

Course Information Sheet (Syllabus)

CRN#	Subj	Crse	Sect	Course title	Units	Days	Time	Bldg	Rm	Instructor
11527	BIO	303	01	Genetics	4.0	MW	2:00-3:50	3	120	Dr. Glenn Kageyama

Professor: Dr. Glenn H. Kageyama Office hours: MTWR 11:00-11:50 a.m.
 8-129, (909) 869-5305 (leave voice mail message)
 e-mail: ghkageyama@csupomona.edu **and** ghkageyama@excite.com

Prerequisites: BIO 115/115L or equivalent.

Required texts: Griffiths, Gelbart, Miller and Lewontin, Modern Genetic Analysis, 2nd Ed., 2002, W.H. Freeman Pub.; William D. Fixsen, Solutions Manual for Modern Genetic Analysis. All reading assignments are from this text. The level of presentation is aimed for upper division science majors and assumes class standing beyond that of a freshman and a certain level of background knowledge. Although not all material in the assigned readings will necessarily be covered during lecture, this material is still considered part of the course and will be covered on the tests. If you are not a science major (i.e. fine arts, business, etc.) and if you are not required to take BIO 303, you should enroll in BIO 300: Human Heredity, which is the course for non-science majors.

Course Objectives: To give students an exposure to basic principles of modern genetic analysis, accomplished via classroom lecture-discussions, assigned readings and problem sets. Hopefully, students will develop an appreciation for a basic understanding of genetics. Through a review of the history of genetics, the student may learn the philosophy of science. After completion of this course the student is expected to be able to solve problems involving transmission genetics, predict offspring ratios, infer parental genotypes and phenotypes and understand the chromosome theory of inheritance. The student is expected to understand the molecular basis of inheritance and understand such processes as DNA replication, transcription of RNA and translation of protein. In addition the student should be able to explain how each process is regulated, how genes are controlled, and how gene frequencies change in populations, giving rise to continual evolutionary change.

General Requirements and Policies: Read text assignments before lectures so that you may better understand lectures and participate in class discussions. Questions and curiosity are important aspects of learning. Classroom attendance is important because quizzes and other assignments will be given at the beginning of class time and points will be awarded which will count toward your final grade. **Quizzes and bonus point exercises given at the start of class. Quizzes can only be made up if there is a valid excuse. If you are late you will not be allowed to take the quiz.** You must have a Scantron Quizstrip (Form 815) to take the quizzes. Raise your hand and wait to be acknowledged for your questions or comments. The major instructional method for this class is the lecture format. Overhead transparencies and diagrams as well as sample problems placed on the board will be used.

Schedule of Exams: Unannounced quizzes and three scheduled examinations: two midterms and one final. The general nature of the exams will be announced. Exams and quizzes will include multiple choice, matching and/or true-false questions on lecture material and readings. Quizzes may be given either at the beginning or end of the regular class period. All scheduled examinations will be **comprehensive**. Course grades will be based on a curve made after the final exam, using the total number of points accumulated from all tests, quizzes and other assignments. The three scheduled exams must be taken at the scheduled time and place. Only notification **before** the test of a documented emergency, acceptable to the University, will be considered as a valid excuse for missing a exam. Outside work, field trips, sports, other classes and other obligations are not acceptable excuses. If you miss a scheduled exam with an acceptable excuse, and have notified the instructor **before the time of the test**, arrangements *may* be made for you to make up for the missed test at the Learning Resource Center (5-4; x 3503). A 100 question Scantron (Form 882) and a #2 lead pencil may be required for each exam. The distribution of scores, will be posted after each exam on the board outside my office, room 8-129.

Grading: Grades will be based on the cumulative scores on Quizzes, Midterms and a Final Exam. The number of points on each will be determined during the quarter (The Table below is tentative). All exams and quizzes will focus on the topics most recently covered, but will include some questions on materials covered earlier.

Midterm I	60 points	18.8%
Midterm II	60 points	18.8%
Quizzes/projects	100 points	31.2%
Final Examination	100 points	31.2%
Total	320 points	100%

Classroom Manners: It is important that each person treat all others with respect. Entering the classroom late, leaving before class ends, and talking while other things are going on are disruptive. Please turn off all electronic communication devices prior to entering the classroom.

Cheating: Cheating and plagiarism are violations of University policy and are considered serious offenses. The Department of Biological Sciences takes all incidences of academic dishonesty quite seriously, and will act accordingly.

BIO 303: Genetics, Section 01
Winter Quarter, 2003

Tentative Lecture Schedule

Dr. Glenn H. Kageyama
Office: 8-129; 869-5305

Date	D	Ch	Topic	CD	Topic
1/6	M	1	Genetics and the Organism (p. 1-22)		
1/8	W	2	Gene and Genome Structure (p. 23-54)	2-1	3-D Structure of Chromosomes
1/13	M	2	Gene and Genome Structure (p. 23-54)	3-1	Transcription
1/15	W	3	Gene Function (p. 55-90)	3-1	Transcription
1/20	M		Holiday		
1/22	W	3	Gene Function (p. 55-90)	3-2	Translation
1/27	M	4	Transmission of DNA (p. 91-100)	4-1	DNA Replication 4-2
1/29	W	4	Cell Division (p. 100-116)	4-2	Mitosis
				4-3	Meiosis
2/3	M		Midterm I (60 points)		
2/5	W	5	Inheritance of Single Genes (p.117-133)	5-1	Meiotic Recombination
2/10	M	5	Inheritance of Single Genes (p.134-146)		
2/12	W	6	Gene Recombination (p. 147-162)	6-1	Interaction between Alleles
2/17	M	6	Gene Recombination (p. 147-162)		
2/19	W	6	Gene Recombination (p. 162-182)	6-2	Nonsense Supression
2/24	M		Midterm II (60 points)		
2/26	W	10	Gene Mutations (p.313-348)	7-1	UV-induced Photodimers; Excision Repair
3/3	M	10	Gene Mutations (p.313-348)	7-1	UV-induced Photodimers; Excision Repair
3/5	W	11	Chromosome Mutations (p.349-363)	8-1	Chromosome Rearrangements
3/10	M	11	Chromosome Mutations (p.363-384)		
3/12	W	8	Recombinant DNA (p. 213-264)	10-1	Finding Specific Cloned Genes

Week 11: Final Exams Week

3/17 M **Cumulative Final Exam** (100 pts; Rm 3-120; 1:40 p.m. - 3:40 p.m.)

Name (print) _____ Major: _____

Student ID# _____ Phone # _____ e-Mail: _____

Have you taken Bio 310, 435 or any other Cell or Molecular Biology course? _____

Have you taken Bio 115? _____ Organic chemistry? _____ Biochemistry? _____

What are your professional goals? _____

Indicate your level of expertise in the boxes below (0 = none, 1 = some, 2 = routine, 3 = expert):

Student name	PC	Mac	MS Word	Data- base	MS Excel	Inter- NET	HTML	Power- point	Group (leave blank)

Pre-Entry Exam (Not to be counted toward your grade):

1. Draw a typical mitotic chromosome and label all of its basic parts:

2. Draw a short trinucleotide segment of a molecule of DNA as best you can:

3. Draw the sequence of changes of a chromosome pair through the process of meiosis & label the stages.