Instructor: Dr. Venu Cheriyath  
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Web page: http://faculty.tamu-commerce.edu/vcheriyath/  
eCompanion Site: eCollege @ MyLeo  
Lectures: Mon, Wed, Thu, 9.00 AM – 9.50 AM  
STC 123  
Lab: Wednesdays 1 - 3.50 PM, or 4 - 6.50 PM  
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 will provide a rigorous foundation in principles of genetics that governs the biological functions at the level of molecules and cells in organisms, including humans. The topics include: basic and extension of Mendelian inheritance, structure and function of genes, chromosomes and genomes, biological variation resulting from recombination, mutation, and selection, population genetics, use and application of genetic methods and genomics to analyze biological function and inherited disease. Being a global course, this course treat the molecular genetics content in the context of an interconnected world and empower students to apply the knowledge of molecular genetics and genomics to address global issues.

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

1. Conceptualize principles of Mendelian genetics.

2. Understand how genetic information for biological functions are maintained in chromosomes and altered during evolution and under disease causing conditions.

3. Understand and critically analyze the fundamental concepts in molecular genetics

4. Understand the significance of genetics in the context of an interconnected world and apply the knowledge of molecular genetics and genomics to resolve a global issue.

5. Isolate, analyze, and amplify genetic material (DNA) from bacteria.

Textbook:
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, especially the molecular genetics part. If you do not remember that material you should review it from the book. Those who haven’t finished BSC 303 Cell Biology may find this course difficult.**

**CLASS POLICIES:**

**Attendance & Participation (20 points or 2% of total):**
I expect your attendance in ALL classes and labs. This course will follow active learning methods and your active participation in class activities are expected. You will work both in groups and individually during and after the class to complete various assignments. You may earn up to 10 points of total 1%) for not making more than 3 unexcused absences and another 10 points for active participation in class room activities. Attendance would be taken in the beginning of every class using iClickers. Similarly, iClickers will be used to measure your active participation in class activities. If you are not present in most time of a class, it will be counted as an absence and you will lose points for both attendance and for participation. You are responsible for all material and assignments covered in class whether you are present or not. **IN ORDER TO GAIN FULL CREDIT YOU ARE REQUIRED TO COMPLETE A ELECTRONIC PORTFOLIO (ePORTFOLIO) OF GLOBAL SCHOLAR PROGRAM.** Instructions will be provided in the class.

**iClickers:** The iClicker student response system will be used in all classes of this course. The iClicker helps me to understand what you know and gives everyone a chance to participate in class. As mentioned earlier, iClicker will be used to keep track of attendance; (see the attendance policy on page of the syllabus). Participation with iClicker will account for 1% of your total grade. I will drop 2 of the lowest weekly scores to account for times you forget to bring your clicker to class.

**iClickers are available for checkout at the Gee Library.**

**Student Responsibilities:**
The iClicker will be used almost every class, and you are responsible for bringing your remote daily. You are also required to make sure that is charged, connected, and in proper working order at all times. If your device is dead or not properly connected, you will not earn points towards your grade. You are required to register your device.

**How to register:**
To receive credit for the responses you submit with i>clicker, you must collect iClicker and register it on or before by January 21st. Students who register after this time will not receive credit, unless they joined the course on a later date.

Register your clicker @ [http://www1.iclicker.com/register-student-remote](http://www1.iclicker.com/register-student-remote)

You must register your clicker on iclicker.com. Use your CWID (Campus Wide ID) in the student ID field. This will allow me to match your responses with your name. If you make a mistake registering, just register again-the correct information will take precedence. You must have come to class at least once and voted on at least one question in order to complete this registration properly.
**Lost or Damaged Devices:** If device is lost, stolen, damaged the student will have to:
1) Notify instructor immediately.
2) Provide written documentation of the situation to the instructor.
3) Contact the Library.
4) The Library will automatically place hold/fine on student's account.

**End of Semester Procedure:** Devices are to be checked back into the library no later than the Friday before final exams. Devices that are not checked back in will result in a hold being placed on the student's account.

**Cheating Using Clicker:**
I consider bringing a fellow student's iClicker to class to be cheating and a violation of the University Honor Code. If you are caught with a remote other than your own or have votes in a class that you did not attend, you will forfeit all clicker points and may face additional disciplinary action.

**Lecture Materials:** Power Point slides that I use for delivering lectures will be available at eCollege, the ecompanion site for this course. However, I would like to make it very clear that Power Point slides are meant for me to deliver lectures and not to be treated as lecture note. You may use it as a reference or guide to read the book but not as study material. Instead of reading the book, if you just use PowerPoint slides as study material you may not perform well in tests.

**Overview of Assignments:**

**Problem Solving Assignments (75 points of total):**
At the end of each unit/chapter, a set of problem solving questions will be assigned, which are due in a week and will be worth of 5 points. Based on the above questions and lectures there will be weekly quizzes (multiple choice) for 5 points. Therefore, it works for your advantage to solve these problems by yourself as you go along the week, which will increase your success in weekly quizzes and later in exams. Bonus questions (10%) of exams will be chosen from weekly problem sets with some modification. While 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.

For completing the assigned problems and submitting it in e-College on time you will earn 70% (3.5 points) of the problem solving assignment grade and 30% (1.5 points) of the grade will be awarded for correct answers with detailed steps. Before the beginning of each lab, each questions of the problem set will be discussed and will be evaluated. Therefore, it is mandatory to bring the solved problem set for each lab 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 lab part will weigh 25% of the total. For the lecture part there will be three exams (200 points each) throughout the term and a cumulative final exam (200 points). Your lowest exam score will be dropped.

The exam will consist of three parts, multiple choice (50% of total score), essays (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. Essay questions will be chose from weekly essays, whereas bonus questions will be chose from problem sets.
Grading Policy:
4 term exams including the final = 600 points (60%)
Assignments
Weekly Quizzes = 65 points (6.5%)
Weekly Problem Solving = 65 points (6.5%)
Attendance = 20 points (2%)
Lab = 250 points (25%)
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

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<th>Lecture Materials</th>
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<td>Unit 1, Week 1 (Jan 19 – 23)</td>
<td>Introduction to Genetics</td>
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<td>Unit 2, Week 2 (Jan 26 – 30)</td>
<td>Basic Mendelian Inheritance, Contd..</td>
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<td>Unit 3, Week 3 (Feb 2 – Feb 6)</td>
<td>Reproduction and Cell Division</td>
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<tr>
<td>Unit 4, Week 4 (Feb 9 – 13)</td>
<td>Extensions of Mendelian Inheritance</td>
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<td>EXAM 1 – Week of Feb 11</td>
<td>Gene Linkage and Gene Mapping</td>
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<td>Unit 5, Week 5 (Feb 16 – 20)</td>
<td>Chromosome structure &amp; Organization</td>
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<td>Unit 6, Week 6 (Feb 23 – 27)</td>
<td>Chromosomal Variation and Disease</td>
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<td>Unit 7, Week 7 (Mar 2 – Mar 6)</td>
<td>DNA Replication</td>
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<td>Unit 8, Week 8 (Mar 9 – Mar 13)</td>
<td>DNA Mutation and Repair</td>
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<td>Spring Break – March 16 – March 20</td>
<td>DNA Recombination and Transposition</td>
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<td>EXAM 2 – Week of March 4</td>
<td>Recombinant DNA Technology</td>
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<td>Unit 9, Week 10 (Mar 23 – 27)</td>
<td>Biotechnology and Transgenic Org</td>
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<td>Unit 10, Week 11 (Mar 30 – Apr 3)</td>
<td>Genomic DNA Analysis</td>
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<td>Unit 11, Week 12 (Apr 6 – 10)</td>
<td>Functional Genomics and Bioinformatics</td>
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<td>Unit 12, Week 13 (Apr 13 – 17)</td>
<td>Population Genetics</td>
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<td>EXAM 3 – Week of Apr 15</td>
<td>ALL DATES AND ASSIGNMENTS ARE TENTATIVE AND MAY SUBJECT TO CHANGE</td>
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<td>Unit 13, Week 14 (Apr 20 – 24)</td>
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<td>Unit 14, Week 15 (Apr 27 – May 1)</td>
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<td>Unit 15, Week 16 (May 4–May 8)</td>
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FINAL EXAM, May 13th, Wednesday @ 8 AM
**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).

**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.