

LS 10H, Winter 2005
Research Training in Genes, Genetics and Genomics

UCLA Undergraduate Research Consortium in Functional Genomics
(Sponsored by Howard Hughes Medical Institute)

Instructors

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Teaching assistant

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Course Description

Lecture, 90 minutes; laboratory, six hours (scheduled) and 3 hours (unscheduled); computer laboratory, 90 minutes. Limited to 30 students. Basic training in biological research, including techniques in genetics, model organism, bioinformatics, functional genomics, electron microscopy. Part of Undergraduate Research Consortium in Functional Genomics sponsored by Howard Hughes Medical Institute Professors Program. Letter grading.

Class Time and Location

Lecture: Monday 2-3:20PM, Rm: Geology 6704

Lab 1A: TR 9-11:50AM, Rm: LS 2365

Lab 1B: TR 1-3:50PM, Rm: LS 2365

Computer section: Friday 2-3:20PM, Rm: Young 4335

Lab is open M-F 8:30am-5pm for unscheduled laboratory work (except during lectures and scheduled classes).

Assignment and Grading:

Midterm and Final exams will be open-book and take-home. In addition your grade will be based on computer exercises, lab effort, quizzes, and your lab notebook.

Quizzes: They are used to test your understandings of lecture and lab instruction materials. They will be taken during the beginning of lab sections.

Lab notebook: We will give you a bound notebook for recording your experimental data. It will be checked for the completeness and neatness of your record.

Lab effort: Your effort will be reflected on how well you maintain the fly stocks or keep track of your crosses. The instructors and TAs will determine how well you perform in the research at the end of quarter. In addition, your results will be reflected in the lab notebook and final report.

Computer exercises: There is usually one computer exercise work sheet to be completed for each computer lab section.

Midterm: You will get a taste of how to write a NIH-style proposal by completing a 4 page report (single-spaced). In this mini-proposal, you will propose a set of experiments (the ones you are currently performing).

Final: The Final paper will summarize your work in the class. The paper will be modeled after original research articles published in the journal "Cell".

The final grade for the course will be calculated as below:

Lab component (60%)	Notebook	100
	Lab effort	260
	Computer exercises (4)	120
	Quizzes (2)	120
Midterm and Final Paper (40%)	Midterm report (due on Feb 15)	150
	Final Paper (due on Mar 16)	250
Total (100%)		1000 points

Week 0

Thursday, Jan 6

First Lab sections: Importance of research in genetics

Friday, Jan 7

No Computer Lab

Week 1

Monday, Jan 10

Lecture 1: Classical Genetics

Friday, Jan 14

Computer Lab 1, 2-3:30 PM: Virtual Flylab

Week 2

Monday, Jan 17

Martin Luther King, Jr. Holiday

Friday, Jan 21

Computer Lab 2, 2-3:30 PM: FlyBase Searches & Locating Transposon sites

Week 3

Monday, Jan 24

Lecture 2, 2-3:30 PM: Clonal Analysis & FLP/FRT system

Thursday, Jan 27

Quiz#1 during lab section

Friday, Jan 28

Computer Lab 3, 2-3:30 PM: Protein Blast searches

Week 4

Monday, Jan 31

Lecture 3, 2-3:30 PM: Applications of Clonal Analysis

Friday, Feb 4

Computer Lab 4, 2-3:30 PM: Online Database of Lab Results

Week 5

Monday, Feb 7

Lecture 4, 2-3:30 PM: *Drosophila* eye development and genetics

Thursday, Feb 10

Quiz#2 during lab section

Friday, Feb 11

No Computer Lab

Week 6

Monday, Feb 14

Lecture 5, 2-3:30 PM: Research Ethics

Tuesday, Feb 15

Midterm Report Due

Friday, Feb 18

No Computer Lab

Week 7

Monday, Feb 21

President's Day Holiday

Friday, Feb 25

No Computer Lab

Week 8

Monday, Feb 28

Lecture 6, 2-3:30 PM: Research Career Paths

Fri day, Mar 4

No Computer Lab

Week 9

Monday, Mar 7

Lecture 7, 2-3:30 PM: Research Talk

Friday, Mar 11

No Computer lab

Week 10

Monday, Mar 14

Lecture 8, 2-3:30 PM: How to think like a geneticist.

Wednesday, Mar 16 **Final Paper Due**