

# Life Science 3

## Introduction to Molecular Biology

### Summer 2009

**Instructor:** Hung Dinh Pham, Ph.D.

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Office Hours: WF 2-3 pm in Boyer Hall 554

#### **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 meets: MWF 9-10:50 am in Franz 1178
- Lecture Textbook: *Essential Cell Biology* by Alberts *et. al.*, 2009 (3<sup>th</sup> 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 (Sunday, Tuesday and Thursday) by 10:00 pm, copies of the lecture slides will be handed out during class.
- Lectures will be podcasted at <http://www.oid.ucla.edu/webcasts/courses/2008-2009>

##### ***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. Their OHs and locations will be posted on Blackboard.

##### ***TA Contact Information and Discussion Sections***

- Karen Flummerfelt:** [kflummerfelt@gmail.com](mailto:kflummerfelt@gmail.com); Discussion 2G and 2H
- Michelle Kim:** [michekim@ucla.edu](mailto:michekim@ucla.edu); Discussion 2E and 2F
- Erin McDonald:** [erinmcdonald@ucla.edu](mailto:erinmcdonald@ucla.edu); Discussion 2A and 2B
- Asif Razee:** [asifrazee@ucla.edu](mailto:asifrazee@ucla.edu); Discussion 2C and 2I

##### ***Contact Information***

- 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 sections or office hours.

### ***Labs***

- There are five labs total—lab reports and lab quizzes will count toward your final grade in this class (see Grading below). It is your responsibility to purchase a LS 3 Lab Manual by Dr. Pfluegl (9<sup>th</sup> edition) and to attend your assigned lab sections.
- ***Lab grade transfer:*** 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 lab sections. All students in the course must take the lab portion of the final exam. Please make sure you follow the correct procedures for taking this option. 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 Friday of the 1<sup>st</sup> week of instruction** 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. There are no exceptions.** Please check your calendars to make sure that you don’t have scheduling conflicts!

### ***Administrative Issues***

- For enrollment, scheduling, etc., please contact Lily Yanez or Jane Park (lscore@lifesci.ucla.edu) in the Life Sciences Core Curriculum Office (Life Science Building, Room 2305).

### **Grading:**

Your grade in this course will be determined as follows:

#### ***Lab portion (20%):***

Lab 1-5 (The lowest score will be dropped- <b>but not lab 3.</b> )	= 80 points
Lab-related question on Final Exam	= 20 points

#### ***Lecture portion (80%):***

Midterm 1	(Friday, August 14, 2009, 9-10:50 am)	= 100 points
Midterm 2	(Friday, August 28, 2009, 9-10:50 am)	= 100 points
Final Exam	(Friday, September 11, 2009, 9-10:50 am)	= 200 points
TOTAL		= 500 points

Letter grades are established from a normal curve of total points following ***standard UCLA guidelines.***

### **Regrading Policy:**

- If you feel that there has been an error during the grading of your exam:
  1. Type on a separate piece of paper explaining the error. Attach that note to the front of the exam.
  2. Turn in your exam with the note to your TA or 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.
- You are strongly urged to attend class. Shall you miss class, obtain notes from a classmate, as test material will be stressed during lectures.
- Discussion is welcomed during lecture, so please feel free to ask any questions, seek clarification, etc. If you need extra help, please see me during office hours.
- Attend discussion section regularly.
- The midterms and final are mainly conceptual. Most of the questions will be in short answer format.

## Tentative lecture course outline with assigned readings

Week	Date	Topic	Chapter
1	M 08/03	Introduction to Molecular Biology of the Cell	Chapter 1
	W 08/05	Chemical Foundations of Life	Chapter 2
	F 08/07	Protein Structure and Function	Chapter 4; pg. 119-149
2	M 08/10	Regulation of Protein Function and Protein Analysis	Chapter 4; pg. 149-168
	W 08/12	DNA and Chromosome Structure	Chapter 5
	F 08/14	<b>Midterm I</b>	
3	M 08/17	DNA Replication	Chapter 6; pg. 197-210
	W 08/19	DNA Repair and Viruses	Chapter 6; pg. 211-228
	F 08/21	Transcription and Post-transcriptional modification	Chapter 7; pg. 231-246
4	M 08/24	Translation	Chapter 7; pg. 246-266
	W 08/26	Transcriptional Controls of Gene Expression	Chapter 8; pg. 269-288
	F 08/28	<b>Midterm II</b>	
5	M 08/31	Post-Transcriptional Controls of Gene Expression	Chapter 8; pg. 289-294
	W 09/02	Genomics	Chapter 9
	F 09/04	Molecular Techniques I	Chapter 10; pg. 327-343
6	M 09/07	<i>Holiday</i>	
	W 09/09	Molecular Techniques II	Chapter 10; pg. 343-360
	F 09/11	<b>Final</b> (comprehensive)	