

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)	
	Lab quizzes (20 pts each)	total approx. 300 pts

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.(vii) 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)