

LS 10H, Fall 2007
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
Tel: (310) 825-4708
jmolson@mednet.ucla.edu

Dr. Utpal Banerjee: Office Hours: **Open** at Boyer 364
Tel: (310) 206-5439
banerjee@mbi.ucla.edu

Teaching assistant

Nikki Villarasa: Office Hours: **WF 10-12 am**, LS 2365
Tel: (310) 267-5679
mehunenikki@yahoo.com

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, and 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: 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 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, database completion, 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, 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.

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 6)	150
	Final Paper (due on Dec 7)	250
Total (100%)		1000 points

Week 0

Thursday, Sep 27 First Lab sections
Friday, Sep 29 No Computer Lab

Week 1

Monday, Oct 1 Lecture 1: Importance of research in genetics
Friday, Oct 5 Computer Lab 1, 2-3:30 PM: Virtual Flylab in Young 4336

Week 2

Monday, Oct 8 Lecture 2, 2-3:30 PM: Classical Genetics
Friday, Oct 12 Computer Lab 2, 2-3:30 PM: FlyBase Searches & Locating Gal4 sites Young 4336

Week 3

Monday, Oct 15 Lecture 3, 2-3:30 PM: Differential gene expression
Thursday, Oct 18 **Quiz#1 during lab section**
Friday, Oct 19 Computer Lab 3, 2-3:30 PM: PubMed and Beyond (Biomed Library)

Week 4

Monday, Oct 22 Lecture 4, 2-3:30 PM: The FLP/FRT system
Friday, Oct 26 Computer Lab 4, 2-3:20: FlyBase Searches & Locating Gal4 sites Young 4336

Week 5

Monday, Oct 29 Lecture 5, 2-3:30 PM: Drosophila development: Imaginal discs
Thursday, Nov 1 **Quiz#2 during lab section**
Friday, Nov 2 Computer Lab 5, 2-3:30 PM: Protein Blast searches in Young 4336

Week 6

Monday, Nov 5 Lecture 6, 2-3:30 PM: Drosophila development: brain and lymph
Tuesday, Nov 6 **Midterm Report Due**
Friday, Nov 9 No Computer Lab

Week 7

Monday, Nov 12 Veteran's Day Holiday – No Class
Friday, Nov 16 No Computer Lab

Week 8

Monday, Nov 19 Lecture 7, 2-3:30 PM: Research Ethics
Thurs-Fri, Nov 22-23 Thanksgiving Holiday

Week 9

Monday, Nov 26 Lecture 9, 2-3:30 PM: Research Talk
Friday, Nov 30 No Computer lab

Week 10

Monday, Dec 3 Lecture 10, 2-3:30 PM: How to think like a geneticist
Friday, Dec 7 **Final Paper Due**; No Computer Lab