

BIOL SCI 393 (Spring 2016) Genetic Analysis

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

Lectures: Tues. and Thurs. 9:30 - 10:50 AM, Tech LG68
Discussion F 9:00 - 10:50 AM, Tech M120
Exams: Midterm (April 29, 9:00 - 10:50 AM), Final (June 9, 12:00 - 2:00 PM, Room TBD)
Instructor: Erik Andersen, Department of Molecular Biosciences, Cook 3125,
email: erik.andersen@northwestern.edu, Office hours W 2-3 PM in Cook 3125
TA: Stefan Zdraljevic, Department of Molecular Biosciences and IBiS, Cook 3117,
email: StefanZdraljevic2018@u.northwestern.edu, Office hrs Th 11AM-12PM, 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. On Fridays, the class will alternate among quizzes, problem-solving sessions, and additional lectures. Participation in lecture and Friday discussions is required. The course will have three quizzes, three problem sets, one midterm, and a final examination.

Problem sets and quizzes

Problem sets will be distributed on Tuesdays approximately two weeks before the problem-solving session. Students must turn in their completed problem sets and be prepared to work through the problems in class on Fridays. Problem-solving sessions are also meant to discuss questions about the lecture material. Quizzes will assess student progress through basic concepts. Students can take each of the quizzes twice to improve scores. Students will receive their graded quizzes in the following lecture.

Grading

Each examination and quiz will cover material from the preceding lectures, quizzes, and problem sets. Successive exams and quizzes assume you remember concepts and methods discussed earlier in the course. No make-up exams or quizzes will be given. If you get 80% or greater on a quiz, you receive all 25 points. If you get less than 80% on a quiz the first time through, you may take the quiz again on the next scheduled quiz day. If you receive less than 80% the second time through, you will receive that score for the quiz. Problem sets are not graded. Full points are awarded for completed problem sets due on Friday and the student participates in the class discussion on Friday.

Point distribution		
Problem sets	15%	60 points (20 pts each)
Quizzes	18.75%	75 points (25 pts each)
Participation	6.25%	25 points
Midterm	30%	120 points
Final	30%	120 points

Any student with a disability requesting accommodations is required to register with AccessibleNU (accessiblenu@northwestern.edu; [847-467-5530](tel: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>.

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Date	Lecture topic
Thurs. March 31	NO CLASS
Fri. April. 1	NO CLASS
Tues. April 5	Mendelian Inheritance, Basic probability, PS#1 out
Thurs. April 7	Chromosome theory, mitosis, and meiosis
Fri. April 8	Recombination and mapping
Tues. April 12	Screens, selections, mutants, and dosage
Thurs. April 14	Complementation
Fri. April 15	QUIZ #1, Genetic interactions: epistasis
Tues. April 19	Genetic interactions: enhancement and suppression
Thurs. April 21	NO CLASS
Fri. April 22	PROBLEM SET #1 Due
Tues. April 26	Principles and methods of genetic analysis I
Thurs. April 28	Principles and methods of genetic analysis II
Fri. April 29	MIDTERM EXAMINATION
Tues. May 3	Developmental genetics I, PS#2 out
Thurs. May 5	Developmental genetics II
Fri. May 6	QUIZ #2
Tues. May 10	Behavioral genetics
Thurs. May 12	Human variation and allele frequency spectrum
Fri. May 13	PROBLEM SET #2 Due
Tues. May 17	Pedigrees and phase, PS#3 out
Thurs. May 19	Linkage mapping and LOD scores
Fri. May 20	QUIZ #3
Tues. May 24	Linkage disequilibrium and population structure
Thurs. May 26	Complex traits and GWAS
Fri. May 27	Human genetics and the future, class discussion
Tues. May 31	PROBLEM SET #3 Due, Quiz make-up
Thurs. June 2	NO CLASS for Reading week, Office hours
Fri. June 3	NO CLASS for Reading week, Office hours
Thurs. June 9	FINAL EXAMINATION, 12-2 PM, Room TBD