

PRINCIPLES OF GENETICS SYLLABUS

Biol 210 Fall 2012

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Required Texts: 1) *Essential Genetics: A Genomics Perspective*, 3rd ed. For rent in bookstore.
 2) *Biol 210 Genetics Lecture Guide*. For purchase in Biology Dept's Main Office, TNR 167
 3) *Essential Study Skills for Science Students*, 2nd ed. For purchase in bookstore.

Course Objective: To study general principles of heredity and variation in organisms. This course uses a molecular approach to understanding the basis of transmission, cytological, molecular and population genetics.

Class Meetings: **NFAC 221:** Mon, Wed & Thur 2:00 – 2:50 pm

Grading: There will be 4 exams; 3 exams are during lecture time and the 4th exam (non-comprehensive) is during finals week; all are equally weighed. There will also be 7 quizzes during lecture time; all are equally weighed and the lowest grade will be dropped; three quizzes together equals one exam grade. Therefore, the 6 quizzes counted equals two exams.

***** ONLY EXAMS CAN BE MADE UP. IF YOU MISS A QUIZ.
 IT WILL AUTOMATICALLY BE COUNTED AS THE DROPPED GRADE.*****

Exams (M/C & Problems) together worth 2/3 of overall grade	% Points	Quizzes (M/C & Problems) together worth 1/3 of overall grade	% Points
Exam I	16.67	Quiz 1	5.55
Exam II	16.67	Quiz 2	5.55
Exam III	16.67	Quiz 3	5.55
Exam IV (during finals week)	16.67	Quiz 4	5.55
		Quiz 5	5.55
		Quiz 6	5.55
		Quiz 7 lowest grade not counted	
Total	66.67	Total	33.33

Weekly problems (with answers in back of textbook) will be given out during lecture time to help supplement your learning; these will not be graded. However, you have the option to discuss the genetics problems with the instructor during office hours or by appointment, and/or attend weekly tutoring sessions (2 provided per week).

Attendance Policy: I strongly recommend you attend every lecture. Missing any class will put you at a distinct disadvantage when test taking. The only valid excuses for a student missing an exam are: death in the family, violent illness, or accident. In such cases: (1) you must provide evidence of some kind (eg. note from health center), **and** (2) you must reschedule **within 24 hours** after the deadline. There are over 150 students in this class. So, for logistic reasons, it's impossible to reschedule missed quizzes.

Academic Misconduct: You are responsible for the honest completion and representation of your work and for the respect of others' academic endeavors. Any act of cheating, plagiarism, or academic misconduct is subject to the penalties outlined in UWS Chapter 14. Please refer to this link for more information: <http://www.uwsp.edu/centers/rights/RRBOOKLET8-2005-06.pdf>

GENETICS SCHEDULE

Week	Date	Topic	Chapter (Slides)
1	Sept 5	Syllabus / Overview of Genetics	1 (1-13)
	6	Transmission (Mendelian) Inheritance	2 (1-10)
2	10	Human Genetics & Pedigrees	2 (10-17)
	12	Cell Cycle / Quiz 1	3 (1-6) / Ch: 1,2
	13	Mitosis & Meiosis	3 (7-23)
3	17	Gametogenesis / Factors Affecting Inheritance	3 (24-32), 4 (1-4)
	19	Factors Affecting Inheritance, X-linked Traits	4 (5-17)
	20	Epistasis / Quiz 2	4 (18-23) / Ch: 3,4(1-10)
4	24	Gene Linkage & Chi-Square Analysis	5 (1-12)
	26	2 & 3 Point Crosses	5 (12-19)
	27	EXAM I	Ch: 1,2,3,4,5(1-12)
5	Oct 1	Bacterial Transformation, Conjugation & Transduction	5 (19), 6 (1-15)
	3	Genetic Mapping in Bacteria & Bacteriophage	6 (15-24). 7 (1-3)
	4	Nonmendelian Inheritance	7 (4-12), 8 (1-5)
6	8	Variation in Chromosome Structure / Quiz 3	8 (6-13) / Ch: 5(13-19),6,7
	10	Aneuploidy & Polyploidy	8 (14-28)
	11	DNA as Genetic Material & DNA Structure	9 (1-15)
7	15	Chromosome Organization	10 (1-17)
	17	DNA Replication / Quiz 4	11 (1-7) / Ch: 8,9,10
	18	DNA Replication	11 (8-21)
8	22	Prokaryotic Transcription	12 (1-12)
	24	EXAM II	Ch: 5(13-19),6,7,8,9,10,11
	25	Eukaryotic Transcription / Protein Structure	12 (13-19), 13 (1-8)
9	29	Translation	13 (9-21)
	31	Prokaryotic Gene Regulation, Lac Operon	13 (22-25), 14 (1-8)
	Nov 1	Trp Operon / Quiz 5	14 (9-15) / Ch: 12,13, 14(1-4)

GENETICS SCHEDULE

Week	Date	Topic	Chapter (Slides)
10	Nov 5	Eukaryotic Gene Regulation	14 (16-18), 15 (1-11)
	7	RNA Editing & Stability / DNA Mutation	15 (12-18), 16 (1-6)
	8	Spontaneous & Induced DNA Mutation	16 (7-18)
11	12	Consequences of DNA Mutations / Quiz 6	16 (19-25) / Ch: 14(5-15),15,16(1-18)
	14	DNA Repair / Transposition	16 (26-33), 17 (1-4)
	15	Transposons / Genetic Engineering: DNA Cloning	17 (5-10), 18 (1-7)
12	19	EXAM III	Ch: 12,13,14,15,16,17
	21 & 22	Thanksgiving Break!!!	
13	26	DNA Screening & Libraries	18 (7-18)
	28	PCR & DNA Sequencing	18 (18-28)
	30	Biotechnology: Modified Bacteria & Animals	18 (29-32), 19 (1-8)
14	Dec 3	Animal Cloning & Stem Cells / Quiz 7	19 (9-16) / Ch: 18,19(1-8)
	5	Biotechnology: Modified Plants & Human Gene Therapy	19 (17-27)
	6	Functional Genomics & Microarrays	21 (1-11)
15	10	Genetics of Cancer	22 (1-13)
	12	Population Genetics & Hardy-Weinberg Principle	24 (1-12)
	13	Microevolution & Bioethics	24 (13-20)
EXAM IV (Ch: 18, 19, 21, 22, 24) Monday, Dec 17 th @ 2:45 – 4:45pm, NFAF 221			