

LS4: INTRODUCTION TO GENETICS

SUMMER SESSION A 2009

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| Instructor: | Amy L. McWhorter, PhD | ahenkeni@ucla.edu |
| Office Hours: | M: 9 – 10am; W 2 – 3pm | Boyer Hall 554 |

COURSE OBJECTIVE:

In this course, we cover a variety of topics relevant to the study of genetics, ranging from classical to nontraditional Mendelian genetics, from bacterial and viral genetics to human genetics, and include studies on molecular techniques and their applications.

GENERAL INFORMATION:

Course Materials

- Required Text: *Principles of Genetics, Fifth Edition* by Snustad, Simmons, (2009). The purchase of the book also allows you to access supplementary online material.
- Optional Materials: Study Guide/Solutions Manual **AND** Interactive Genetics CD-ROM and Handbook, UCLA, L. Johnson & J. Merriam.

Lectures

Lectures cover all of the primary course material. They should focus your reading and studying. Copies of lecture slides will be posted on Blackboard™. Specific pages and assigned questions for each chapter will be listed on the lecture slides.

Course website (Blackboard)

The main course website is <http://www.lsic.ucla.edu>. Login and click on the link to the course. Course information will be posted on the site. Use of the discussion board for course related questions is encouraged.

Discussion sections

- Discussion sections meet twice per week.
- Teaching assistants (TAs) lead the discussion sections. They are responsible for clarifying important points from the lectures/readings and for answering any questions you may have about the course material. In addition TAs will help solve assigned problems.
- You must attend your assigned discussion section unless you have made other arrangements in advance with your TA and the TA of the session you would like to attend. This is a fast-paced course that covers a lot of material in a very short time. It is the responsibility of the student to keep up with the pace by doing all the readings and solving all assigned problems.
- Be active and participate in class discussions. Ask questions if a point is unclear. It helps to work together to help each other solve the problem sets.
- Each TA will have two hours of Office Hours per week. You are welcome to go to the office hours of any of the TAs, but note that TAs will give priority to students from their own sections. Times and locations for TA's office hours TBA.

Instructor Contact Information and Clinics

Dr. McWhorter: ahenkeni@ucla.edu

Please put “LS4 STUDENT” in the subject heading of all e-mails. E-mails without this subject heading will be deleted. NOTE: E-mail is not an appropriate medium for long, technical questions—save those types of questions for discussion section, clinic, or office hours.

Optional instructor led problem solving clinics will be held Fridays; 2-3pm, MS 4000.

TA Contact Information and Discussion Sections

Please put “LS4 STUDENT” in the subject heading of all e-mails.

1. Aditi Iyengar (iaditi@gmail.com) Sections 1B, 1D
2. Mohsin Vora (lstamohsin@gmail.com) Sections 1E, 1F
3. Linda Tran (bruinlt@gmail.com) Sections 1A, 1C

Reading Assignments & Exams

Reading assignments are listed on the lecture slides.

You must take exams on the scheduled dates. No make up exams will be offered. Please check your calendars NOW to make sure that you don't have conflicts.

Administrative Issues

For enrollment, scheduling, etc., please contact the Life Sciences Core Curriculum Office
email: LScore@lifesci.ucla.edu * location: Life Science Building, Room 2305. * phone: 310-825-6614.

GRADING:

Your grade in this course will be determined as follows:

Quizzes will be given each Thursday (Thurs, 3pm to Fri, 11pm) on Blackboard and are worth 10 points each beginning Week 1. Each quiz will consist of problems similar to the problem set assigned for the previous week. Your lowest quiz score will be dropped.

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| Quizzes | (Weeks 1-6 minus 1 lowest) | = 50 points |
| Midterm 1 | (July 7; 8 -9:30am) | = 100 points |
| Midterm 2 | (July 21; 8 - 9:30am) | = 100 points |
| Final Exam | (July 30; 8 - 10:50am) | = <u>250 points</u> |
| TOTAL | | = 500 points |

Letter grades are established from a normal curve of total points following ***standard UCLA guidelines***. The distribution varies from year to year, but in general at least the top 15% have received A+, A, or A-, and next 30% received B+, B, or B-.

Regrading Policy:

Regrades will only be considered if the exam is written in permanent ink. Presumed grading errors may not be discussed with teaching assistants.

- If you feel that there has been a simple addition error during the grading of your exam:
 1. Write a note on a separate piece of paper explaining the error. Attach that note to the front of the exam.
 2. Turn in your exam with the note to the LS core office within one week of the date the graded exams were returned.
 3. Keep a photocopy of the exam for your own records and for studying.
 4. These exams will be re-graded ASAP. During this process the entire exam will be reevaluated to look for errors. Thus, your score may increase **or** decrease.
 5. The exam will be returned to you at the final exam.

Please note that when exams are graded, **they are photocopied**.

CLASS EXPECTATIONS:

Be courteous and on time.

Silence cell phones and other electronic devices. Do not answer the phone during class.

Class participation.

Other Helpful Information:

- Complete the assigned readings prior to each class meeting. Class meetings are designed to clarify and/or expand on your assigned readings.
- The reading and work for this class should be taken seriously. All readings and problems assigned are your responsibility to complete. No homework will be collected.
- You are strongly urged to attend class. In the case that you miss class, obtain notes from a classmate, as test material will be stressed during lectures.
- The lecture/exam schedule is somewhat flexible (depending on the pacing of the class) and may be subject to change at my discretion. Accordingly, it is your responsibility to find out if and when exam dates have been changed.
- Discussion is welcomed during lecture, so please feel free to ask any questions, seek clarification, etc. If you need extra help or if we are pressed for time during class, please see me during office hours.
- ***Attend discussion section regularly.***
- ***The midterms and final are based upon many of the problems sets that are assigned.***

**TENTATIVE COURSE OUTLINE WITH ASSIGNED CHAPTER READINGS
SUMMER SESSION A 2009**

| Week # | Week of | Topics Covered | Chapter Readings |
|--------|---------|--|------------------|
| 1 | 06/22 | a) Introduction & overview; Mendelian genetics, extensions of Mendel, pedigrees, probabilities c) Mitosis, meiosis, chromosomes, sex-linked inheritance | 1, 3, 4 2, 5 |
| 2 | 06/29 | a) Gene linkage & recombination, gene mapping (2 & 3 point crosses) b) Bacterial genetics, conjugation, transduction | 7 8 |
| 3 | 07/06 | MIDTERM I (Tues. July. 7) a) Bacteriophage genetics, Benzer- rII locus b) Definition of a gene: 1 gene 1 enzyme, protein structure function and interaction | 8, 9 14 |
| 4 | 07/13 | a) Population genetics, Hardy Weinberg Equilibrium b) Genetic code & gene mutations, chromosome mutation & rearrangement | 24 12, 13 |
| 5 | 07/20 | MIDTERM II (Tues. July 21) a) Transposable elements b) Disease, recombinant DNA, cloning strategies, molecular markers | 18 15, 16 |
| 6 | 07/27 | a) Genomics, transgenics, gene therapy b) Review FINAL EXAM (Thurs JULY 30) Cumulative. | 16, 17 |