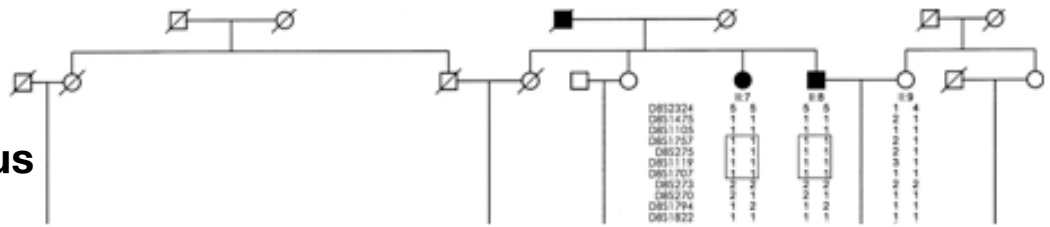


Genetics 305

Spring 2011 Syllabus



Time: MWF at 9-9:50, 10-10:50, or 11-11:50 a.m.

Room: New Science Center, Room 138/140

Instructor: Dr. Chris Korey

Office: Hollings Science Center Room 217C (old Science Center)

email: koreyc@cofc.edu

Office Hours: By appointment only

Course website: www.neurofly.com/genetics.html

- Detailed course policies, assignments, and grading can be found on the course website
- Important Note: This Syllabus is subject to change as the semester progresses. The online version is the only version that will be updated if changes occur. Changes to the syllabus *will not* appear on this pdf version.

Section 1: Course Introduction, Cell Division and Mutation

- January 10th Course Introduction
- January 12th Cell Division: Mitosis and Meiosis
- January 14th Genetic Variation and Mutation

Section 2: Mendelian Genetics and Probability

- January 19th Mendelian Genetics: A Review
- January 21st Probability and Statistics

Section 3: Genetics of Sex and Pedigrees

- January 24th Sex-linked Traits
- January 26th Mosaicism and Human Sex Determination

Problem Set 1 Due Before Class Begins on January 28th

- January 28th Human Mendelian Traits and Pedigrees

Section 4: Modifications of Mendel

- January 31st Modifications of Mendelian Genetics Part I: Multiple Alleles
- February 2nd **Exam 1: Material Through January 26th (Introduction to Sex Determination)**
- February 4th Modifications of Mendelian Genetics Part II: Epistasis
- February 7th Modification of Mendel and Human Pedigrees

Section 5: Linkage and Recombination

- February 9th Linkage and Recombination
- February 11th Recombination and Mapping Part I
- February 14th Recombination and Mapping Part II

Problem Set 2 Due Before Class Begins on February 16th

Section 6: Bacterial and Viral Genetics

- February 16th and 18th Bacterial Genetics
- February 21st Viral Genetics: Bacteriophage
- February 23rd **Exam II: Material Through Feb 14th (Pedigrees to Recombination)**
- February 25th Viral Genetics: Avian Influenza

Section 6: The Dynamic Genome

- February 28th Transposable Elements and Evolving Genomes
- March 2nd Molecular Mechanisms of Chromosomal Variation
- March 4th Cancer Genetics
- March 7-11th Spring Break

Section 7: Sequence Variation and Human Gene Mapping

- March 14th Pharmacogenetics

Problem Set 3 Due Before Class Begins on March 16th

- March 16th-18th Sequence Variation and Forensic Genetics
- March 21st **Exam III: Material through March 4th (Bacterial Genetics to Cancer)**
- March 23rd Mapping Mendelian Human Diseases I: Advanced Pedigree Analysis
- March 25th Mapping Mendelian Human Diseases II: LOD Scores
- March 28th Mapping Mendelian Human Diseases III: Linkage Disequilibrium
- March 30th Human Multifactorial Traits and Association Studies

Problem Set 4 Due Before Class Begins on April 4th

Section 8: Quantitative Trait Loci Analysis and Informatics Project

- April 1st Quantitative Traits
- April 4th Introduction to Quantitative Trait Loci Mapping
- April 6th Quantitative Trait Loci: Olfactory Bulb and Brain Measurements
- April 8th **Exam IV: Material through March 28th (Pharmacogenetics to Human Mapping)**
- April 11th Quantitative Trait Loci: Olfactory Bulb and Brain Measurements
- April 13th Quantitative Trait Loci: Regression Analysis
- April 15th Quantitative Trait Loci: QTL analysis and Chromosome Mapping
- April 18th Quantitative Trait Loci: Gene Expression and Microarrays
- April 20th Quantitative Trait Loci: Gene Expression and the Allen Brain Atlas
- April 22nd Quantitative Trait Loci: Entrez, Pubmed, and Catch-up Day

Quantitative Trait Loci Projects Due before class on April 25th

- April 25th Epigenetics and the Future of Genetics
- **Final Exam Quantitative Trait Loci Analysis/Project and Selected Topics From Previous Exams**

Schedule (all exams in the New Science Center, Room 138/140)

9-9:50am Section: Monday, May 2nd, 8-11:00am

10-10:50am Section: Wednesday, May 4th, 8-11:00am

11-11:50am Section: Friday, April 29th, 12-3:00pm

Important Note: You must take the final on the assigned exam day. I will not allow students to take the exam earlier or later with a different section. Travel plans are not an acceptable reason to take the exam early.