

Instructor:	Dr. William H. Jackson		
Office:	SBDG 201A	Office hours:	By appointment
Telephone:	641-3601	Email:	Billj@usca.edu
Lecture:	TTH,8:00-9:15 in SBDG 200	Text:	Genetics: From Genes to Genomes, 2nd Edition by Hartwell, et al. Writing Papers in the Biological Sciences., 4th Edition by McMillan
Laboratory:	TH, 10:50-1:30 in SBDG 104 See Laboratory Syllabus	Lab Instructor:	Dr. Michele Harmon
Supplies:	Scantron Sheets and Scientific calculator	Credit:	Four (4) Semester Hours

Course Description: Fundamental Genetics is a four credit hour course for biology majors, which covers the principles of transmission, molecular, and population genetics. Topics covered will include Mendelian genetics, quantitative inheritance, linkage, recombination, the biochemical aspects of gene function and regulation, and developmental and population genetics.

Course Objectives: This course will introduce the student to the underlying principles of genetics. It is divided into transmission and molecular genetics. On completion of this course students will be expected to

1. Demonstrate an understanding of transmission genetics;
2. Demonstrate an understanding of molecular genetics;
3. Demonstrate an ability to write and discuss applications of genetic concepts;
4. Prepare written and oral reports of data
5. Solve genetics problems using appropriate mathematical techniques in conjunction with data collected in the genetics laboratory;

Attendance Policy: Students are expected to adhere to the University attendance policy as stated in the Student Handbook. In this regard, the instructor may impose a penalty for absences in excess of 25% of regularly scheduled class meetings by assigning an "F" in the course. Absences, *neither excused nor unexcused*, absolve the student from meeting class assignments. Because of their nature, laboratory exercises cannot be made up – students should make every effort to attend all laboratory sessions.

Disability Statement: If you have a physical, psychological, and/or learning disability, which might affect your performance in class, please contact the Office of Disability Services, 126A B&E (803) 641-3609, as soon as possible. The Disability Services Office will determine appropriate accommodations based on medical documentation.

Methods of Presentation and Evaluation: Information will be presented through lectures, class discussions, and laboratory exercises using appropriate visual aids and laboratory equipment. Additionally, several assignments and some course materials will be handled through Blackboard. The final course evaluation will be based on the following weighted assignments:

Description	Percentage	Comments
Two 1-hr exams	30%	300 points (each exam = 15%)
Genetics Problem set	15%	150 points (Transmission genetics problems)
Final Exam	15%	150 points (Comprehensive final exam)
Quizzes	15%	150 points (Material discussed the previous 1 – 2 weeks)
Laboratory	25%	250 points See Laboratory Syllabus supplement

The letter grades will be based on total accumulated points and will be assigned as follows: A>900; B>800; C>650; D>550; F<550. Biology majors must make a C or better in this core course.

Computer Use and Email: Many, if not all of the genetics laboratory exercises will require the use of a computer. Therefore, you must be able to log on to the USCA computer system in order to accomplish these laboratory exercises. If you do not know how to sign on to the USCA computer system, you should contact the CSD HELP desk as soon as possible.

All official email communications will be made to your USCA email account. This includes any messages regarding ABIO 350 announcements. In addition, instructors will not reply to emails sent from non-USCA accounts. You should get into the habit of checking your USCA email account on a regular basis.

TENTATIVE LECTURE SCHEDULE

Date	Week	Topic/Comments	Chapter
Jan 16	1	Mendel's Breakthrough	2
Jan 18		Mendel's Breakthrough	3
Jan 23	2	Extensions to Mendel	3
Jan 25		Extensions to Mendel	3
Jan 30	3	Extensions to Mendel	3
Feb 1		The Chromosomal Theory of Inheritance	4
Feb 6	4	The Chromosomal Theory of Inheritance	4
Feb 8		Linkage and Mapping	5
Feb 13	5	Linkage and Mapping	5
Feb 15		Linkage and Mapping	5
Feb 20	6	Linkage and Mapping	5
Feb 22		Exam I	2-5
Feb 27	7	DNA: Recombination and Replication	6
Mar 1		Lecture Quiz 1; DNA: Recombination and Replication	6
Mar 6	8	DNA: Recombination and Replication	6
Mar 8		Lecture Quiz 2; DNA: Recombination and Replication	6
Mar 13	9	Spring Break – No Classes	
Mar 15			
Mar 20	10	DNA: Recombination and Replication	6
Mar 22		Lecture Quiz 3; Gene Structure and Function	7
Mar 27	11	Gene Structure and Function	7
Mar 29		Lecture Quiz 4 ; Gene Structure and Function	7
Apr 3	12	Gene Structure and Function	7
Apr 5		Lecture Quiz 5; Gene Structure and Function	7
Apr 10	13	Gene Expression	8
Apr 12		Exam II	6-7
Apr 17	14	Gene Expression	8
Apr 19		Lecture Quiz 6; Gene Expression	8
Apr 24	15	Gene Expression	8
Apr 26		Lecture Quiz 7; Gene Expression	8
May 8		Final Exam at 8:00 AM in SBDG 200	6-8

You will be expected to endorse the USCA HONOR PLEDGE on every assignment: 'On my honor as a University of South Carolina Aiken student, I have neither given nor received any unauthorized aid on this assignment/examination. To the best of my knowledge, I am not in violation of academic honesty'

TENTATIVE LABORATORY SCHEDULE

Date	Meeting	Exercise	Source
Jan 18	1	Introduction to genetics lab (syllabus); Group organization Probability and Hypothesis Testing	Coin Toss
Jan 25	2	Blackboard quiz 1; Group assignment 1 Introduction to genetics research – Writing a Lab Report Introduction to <i>Drosophila melanogaster</i>	Chapter 4
Feb 1	3	Blackboard quiz 2; Group assignment 2 Monohybrid cross; Sample Data Set <i>Probability lab write up due</i>	Handout
Feb 8	4	Blackboard quiz 3; Group assignment 3 Sex linked cross <i>Sample data set write up due</i>	Handout Chapter 4
Feb 15	5	Blackboard quiz 4; Group assignment 4 Linkage cross	
Feb 22	6	Blackboard quiz 5; Group assignment 5 Linkage	Handout
Mar 1	7	Group assignment 6 Linkage	Handout
Mar 8	8	Group assignment 7 Linkage maps	
Mar 15		Spring Break – No Classes	
Mar 22	9	PROBLEM SET EXAM	
Mar 29	10	Introduction to research (library); Topic assignments <i>Drosophila cross write ups due</i>	Chapter 6 Chapter 10
Apr 5	11	Problem set review Molecular Biology lab	Handout
Apr 12	12	Molecular Biology lab	Handout
Apr 19	13	Oral presentations of research topics	
Apr 26	14	Oral presentations of research topics <i>Genetic disease write up due</i>	