

Biology 202-Section 6
Molecular Biology and Genetics
 Fall 2009
 11:00-11:50 MWF, Coker Hall Room 201

Dr. Patricia Pukkila (pukkila@unc.edu)
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Syllabus for Genetics-Dr. Pukkila

Date	Topic	Reading	Figures
	INTRODUCTION TO GENOMES		
8/26	Chemical Nature of the Gene	6.2 (173-180)	6.7; 6.9
8/28	DNA Replication	6.4 (184-185; 187-191)	6.17; 6.18
	INTRODUCTION TO GENES		
8/31	Gene Function and Pathways	7.3 (232-234)	7.23
9/2	Mendelian Genetics	2.1-2.2 (16-27)	2.15
9/4	Alleles and Complementation	3.1 (46-54); 3.2 (62-63)	3.16
9/9	Epistasis	3.2 (60-62)	3.14a
	INTRODUCTION TO CHROMOSOMES		
9/11	Relationships between DNA molecules and chromosomes	4.1 (84-85); 4.2 (88-93)	4.7, 4.8
9/14	Meiosis, Haploids and Diploids	4.2 (93-103)	4.13
9/16	Human pedigrees	2.3 (30-33); 4.5 (110-112)	Problem 4.26
9/18	GENETICS MIDTERM		
9/21	Sex chromosomes	4.1 (85-88); 4.5 (106-110)	4.21
	ANALYZING GENETIC LOCI		
9/23	Crossing-over	5.1 (124-127;131-135)	5.3
9/25	Gene mapping in Diploid Model Organisms	5.2 (135-142)	5.10
9/28	Tetrad Analysis	5.2 (142-145;149-150)	5.21
9/30	DNA recombination	6.5 (191-195 + figure)	6.23
10/2	Gene Mapping in Humans	11.3 (416-417)	11.A
	CONSEQUENCES OF CHROMOSOME ABERRATIONS		
10/5	Mitotic Recombination	5.3 (152-154)	5.24
10/7	Deletions and Inversions	14.1 (494-503)	14.16
10/9	Translocations and Aneuploidy	14.1 (503-508); 14.2 (516-518)	14.22
10/12	No class-University Day		
10/14	GENETICS FINAL EXAM PART I		
10/16	GENETICS FINAL EXAM PART II		

Dr. Pukkila's Office Hours-Rm. 202 Fordham W noon-1, F 4-5, or by appointment

Text: Genetics: From Genes to Genomes, Hartwell et al, 3rd Edition (2008)

Course Website: <http://blackboard.unc.edu>

Grading: All students are expected to take all exams when they are scheduled. Students who are unable to take an exam must request permission to take a make-up exam (possibly an oral exam). Students are expected to notify the instructor prior to missing an exam and to assume responsibility for scheduling a make-up exam in a timely manner. In this course, 88% of your grade will be determined by the 4 exams and 12% by the recitation assignments and discussion.

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Syllabus for Molecular Biology- Dr. Searles

<u>Class</u>	<u>Date</u>	<u>Topic</u>	<u>Reading Assignment</u>
DNA Mutation and Repair			
1	M, 10/19	Molecular basis of mutations	7: 207-210; 212-220
2	W, 10/21	DNA repair mechanisms, the Ames test	7: 220-224
	F, 10/23	<i>Fall Break—no class</i>	
Gene Expression and Function			
3	M, 10/26	Protein structure and function	7: 234-239
4	W, 10/28	The genetic code	8: 255-264
5	F, 10/30	Transcription and RNA processing	8: 265-270; 18: 646-649
6	M, 11/02	RNA processing (continued) and translation	8: 271-277
7	W, 11/04	Translation (continued)	8: 277-285
8	F, 11/06	How mutations affect gene expression and function	8: 285-292
9	M, 11/09	Prokaryotic gene regulation: The <i>lac</i> operon	17: 609-619
10	W, 11/11	Molecular Biology Mid-term Exam (Class periods 1-8)	
Eukaryotic Chromosomes			
11	F, 11/13	Chromatin structure	13: 466-474
12	M, 11/16	Repetitive DNA elements	13: 474-479; 14: 508-514
13	W, 11/18	How chromosomal packaging affects gene activity	13: 479-482; 17: 658-664

Deconstructing the genome: Recombinant DNA technology

14	F, 11/20	DNA cloning	9: 301-314
15	M, 11/23	Making and screening DNA libraries	9: 314-324
	W, 11/25	<i>Thanksgiving recess—no class</i>	
	F, 11/27	<i>Thanksgiving recess—no class</i>	
16	M, 11/30	Methods used for DNA analysis	9: 324-330
17	W, 12/02	DNA sequencing; insights from molecular analysis of individual genes	9: 330-339

Reconstructing the genome

18	F, 12/04	Whole genome sequencing and insights	10: 354-357; 363-373
19	M, 12/07	Global analysis of genes and mRNA	10: 375-380

Analysis of Individual Genomes

20	W, 12/09	Analysis of DNA variation among individuals	11: 394-402; 404-408
21	M, 12/14 noon	Molecular Biology Final Exam	

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