

**BSC 597 – Genomics and Epigenomics (CRN: 82104)**  
**Fall 2012**

**Instructor**                      **Dr. Venu Cheriya**  
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**Lectures**                              **On-line**

**Office Hours**                      Thursday – Friday, 4.00 PM to 5.00 PM  
Or by appointment, include BSC 597\_Genomics and Epigenomics  
in subject line.

**Course overview:**

This course will provide a rigorous foundation in epigenetics and epigenomics. This course will emphasize the epigenetics process of gene regulation, its involvement in disease processes, therapies and recent advances in assessing epigenetic changes. Based on the review of the seminal works in epigenetics 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 suggested text book. I will post the PDF version of the chapters from the book and other resources that will be covered in the course in eCollege. You could also download the electronic version of the book from internet.

## INSTRUCTION METHOD

**Web-Based Course:** The structure of this course is predicated at student reading at one's own pace. I will also include animations, videos and PowerPoint slides to help your learning. To measure the progress of your learning there will be two exams (a midterm and a final) and weekly quizzes. Additionally, you are required to initiate or participate in weekly discussions online, which should help you to reinforce the materials that you learned and to clear any questions or doubts about the topics that have been covered. Check the announcements on the course homepage in eCollege often as all correspondence will be through there. I will email the class when announcements have been posted. Your progress in the class can monitored using Gradebook in eCollege

### **Assignments:**

**Online quizzes:** Throughout the term of this course, several quizzes (once in every week) 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 answer and submit them you will see the answers. If you do them during the week (Sunday through Sunday) in which they are assigned you will receive full credit for correct answers on Mondays. If you are late, you won't be able to access these assignments and there won't be any make up quizzes.

**Exams:** There will be only **three** exams including the final. The exams will consist of all short answer questions. You can access your questions through eCollege. You can then copy and paste them to a word document and upload your answers to the drop box in eCollege.

**Makeup Policy:** The student is responsible for requesting a makeup when they are unable to take the regularly scheduled examination and must schedule the makeup within 2 days of the absence. Makeup exams will be scheduled only in the event of an EXCUSED absence (as defined in the Student's Guidebook). If the test is not made-up, the student will receive a zero for that exam.

**Discussion:** I am hoping to have a lively constructive discussion for this class. Therefore I ask that each student post and discuss a topic they learned about in that given week. It is said that the best way to retain the material that you leaned is to teach others. Therefore I want you to attempt to "teach" the rest of the class something that you learned. In addition I may post some hypothetical questions/scenarios for discussion. Everyone is required to participate and post in weekly discussions. It will count as 50 points (10 points per week) and be worth half an exam grade. Again this is mandatory.

### **Grading Policy:**

<b>3 exams including Final</b>	= 300 points
<b>Assignments</b>	= 100 points
<b>Discussions</b>	= 100 points
<b>TOTAL</b>	= 500points

**Grading Scale:**

A = 90 – 100%

B = 80 - 89%

C = 70 - 79%

D = 60 – 69%

F = 00 – 59%

**To find out where you stand:**

You can find out up-to-date information from the gradebook available at the eCollege.

**Course Calendar/Exam Schedule**

<b>Units</b>	<b>Topic</b>
Unit 1	Introduction to Epigenetics
Unit 2	Chromatin template and higher order chromatin organization
Unit 3	Mechanisms of DNA methylation
Unit 4	Mechanisms of histone modifications
	<b>Exam I</b>
Unit 5	Epigenetics of non-coding RNA
Unit 6	Polycomb and Trithorax in epigenetic regulation
Unit 7	Histone methylation and epigenetics
Unit 8	Assessing epigenetic information
	<b>Exam II</b>
Unit 9	Epigenetics and X-chromosome inactivation
Unit 10	Epigenetics and cancer
Unit 11	Epigenetics and metabolic disorders
Unit 12	Epigenetic therapies
	<b>Exam III</b>

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

**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.

**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. 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.*

**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).

**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](mailto:StudentDisabilityServices@tamu-commerce.edu)

**Access to Student Work:**

Copies of your work in this course including copies of any submitted papers and your portfolios may be kept on file for institutional research, assessment and accreditation purposes. All work used for these purposes will be submitted anonymously.

**University Policy on Payment:**

The first day of class that Summer II 2011 schedules will be dropped is on Thursday, July 14<sup>th</sup> for students who have not paid the balance due on their accounts. Check the status of your accounts on MyLeo. It is available 24/7 at <https://leo.tamu-commerce.edu/login.aspx>. If you need assistance to pay their balance, please refer to the Bursar's Office (903-886-5051).