

LS 3: INTRODUCTION TO MOLECULAR BIOLOGY FALL 2007

Instructor: Jeronimo Ribaya, Ph.D.

Office: Schlichter 2855

Lecture: TR 8:00 – 9:15 am (LaKretz 110)

Office Hours: TR 9:30-10:30 am

E-mail: jpribaya@yahoo.com

Course Objective:

In this course, we introduce the basic concepts in biochemistry, molecular biology and molecular genetics (e.g. protein structure and function, DNA structure and replication, transcription, RNA processing and translation, recombinant DNA technology). LS3 integrates many different areas of science, from physics and chemistry to biology, and places special emphasis on experimental approaches to understanding molecular biology.

General Information:

Lectures

- Lecture Text: *Molecular Cell Biology* by Lodish, et al. (2004)—5th edition
- Lectures cover all of the primary course material. They should focus your reading and studying.
- Copies of lecture slides will be posted on Blackboard™. If slides are not posted the day before lecture (Monday and Wednesday) by 10:00 pm, copies of the lecture slides will be handed out during class.

Discussion sections

- Teaching assistants (TAs) lead the discussion sections. They are responsible for clarifying important points from the lectures/readings/labs and for answering any questions you may have about the course material.
- You are expected to attend your assigned discussion section
- 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.

Dr. Ribaya’s Contact Information

- jpribaya@yahoo.com. Please put “LS3 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 or office hours.

TA Contact Information and Discussion Sections

- Justin Lin: Justin.jnn.linn@gmail.com, Discussion Sections: **1B and 1G**
- Erin Kirkbride: ekirkbride@ucla.edu, Discussion Sections: **1A and 1E**
- Danny Halperin: dhalperin@ucla.edu, Discussion Sections: **1H and 1J**
- Elaine Nitta: emnitta@ucla.edu, Discussion Sections: **1D and 1F**
- Sang Luu: sangbiota@yahoo.com, Discussion Sections: **1C and 1I**

Labs

- Dr. Gaston Pfluegl coordinates the lab portion of this course. He is the director of the Life Sciences Core Laboratories. There are five labs total—lab reports and lab quizzes will count toward your final grade in this class (see Grading below). ***Note:** Labs 4 & 5 **cannot** be dropped. It is your responsibility to purchase a lab manual (6th edition) and to attend your assigned lab sections.
- Students who took the course within the last academic year are allowed to transfer their previous grades from the lab portion and be exempt from attending the labs. All students in the course must take the lab portion of the final exam. The policy and sign up procedure are available after students log on to <http://www.lsic.ucla.edu/classes/> and click on the link under “Announcements.” This must be done by the end of 2nd week or else you will have to attend the laboratory sections.

Reading Assignments & Exams

- Reading assignments are listed on the course syllabus.
- **You must take exams on the scheduled dates.** Please check your calendars **NOW** to make sure that you don't have conflicts!
- **Check exam room assignments.**

Administrative Issues

- For enrollment, scheduling, etc., please contact Lily Yanez (lyanez@lifesci.ucla.edu) in the Life Sciences Core Curriculum Office (Life Science Building, Room 2305). Phone # for LS Core Office is 310-825-6614.

Grading:

Your grade in this course will be determined as follows:

Lab portion:

For each lab (5 total): lab report + lab quiz = 20 points
Lowest lab score will be dropped*, leaving 4 labs at 20 points/lab = 80 points
Lab-related question on Final Exam = 20 points

Lecture portion:

Midterm 1	(Monday, October 22, 5-6:50 pm)	= 100 points
Midterm 2	(Monday, November 19, 5-6:50 pm)	= 100 points
Final Exam	(Wednesday, December 12, 6:30-9:30 pm)	= <u>200 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:

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 it your exam with the note to the LS3 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 regraded ASAP. During this process the entire exam will be reevaluated to look for errors. Thus, your score may increase *or* decrease.

Please note that when exams are graded, **they are photocopied**. Every year we have one or two students who add to their answer before turning in their exam for regarding. Thus, every year we have one or two students who get to meet the Dean and then leave UCLA.

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 assigned are your responsibility to complete. No homework will be collected and no additional quizzes will be given. You are adults and should be responsible for your own study habits.
- You are strongly urged to attend class. Shall 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 mainly conceptual.

TENTATIVE LECTURE COURSE OUTLINE WITH ASSIGNED CHAPTER READINGS

Week #	Week of	Topic	Chapters
0	9/24	Introduction and Overview; Life Begins with Cells; Model Organisms; A Genome perspective on Evolution	Ch. 1
1	10/01	Chemical Foundations: Atomic Bonds and Molecular Interactions; Macromolecules	Ch. 2
2	10/08	Amino acids, Proteins-Sequence, Structure, and Function; Proteins-Sequence Homology/Protein Families/BLAST	Ch. 3, Ch. 9
3	10/15	Interaction of Proteins with other Molecules; Enzymes; Biochemical Energetics (ΔG)	Ch. 2, Ch. 3
4	10/22	Regulating Protein Function, Techniques: Purifying, Detecting, and Characterizing Proteins MIDTERM 1 (October 22, 5-6:50 pm): Weeks 0-3, inclusive	Ch. 3
5	10/29	Basic Molecular Genetic Mechanisms, Structure and Function of DNA and RNA, Genome and Gene Structure; Prokaryotic Transcription	Ch. 4, Ch. 10
6	11/05	Genetic Code; Prokaryotic Translation, Prokaryotic Gene Regulation Veterans Day Holiday (Friday November 12)	Ch. 4
7	11/12	Eukaryotic Transcription; RNA Processing, Eukaryotic Translation	Ch. 4., Ch. 12, Ch. 16
8	11/19	Eukaryotic Gene Regulation; DNA Replication I Thanksgiving Holiday (Thursday November 22) MIDTERM 2 (November 19, 5-6:50 pm): Weeks 4-7, inclusive	Ch. 10, Ch. 11, Ch. 12
9	11/26	DNA Replication II, DNA Repair, Viruses	Ch. 4, Ch. 23
10	12/03	Recombinant DNA Technology; Genomics; DNA Sequencing and Analysis	Ch. 9, Ch. 10
11	12/10	FINAL EXAM (December 12, 6:30-9:30 pm)	Comprehensive

LAB COURSE OUTLINE (DR. GASTON PFLUEGL/RHONDA MUROTAKE)

Week #	Date	Topic
1	10/01	Lab #1: Pipetting/Chemistry Quiz
2	10/08	Lab #2: SDS-Page
3	10/15	Go to Discussion Section
4	10/22	Lab #3: LAC-Operon
5	10/29	Go to Discussion Section
6	11/05	Lab #4: Plasmid Prep
7	11/12	Go to Discussion Section
8	11/19	NO Discussion
9	11/26	Lab #5: Restriction Enzymes/BLAST
10	12/03	Go to Discussion Section
11	12/10	Lab-related questions on Final Exam