grades:

There will be three exams including the final. Exams will be conceptual based and questions will test critical thinking, analytical ability, and the understanding of subject matter. Therefore, it is important to understand the concepts to perform well in this course. **If you miss an exam other than the reasons of university-approved emergencies make-up exams would not be allowed. In the event of a make-up examination, it may be provided only in the TAMUC campus that means you need to travel to the campus.**

Grading Policy:

Three exams including the Final	= 300 points (75%)
Weekly Quizzes	= 100 points (25%)
Total	= 400 points

Grading Scale:

- A = ≥90%
- B = ≥80%
- C = ≥70%
- D = ≥58%
- F = ≤58%

To calculate where you stand:

Your up-to-date scores and percentage will be available in the grade book of eCollege. Add your 3 exam scores, scores in assignments, and your final score of lab and assignment plus any extra credit points that you have, which will be your total score in 1000. Calculate the percentage. This will be your grade.

Course Calendar/Exam Schedule

Units	Topic
Unit 1	Introduction to Epigenetics
Unit 2	Higher order chromatin organization
Unit 3	Mechanisms of DNA methylation
Unit 4	Mechanisms of histone modifications
	Exam I
Unit 5	Epigenetics of non-coding RNA
Unit 6	Polycomb and Trithorax in epigenetic regulation
Unit 7	Histone methylation and epigenetics
	Exam II
Unit 8	Epigenetics and X-chromosome inactivation
Unit 9	Epigenetics and cancer
Unit 10	Metabolic Regulation of Epigenetics
Unit 11	Epigenetic therapies
	Final Exam

***ALL Units AND ASSIGNMENTS ARE TENTATIVE AND MAY SUBJECT TO CHANGE!!**

Sample Study Week:

While I will be available live during webinars, electronic office hours and scheduled one-on-one's, these are few steps that you may employ for self-directed study,

Step 1 - Download reading and supporting materials from DocSharing.

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 - **Attend webinars**, ask questions during webinars and office hours to clear any concepts that you didn't understand.

Step 4 - Review materials and your notes from webinars.

Step 5 - Take online quizzes in e-College 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 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).

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. Referenced or 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. Citing references doesn't mean you can copy sentences from original work, you are required to rewrite and paraphrase the sentences in your own words when you cite references.

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