BI 306 Genetics, Spring 2013

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Office hours: M 11:00 -2:00       T 12:00 -1:00       W 11:00 -2:00
Other times by appointment

Text:  Essentials of Genetics, 7th edition, William S. Klug et al. Students are responsible for reading textbook chapters corresponding to class lectures.

Lab Manual: None; materials will be provided in class.

Course Objective: This course is a study of the science of heredity. It includes molecular genetics and the mechanisms by which genetic information is expressed, transmission (or classical) genetics and the mechanisms of inheritance, and applications of genetics as a tool to study heredity, evolution, and human disease. The overall goal is to develop an understanding of the underlying role of gene activity in all life processes, from cell structure and function to reproduction. The laboratory exercises will provide reinforcement to key concepts we discuss in lecture and will introduce data interpretation as it applies to DNA technology.

Classroom participation: It is expected that mature students participate in class by managing themselves so that other students have the maximum opportunity to learn. Distractive behavior (e.g. repeated tardiness, private conversations during class, electronic devices out during class) or not cleaning up after lab will result in loss of class participation points. All electronic devices (including computers) are to be turned off and kept out of sight in the classroom.

Attendance: Regular class attendance improves students’ course grades. Attendance will be taken (beginning of class). Excused absences require documentation e.g. physician note for illness; notice of required scheduled university-sponsored event; notice of death in family. Missed assignments, quizzes or tests as a result of unexcused absences result in a grade of zero (“0”).

Tardy students will miss announcements and are not permitted to come into class and disrupt others for information while class is being conducted. The student is responsible for all announcements, assignments, material discussed and missed work if absent or tardy.

Makeup exams or labs: Make-up exams will only be given if the student contacts me by phone or directly (not email) BEFORE the exam and the absence is EXCUSED. The make-up exam may be a different exam and will be offered at the instructor’s convenience. No make-up labs will be offered, however the student is responsible for material discussed and taking the lab quiz as scheduled. For excused absences only, lab reports may be submitted (on the scheduled due date) and lab quizzes may be made up.

Grading: 4 tests (100 points each) total approx. 400pts
Lab reports (5 pts each; first lab report 10 pts) total approx. 300 pts
Lab quizzes (20 pts each)
Final lab exam ........................................... 100 points
Class participation (class and lab) ............... 10 pts
Lecture quizzes (2 pts each) ......................... 1 bonus pt

Lab reports: will be submitted on Monday following lab; 10% off each day late
Lab quizzes: covers handouts, techniques, and data interpretation
Lab final exam: given in lecture class the week before final exams; covers all lab
  techniques and data interpretation
Lecture quizzes – 4 questions at end of each chapter; average quiz grade will
determine extra points toward final grade (maximum of one)
Examples:  
  for average of 0.96 = 0.96 pt will be added to final grade
  for average of 0.51 = 0.51 pt will be added to final grade
No extra credit will be offered.

Grading scale: 
Based on the per cent of total possible points
A = 90-100  B = 80-89  C = 70-79  D = 60-69  F = 59 or less
Any incident involving plagiarism or dishonesty results in a grade of “0”.

Equal Opportunity Statement: 
In accordance with the Americans with Disabilities Act (ADA) and Section
504 of the Rehabilitation Act of 1973, the University offers reasonable
accommodations to students with eligible documented learning, physical and/or
psychological disabilities. Under Title II of the Americans with Disabilities Act
(ADA) of 1990 and Section 504 of the Rehabilitation Act of 1973, a disability is
defined as a physical or mental impairment that substantially limits one or more
major life activities as compared to an average person in the population. It is the
responsibility of the student to contact Developmental Services prior to the
beginning of the semester to initiate the accommodation process and to notify
instructors within the first three class meetings to develop an accommodation plan.
Appropriate, reasonable accommodations will be made to allow each student
to meet course requirements, but no fundamental or substantial alteration of
academic standards will be made. Students needing assistance should contact
Developmental Services.

290-3-3-.15(1)(a)1.(viii) Knowledge of general concepts of genetics and heredity. As demonstrated by
the title of the course (Genetics) and the lecture topics listed below, this entire course provides a
detailed knowledge of the general concepts of genetics and heredity. Assessed on a series of
four lecture examinations.

Lecture Schedule

Chpt 1  Genetics: an introduction (out of class assignment)
Chpt 9  DNA structure and analysis
Chpt 11  Chromosome structure and DNA sequence organization
Chpt 10  DNA replication
Chpt 12  The genetic code and transcription
Test # 1

Chpt 13  Translation and proteins
Chpt 14  Gene mutation, transposition and DNA repair
Chpt 15  Regulation of Gene Expression
Chpt 16    Cancer and regulation of the cell cycle
Test # 2

Chpt 2    Mitosis and meiosis (out of class assignment)
Chpt 3    Mendelian Genetics
Chpt 4    Modifications of Mendelian Ratios, Genetics problems
Test # 3

Chpt 17    Recombinant DNA technology and gene cloning
Chpt 19    Applications and ethics of genetic engineering and biotechnology
Chpt 23    Molecular Evolution
Chpt 20    Development
Test # 4 (Final Exam)