

**LS 10H, Spring 2008**  
**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 a minimum of 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, fluorescent 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: BOELTER 5420

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 1054

*Lab is open M-F 9am-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, your lab notebook and database entries and writing assignments.

**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, database entries, and final report. Participation during class and lab discussions is a very important component of this class.

**Computer exercises:** There is usually one computer exercise work sheet to be completed for each computer lab section. There will be also two short writing assignments.

**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%)	Databases	90
	Notebook	90
	Lab effort & Participation	200
	Computer exercises/ writing assignments	120
	Quizzes (2)	100
Midterm and Final Paper (40%)	Midterm report <b>(due on May 6<sup>th</sup>)</b>	150
	Final Paper <b>(due on June 6<sup>th</sup>)</b>	250
<b>Total (100%)</b>		<b>1000 points</b>

### Week 1

Monday, March 31 Lecture 1 Importance of research in genetics  
Friday, April 4 Computer Lab 1, 2-3:30 PM: Virtual Flylab: Genetic Crosses (Young 1054)

### Week 2

Monday, April 7 Classical genetics  
Friday, April 11 Computer Lab 2, 2-3:30 PM: recombination mapping (Young 1054)

### Week 3

Monday, April 14 Lecture 3: Differential gene expression  
Thursday, April 17 **Quiz#1 during lab section**  
Friday, April 18 Computer Lab, 2-3:30 PM: PubMed and Beyond (Biomed Library)

### Week 4

Monday, April 21 Lecture 4: Lineage Tracing System  
Friday, April 25 Computer Lab 4, 2-3:20: Location of P-element insertions (Young 1054)

### Week 5

Monday, April 28 Lecture 5: Drosophila development: Imaginal discs  
Thursday, May 1 **Quiz#2 during lab section**  
Friday, May 2 Computer Lab 4, 2-3:30 PM: Blast searches (Young 4336)

### Week 6

Monday, May 5 Lecture 6: Drosophila development: lymph and blood  
Tuesday, May 6 **Midterm Report Due**  
Friday, May 9 No Computer Lab

### Week 7

Monday, May 12 Lecture 7: Research Ethics  
Friday, May 16 No Computer Lab

### Week 8

Monday, May 19 Lecture 8: Research Talk  
Friday, May 23 No Computer Lab

### Week 9

Monday, May 26 **Memorial Day Holiday**  
Friday, May 30 No Computer lab

### Week 10

Monday, June 2 Lecture 9: How to Think Like a Geneticist  
Friday, June 6 **Final Paper Due (by 5 pm at the latest)**  
Database entries and lab checkout must be complete by the end of finals week – Friday June 13

Tentative schedule subject to change