Program in Biological Sciences Biol. Sci. 393: Genetic Analysis

Lectures:	Tues. and Thurs. 9:30 - 10:50 AM, XXX
Exams:	Midterm#1 (Jan. 30, 9:30-10:50AM), Midterm#2 (Feb. 22, 9:30-10:50AM), Final (XXX)
Instructor:	Erik Andersen, Department of Molecular Biosciences, Cook 3125, email: erik.andersen@northwestern.edu, Office hours F 2-3 PM in Cook 3118
TA:	Katie Evans, Department of Molecular Biosciences and IBiS, Cook 3117, email: kathryn.evans@u.northwestern.edu, Office hrs F 1-2 PM, Cook 3118
Textbook:	Introduction to Genetics Analysis by Griffiths *et al.* 11th edition
Website:	bio393.andersenlab.org

Course Format

This course will have lectures on Tuesdays and Thursdays from 9:30 to 10:50 AM. On Fridays, we will have a recitation to go through questions from lectures or problem sets from 1-3 PM. Problem sets are due on Fridays at 3 PM outside Cook 3125. They will be graded for completion not for correct answers. In other words, it is acceptable to get questions incorrect as long as you try to solve them. Participation in lecture is required. The course will have seven problem sets, two midterms, and a final examination.

Problem sets

Problem sets will be posted on the class website on Tuesdays before the Friday problem-solving session. Students must turn in their completed problem sets at 3 PM on Fridays outside Cook 3125. On Fridays, we will have recitation to go through questions from lectures or problem sets from 1-3 PM in Cook 3118. Problem sets are meant to be difficult and take time to complete. Oftentimes, problems will become easier with iterative attempts. I strongly encourage students to work independently.

Grading

Each examination will cover material from the preceding lectures and problem sets. Successive exams assume you remember concepts and methods discussed earlier in the course. No make-up exams will be given. Problem sets are graded for completion. Full points are awarded for completed problem sets. Students can bring notes written on a single 8.5x11 inch sheet of paper (both sides if needed) to the exams.

Point distribution		
Problem sets	22%	56 points (8 pts each)
Participation	3%	8 points
Midterms	50%	128 points (64 pts each)
Final	25%	64 points

Any student with a disability requesting accommodations is required to register with AccessibleNU (accessiblenu@northwestern.edu; 847-467-5530) and present an accommodation letter from AccessibleNU to the course instructor, preferably within the first two weeks of class. All information will remain confidential.

All work submitted for this class must be your own. Suspected violations of academic integrity will be reported to the Dean's Office. For more information on Northwestern policies on academic integrity, see http://www.weinberg.northwestern.edu/handbook/integrity/index.html.

Date	Lecture topic
Tues. Jan. 9	Mendelian Inheritance, Basic probability
Thurs. Jan. 11	Chromosome theory, recombination, and mapping, PS#1 on Friday 1/12
Tues. Jan. 16	Screens, selections, mutants, and dosage
Thurs. Jan. 18	Complementation, PS#2 on Friday 1/19
Tues. Jan. 23	Enhancement and suppression
Thurs. Jan. 25	Genetic interactions: epistasis, PS#3 on Friday 1/26
Tues. Jan. 30	MIDTERM #1 (covers lectures 1-5)
Thurs. Feb. 1	NO CLASS (Erik out of town), No PS on Friday 2/2
Tues. Feb. 6	Principles and methods of genetic analysis I
Thurs. Feb. 8	Principles and methods of genetic analysis II, PS#4 on Friday 2/9
Tues. Feb. 13	Developmental genetics
Thurs. Feb. 15	Behavioral genetics, PS#5 on Friday 2/16
Tues. Feb. 20	Variation and allele frequency spectrum
Thurs. Feb. 22	MIDTERM #2 (covers lectures 6-10), No PS on Friday 2/23
Tues. Feb. 27	Pedigrees and phase
Thurs. Mar. 1	Linkage mapping and LOD scores, PS#6 on Friday 3/2
Tues. Mar. 6	Linkage disequilibrium and pop. structure
Thurs. Mar. 8	Complex traits, GWAS, Human genetics and the future, PS#7 on Friday 3/9
Tues. Mar. 13	NO CLASS Reading week, Office hours
Thurs. Mar. 15	NO CLASS Reading week (Genetics Escape Room, optional)
XXX	FINAL EXAMINATION (covers lectures 11-15)