BSC 589 – Genetic Analysis (CRN: 23202) Spring 2015

Instructor:	**Dr. Venu Cheriyath**
Office:	Science Bldg. (STC) 261
Phone:	903-468-6064
E-Mail:	venu.cheriyath@tamuc.edu
Web page:	http://faculty.tamu-commerce.edu/vcheriyath/
eCompanion Site:	eCollege @ MyLeo
	Tue, Thr 11.00 AM – 12.15 PM
Lectures:	**@STC 136**
Office Hours:	Tue, Thu, and Fri 4 PM – 5 PM Or by appointment, include BSC 303 Cell Biology in subject line of E-mails..

Course overview:
This course is designed for students who have taken introductory genetics and have a general familiarity with cell and molecular biology. Therefore, this course provides students with an in-depth investigation into DNA technology and practical application of genetic study. Emphasis will be placed on eukaryotic gene mapping, gene functional studies and on genomics, and its practical applications. Students are expected to gain an in-depth understanding of analysis, strategy and experimental logic used in deriving the basic principles and concepts of genetics at the molecular level.

Student Learning Outcomes (SLO):
At the completion of this course students will be able to:

1. Describe the development of gene concept.
2. Understand genome databases of various model organisms.
3. Discuss the principles of genetic screens using mutants.
4. Understand methods to analyze gene mapping and cloning of genes.
5. Describe methods to assess gene activity.

Textbook:
Advanced Genetic Analysis, Genes, genomes and networks in eukaryotes, 2nd edition by Philip Meneely, ISBN: 9780199651818

We will cover part of the subject matter presented in this book, but not necessarily in order. Chapter assignments are listed on the Course Schedule. Subject material of this course is built on facts and concepts covered in BSC 303 Cell Biology and BSc Genetics, especially the molecular genetics part. If you do not remember that material you should review it from the book. Those who haven't finished these courses may find this course difficult.

Supplemental Reading:
GENETICS: Analysis and Principles, 4th edition, by Robert J. Brooker, ISBN-13: 978-0077474904 (with connectplus access); ISBN-10: 0073525286 or ISBN-13: 978-0073525280 (without connectplus access)

While this is a text book recommended at undergraduate level, reviewing this book may help you to understand basic concepts and problems in genetics.

CLASS POLICIES:

Web-Based Course: *Although this is an Independent Study Course*, the structure of this course is predicated at student reading and completing all assignments on-time. To help your learning and understanding of the material, animations, videos, and/or PowerPoint slides will be provided. To measure the progress of your learning there will be three exams including the final are designed. 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

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 answer and submit them you will see the answers. If you would not complete quizzes on or before they are due, you won't be able to access these assignments and there won't be any make up quizzes.

Case Studies and Problem Sets: Throughout the course, concept-based case studies and problems will be assigned. You will earn full points for timely completion of this assignment, even if your answers are not correct. Solving these problems will help your understanding of the concepts. Some of these concepts-based questions or problems may appear in exams. You are required submit the solved problem sets in eCollege.

For completing the assigned problems and submitting it in e-College on time you will earn 70% of the problem solving assignment grade and 30% of the grade will be awarded for correct answers with detailed steps. Answers of the problem sets will be discussed and will be evaluated in the class. Therefore, it is mandatory to bring a printed copy of the solved problem set to the class for receiving completion grades. Problem sets submitted by any other means such as E-mail would not be evaluated.

Exams and Grades:

The lecture part of the course will weigh 75%, and assignments and discussions will weigh 25% the total. For the lecture part there will be three exams including a cumulative final (200 points each) throughout the term.

Grading Policy:

3 term exams including the final	= 750 points (75%)
Assignments	
Weekly Quizzes	= 100 points (10%)
Weekly Problem Solving	= 150 points (15%)
TOTAL	=1000 points (100%)

Grading Scale:

A = 900 to 1000 points (>90%)
B = 800 to 899 points (>80%)
C = 700 to 799 points (>70%)
D = 580 to 679 points (>58%)
F = 579 or fewer (<58%)

To calculate where you stand: Your up to date scores and percentages will be available in the grade book of eCollege. Add your 4 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

Date	Lecture Materials
Unit 1	Introduction to Genetics and Basic Mendelian Inheritance
Unit 2	Extensions of Mendelian Inheritance
Unit 3	Chromosome theory of Inheritance
Unit 4	Development of Gene Concept
EXAM 1	
Unit 5	Model Organisms
Unit 6	DNA Mutation and Repair
Unit 7	Principle of Genetic Screens and Selections
Unit 8	Mapping of Genes and Mutants
EXAM 2	
Unit 9	Gene Cloning
Unit 10	Genome Wide Mutant Screens
Unit 11	Gene Interaction
Unit 12	Genomics and Bioinformatics

FINAL EXAM – May 12th, Tuesday @ 10.30 AM

- ALL DATES AND ASSIGNMENTS ARE TENTATIVE AND MAY SUBJECT TO CHANGE

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).

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 pager on silent or vibration mode. Electronic devices are strictly prohibited in lab.

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 or electronic device 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: While recordings of this class may be made for personal use with prior permission, 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.

Lab behavior: If handled improperly, some chemicals used in the lab become dangerous. Drinking, eating and the use of electronic devices is PROHIBITED in the lab! Disruptive behavior in lab that could be considered a hazard to another student will result in immediate removal from the lab. Intentionally damaging lab equipment may result in a ZERO for the class and possibly severe financial penalties as many pieces of equipment we will be using are expensive. SEEK HELP, If you do not know how to use some instruments (see laboratory syllabus for details)

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*
Gee Library, Room 132, Texas A&M University-Commerce
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. 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 advisors 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.