# MOLECULAR BIOLOGY – BIMM100

## SPRING 2012

LECTURE: TUESDAY/ THURSDAY: 12:30 -1:50 SOLIS 107
SECTIONS: 1 HOUR /WEEK. SEE BELOW FOR SCHEDULING
MIDTERM EXAM: THURSDAY, 3 MAY, IN CLASS
FINAL EXAM: 11:30AM - 2:25 PM, MONDAY, 11 JUNE

PROFESSOR LORRAINE PILLUS
2100A PACIFIC HALL
lpillus@ucsd.edu
Office hours: Monday: 9:30- 10:30 Pacific Hall 2130 *starting week 3*
*IN WEEK 2 ONLY, OH WILL BE HELD WED 8:30-9:30 PACIFIC HALL 2130*

TEXTBOOK:
Required – *Molecular Cell Biology*, Lodish et al., 6th edition (2008) referred to below as MCB.
Website for text: http://www.whfreeman.com/lodish6e Note that this site includes animations, corrections of errors in the text and other useful information.

Goals of the Course

Molecular Biology is the science focused on understanding basic principles in biology at a molecular level. This understanding comes from discovering the relevant molecular 'pieces' that contribute to key biological processes, and importantly, how these molecules work together to execute and regulate the processes. Successes in molecular biology have led to increased understanding of human health and disease, and also form the foundation for recombinant DNA technology, the biotechnology industry, biofuels, and the ongoing, enormous progress in genomic sciences.

The goals for BIMM100 are to master the fundamental principles of molecular biology. We will discuss the principles in the context of both the *concepts* they reveal and the *experiments* that allowed the articulation of these concepts. Because molecular biology is a dynamic, living science, we will also consider unanswered questions, important areas of current research, and future directions and applications.

Accomplishing the Goals

BIMM100 consists of Lectures, Sections, Reading, Problem Solving, and Office Hours. The expectation is that by having multiple formats for communicating and working with the information, each student will develop approaches to learning and studying that are individually most effective.

*Lectures* – Are given twice a week and will cover topics indicated on the schedule. Reading from MCB is noted and any additional reading will be announced in lecture. Please note that the indicated schedule and readings may be modified somewhat during the quarter. Any changes will be announced in lecture. Lecture notes will be posted on the class website, hosted by the University TED server. However, these notes are not intended to replace lecture, and you will be responsible for information provided in lecture and assigned in the text.
Access the class website using your University username and password @
ted.ucsd.edu

*Sections* – An important component of the course is your weekly section. The sections are taught by a team of smart, dedicated and accomplished scientists-in-training. Sections serve to clarify and emphasize points that have been introduced in lecture. Section leaders craft each meeting to include problem solving, discussion, and expansion of particularly timely topics. Note that attendance at sections is required for optimal performance in the course. Satisfactory participation and regular attendance (greater than 75%) in section will be recognized by addition of up to 10 points added to your final grade.

There will be no sections the first week of class, but you should sign up for a section by Friday at https://sections.ucsd.edu/default.aspx.

Sections will begin the second week of classes at the location indicated on sections.ucsd.edu.

Section Leaders will announce their office hours during section.
Their names and email addresses are:

| | |
|---|---|
| RUI FU | rufu@mail.ucsd.edu |
| MEG HARPER | mmharper@ucsd.edu |
| YUNGHUI (MELODY) CHANG | y8chang@ucsd.edu |
| JEN DUONG | jenleeduong@gmail.com |
| THAI LAI | thaihnglai@gmail.com |
| HOWARD LI | hjli@ucsd.edu |

*Reading and Problem Solving* – Reading assignments are noted on the schedule. Any additional reading will be announced in lecture. At the end of each chapter, problems of various styles and lists of key concepts are given. These may be discussed in section and will be supplemented by your teaching assistants. The website for the text has supplemental material, including animations and figures. You are encouraged to prepare by reading and solving the problems *before* the lectures and sections.

*The Learning Environment* – Participation in class and Office Hours (e.g. questions or responses to questions by the instructor) is strongly encouraged and contributes to a rich, interactive learning environment. In lectures and sections, refrain from eating, newspaper reading, texting, surfing the web, and conversation. Turn off cell telephones and messaging devices. If you must leave class early, please sit in the back in an aisle seat so that you do not disturb others. Following these guidelines will help you, your colleagues, and your instructors stay focused.

*Your preparation and prerequisites* – A key factor in doing well in BIMM100 is being prepared for the course. This means that you will have successfully completed Genetics (BICD100), Biochemistry (BIBC100[02]) and their pre-requisites (including BILD1 and organic chemistry). You may also wish to review MCB Chapters 1-3.

*Exams and Evaluations* — Your performance in the course will be evaluated by one midterm exam and the final exam. The midterm will be worth 40% (120 points) and the final exam 60% (180 points) of your course grade. These exams will consist of short answer, multiple choice and short essay questions. A review session and help rooms will be offered before each exam, in addition to the normal weekly sections. Exams should be completed in ink. Requests for any reconsideration must be submitted within one week of the date the exams are returned. Only exams written in ink can be considered for re-grading. Exams taken in pencil will not be reconsidered.

Failure to take the midterm or final exam at the assigned time and place will result in a grade of zero. Extraordinary circumstances preventing you from taking an exam at the scheduled time must be submitted in writing and include official documentation of the excuse as far in advance as possible to the instructor (Prof. Pillus). If the excuse is accepted by Prof. Pillus and the Student Instructional Services Office, a make-up will be an ORAL exam given by Prof. Pillus.

Grades are assigned by exam totals as described above, plus up to 10 additional points for participation and attendance at section. For each exam, the top score will be eliminated, then the three next highest grades will be averaged, and this score will be set to 100%. Grades will then be based on the following scale:

88-100% – A range
78-87% – B range
65-77% – C range
55-64% – D range
below 55% – failing

Since your own grade results only from your own scores, and is not influenced by how your classmates do, working together will only help everyone. Group studying is highly recommended.

***Students working with OSD:*** Please provide your AFA letter as soon as possible, but not later than week 3, so that we can make arrangements with the Biology Student Instructional Services Office.

**Please check your midterm and final exam schedule for your other classes <u>today</u>. *If you have multiple finals on the same day, determine if your other courses can accommodate a change, or consider moving to the other section of BIMM100.***

*Academic Integrity* — You are encouraged to study with other students and especially to use your Sections as collaborative learning environments. However, work on exams must be solely your own. Lapses in academic integrity will not be tolerated and will be pursued in accord with University policy.

Please review UCSD's Policy on Academic Integrity:
http://www-senate.ucsd.edu/manual/appendices/app2.htm

# BIMM100 SCHEDULE SPRING 2012

| Week | Date | Lecture | Planned Topics | MCB (Chapter: pages) |
|---|---|---|---|---|
| 1 | 3 April | 1 | Nucleic Acid Structure & Key Processes | 4:111-125 |
| | 5 April | 2 | Key Molecular Processes in Biology II<br>Transcription + Decoding | 4:125-131 |
| 2 | 10 April | 3 | KMPB III –Translation & DNA Replication | 4:132-145 |
| | 12 April | 4 | KMPB IV –Replication, Repair & Viral Intruders | 4:145-160 |
| 3 | 17 April | 5 | Using Molecular Biology – Recombinant DNA<br>(*review 5:166-176 before lecture*) | 5:176-186 |
| | 19 April | 6 | UMB II- Characterizing + Using Clones | 5:186-198 |
| 4 | 24 April | 7 | UMB III - Finding Genes & Using Clones | 5:198-204 |
| | 26 April | 8 | UMB IV – Tricks for Inactivating Genes | 5:204-212 |
| 5 | 1 May | 9 | UMB V – Wrap Up – *See special schedule for review sessions* | |
| | 3 May | | Midterm Exam – in class – Places TBA | |
| 6 | 8 May | 10 | Gene Structure & Organization in Chromosomes | 6:217-226 |
| | 10 May | 11 | Chromosomes & Invaders | 6:226-236 |
| 7 | 15 May | 12 | Looking Deeper: Chromatin & Chromosomes | 6:247- 257 |
| | 17 May | 13 | Looking Deeper: Centromeres & Telomeres | 6:257-266 |
| 8 | 22 May | 14 | Regulating Gene Expression: Basics & Polymerases | 7:269-281 |
| | 24 May | 15 | RGE II: Sites & Binders | 7:281-296 |
| 9 | 29 May | 16 | RGE III: Getting Started & Fine-tuning | 7:296-319 |
| | 31 May | 17 | After the Message: Processing in the Nucleus | 8:323-341 |
| 10 | 5 June | 18 | AtM: More Processing &Regulation in the Cytoplasm | 8:347-367 |
| | 7 June | 19 | Genomics, New Horizons & Wrap Up | |
| | 11 June | | *** FINAL EXAM *** 11:30 am - 2:20 pm | Place TBA |