Biology 431 Genetics
Chaminade University
Fall 2000
MWF: 10-11 AM
Dr. **Joan Kuh (Room 16 at X807)**

Text: Essential *Genetics* by D. L. Hartl, 1995

Course Description: This is an introductory genetics course for upper division biology majors. In this course we will cover the basic processes of gene transmission, expression and regulation, the techniques currently used in genetics, and concepts pertinent to the field of population genetics.

Genetics is an important field of study in biology having wide ranging applications in agriculture, medicine, conservation biology, the judicial system, ethics and business. The goal of this course is to provide students with a basic understanding of genetic concepts and processes. Successful completion of this course will mean that the student will be able to explain the nature of the gene and genetic material, the relationship between traits and genes, gene transmission, the role of genes in development, molecular genetic techniques and the behavior of genes in populations.

Grades will be based on:

3 Midterms:	2096 each	**6096 total grade**
Homework Sets:		**2096 total grade**
Cumulative Final:		**20% total grade**
(December 14th 10:30-12:30)		

A TENTATIVE schedule is listed on the reverse side and is subject to change.

TENTATIVE Schedule:

08/28	Chapter 1	DNA in Heredity
08/30	Chapter 1	continued
09101	Chapter 2	Mendelian Genetics
09/06	Chapter 2	continued
09108	Chapter 2	continued
09/11	Chapter 3	Chromosomal Basis of Heredity
09/13	Chapter 3	continued
09115	Chapter 3	continued
09/18	Chapter 4	Linkage & Chromosome Mapping
09120	Chapter 4	continued
09/22	Chapter 5	Variation in Chromosome Number, Structure
09/25	Chapter 5	continued
09/27	Chapter 6	Chemical Structure, Replication of DNA
09/29	MIDTERM EXAM 1	
10102	Chapter 6	continued
10/04	Chapter 7	Genetics of Bacteria & Viruses
10106	Chapter 7	continued
10/11	Chapter 8	Gene Expression
10/13	Chapter 8	continued
10/16	Chapter 9	Genetic Engineering, Genome Analysis
10/18	Chapter 9	continued
10/20	Chapter 10 Regulation of Gene Activity	
10/23	Chapter 10	continued
10/25	Chapter 10 continued	
10127	MIDTERM EXAM 2	
10/30	Chapter 11	Genetic Control of Development
11/01	Chapter 11	continued
11/03	Chapter 11	continued
11106	Chapter 12	Mutation, DNA Repair, Recombination
11/08	Chapter 12	continued
11/13	Chapter 12	continued
11/15	Chapter 13	Population Genetics & Evolution
11117	Chapter 13 continued	
11/20	Chapter 13 continued	
11/22	Chapter 13 continued	
11127	Chapter 14	Genetics of Multifactorial Traits
11/29	MIDTERM EXAM 3	
12101	Chapter 14 continued	
12104	Chapter 14 continued	
12/06	Chapter 14 continued	
12/08	Chapter 14 continued	
12/14	FINAL 10:30-12:20 PM	

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PM

Genetics 431 Lab
Chaminade University
Fall 2000
Thursday 2-4:50 PM
Dr. **Joan Kuh (Room 16 at X807)**

Text: **Laboratory Manual of Genetics, 4th edition, Winchester and Wejksnora**

The goal of the laboratory section of this course is to give each student experience in genetic techniques including analysis of genetic crosses, cytology, nucleic acid manipulation including cloning and PCR, bioinformatics and genetic analysis of populations.

Grades will be derived from 2 exams weighted at 50% of your grade (25°6 each exam) and five laboratory reportss that will make up the remaining 50% of your grade (or 10% each report). These laboratory reports should be concise (2-3 pages) with a title, your name, an abstract briefly describing the purpose of the leb(s), methods and findings followed by a more extended methods section and results section with graphs and tables. The last section should be a discussion section that summarizes your results and addresses any questions that have been posted during the lab(s). As noted below, some reports will cover more than one lab.

The five laboratory reports and the labs that they summarize are (I) Labs 2 & 3, (II) Labs 5, 6 & 7, (111) Lab 8, (IV) Lab 9 and (V) Lab 10. Each report is due at the beginning of the next laboratory.

I will adhere to the Biology Department's LATE PAPER POLICY which is any paper turned in late, up to 24 hours after the due time, will be docked 10% of the grade. Any paper turned in after that time will not be accepted for grading.

Attendance is essential since this is the one and only lab section for this course.

Notebooks are strongly recommended for collection of data during the lab. However, they will not be collected and graded.

The schedule is TENTATIVE and is listed on the reverse side.

Tentative Schedule:

08/31 Lab 0	Introduction
09/07 Lab 1	Probability and Chi-Square Analysis Chapter 3 & Handout
09/15 Lab 2	Independent Assortment Chapters 1, 4 & 5
09/22 Lab 3	Linkage Analysis Chapter 8
09/29 Lab 4	Chromosomes/Karyotyping Chapters 2 & 10
10/05	MIDTERM Practical Exam
10/12 Lab 5	Cloning and bacterial transformation Chapters 13 & 14
10/19 Lab 6	DNA Extractions Chapters 15 & 16
10/26 Lab 7	Restriction Enzyme Mapping Chapter 15
11/02 Lab 8	Bioinformatics Handout
11/09 Lab 9	PCR and DNA Fingerprinting Handout
11/16 Lab 10	Population Genetics Chapter 11 & Handout
11/23	Thanksgiving Break
11/30 Lab 11	Genetics and Behavior Handout
12/07	FINAL **Practical** Exam