

LS 10H, Fall 2008
Research Training in Genes, Genetics and Genomics

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

Instructors

Dr. John Olson: Office Hours: **Open** at LS 2366
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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: Young 1044

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 4336

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 (4)	120
	Quizzes (2)	100
Midterm and Final Paper (40%)	Midterm report (due on Nov 4)	150
	Final Paper (due on Dec 5)	250
Total (100%)		1000 points

Week 0

Thursday, Sep 25 First Lab sections
Friday, Sep 26 No Computer Lab

Week 1

Monday, Sep 29 Lecture 1: Importance of research in genetics
Friday, Oct 3 Computer Lab 1, 2-3:30 PM: Virtual Flylab in Young 4336

Week 2

Monday, Oct 6 Lecture 2, 2-3:30 PM: Classical Genetics
Friday, Oct 10 Computer Lab 2, 2-3:30 PM: FlyBase Searches & Locating Gal4 sites Young 4336

Week 3

Monday, Oct 13 Lecture 3, 2-3:30 PM: Differential gene expression
Thursday, Oct 16 **Quiz#1 during lab section**
Friday, Oct 17 Computer Lab 3, 2-3:20: FlyBase Searches & Locating Gal4 sites Young 4336

Week 4

Monday, Oct 20 Lecture 4, 2-3:30 PM: The FLP/FRT system
Friday, Oct 24 2-3:30 PM: PubMed and Beyond (Biomed Library)

Week 5

Monday, Oct 27 Lecture 5, 2-3:30 PM: Drosophila development: Imaginal discs
Thursday, Oct 30 **Quiz#2 during lab section**
Friday, Oct 31 Computer Lab 4, 2-3:30 PM: Protein Blast searches in Young 4336

Week 6

Monday, Nov 3 Lecture 6, 2-3:30 PM: Drosophila brain development
Tuesday, Nov 4 **Midterm Report Due**
Friday, Nov 7 No Computer Lab

Week 7

Monday, Nov 10 Cell Lineage Analysis
Friday, Nov 14 No Computer Lab

Week 8

Monday, Nov 17 Lecture 7, 2-3:30 PM: Research Ethics
Fri, Nov 21 No Computer Lab

Week 9

Monday, Nov 24 Lecture 9, 2-3:30 PM: Research Talk
Thurs-Fri, Nov 27-28 Thanksgiving Holiday

Week 10

Monday, Dec 1 Lecture 10, 2-3:30 PM: How to think like a geneticist
Friday, Dec 5 **Final Paper Due (by 5 pm at the latest)**
Database entries and lab checkout must be completed by the end of finals week – Friday Dec 12
Tentative schedule subject to change