Molecular Biology-BIMM100
Summer Session II, 2011

Lectures: Mon, Tues, Wed, and Thurs 8:00am-9:20am, CENTER 101
Sections: 2 hours per week. See below for scheduling.
Midterm Exam: Tuesday, August 16th, during class.
Final Exam: Friday, September 2nd, 8am-11am (location to be announced)

Instructor:
David Stachura, Ph.D.
dstachura@ucsd.edu
Office hours: Monday, 3pm-4pm, HSS (Humanities and Social Sciences Building) 1145A
Contacting me: Please email me with all questions. In your subject line, please indicate the course (BIMM100), and your student number. This will help me respond and deal with your concerns more easily!

Textbook:
Required – *Molecular Cell Biology*, Lodish et al., 6th edition (2008).
Also see: http://www.whfreeman.com/lodish6e
This site includes animations, corrections of errors in the text, and other useful information.

Class website:
https://ted.ucsd.edu
Access the class website on Ted (the new version of WebCT) with your UCSD username and password. Be sure to check this site frequently for lecture updates and important class information.

Teaching assistants:

Nimesh Rajakumar	nrajakum@ucsd.edu
Zara Tabi	ztabi@ucsd.edu
Misbah Ahmed	habsim6@gmail.com
Kimberly Chia	kchia@ucsd.edu
Jonathan Goldstone	j1goldst@ucsd.edu

Section leaders will announce their office hours during their respective sections.

Discussion sections:

Section	TA	Day	Time	Room
A01	Nimesh Rajakumar	Mon & Wed	10am-11am	CENTR 205
A02	Zara Tabi	Mon & Wed	2pm-3pm	CENTR 220
A03	Zara Tabi	Mon & Wed	1pm-2pm	CENTR 217A
A04	Jonathan Goldstone	Tues & Thurs	11am-12pm	CENTR 217B
A08	Jonathan Goldstone	Tues & Thurs	12pm-1pm	CENTR 217B
A06	Misbah Ahmed	Mon & Wed	6pm-7pm	WLH 2110
A07	Kimberly Chia	Mon & Wed	11am-12pm	CENTR 217B

Discussion sections are a vital component of this course, especially for the fast-paced summer sessions. Attendance is ***strongly*** recommended. These discussion sections serve to clarify and emphasize points that have been introduced during lectures. Each section is taught by a dedicated and accomplished scientist-in-training that wants to help you succeed! These sections will provide ample opportunities for problem solving, discussion of class and reading material, and developing critical thinking skills that will be essential for your success in this course.

Sections will start on Wednesday, August 3rd!

Additionally, we will have two review sessions for you before the midterm and final. These will be held on Friday, August 12 from 10am-12pm in CENTR 119 (for the midterm) and Wednesday, August 31 from 3-5pm in CENTR 119 (for the final). The review on the 31st will be in place of your normal sections for that day.

Goals of the course:

In the simplest terms, molecular biology is the science focused on understanding basic biological principles and processes at a molecular level. It is the study of the essential cellular macromolecules (such as DNA, RNA, and proteins) and how these building blocks work together to execute and regulate macromolecular processes that are vital for life.

Molecular biology as a field of scientific interest has had a profound impact on our daily lives. Diagnostic tests for genetic diseases, forensic analysis, genetically modified crops with increased yields and disease resistance, cancer therapies, generation of cleaner forms of energy, and many more advances that

we take for granted in our modern society were discovered due to advances made in molecular biology.

The goals for BIMM100 are to master the fundamental principles of molecular biology. By the end of this course, you will not only understand the molecules responsible for these processes, but also the complex interplay between them. In addition to understanding the *concepts* of molecular biology, you will also have an understanding of the *experimental science* that has facilitated the interpretation of these concepts. Finally, you will gain an understanding and appreciation of the exciting future directions and applications of molecular biology.

Accomplishing the goals:

BIMM100 consists of lectures, discussion sections, readings, problem solving, and office hours.

Lectures

Lectures are given four times a week and will cover the major topics indicated on the class schedule. Lecture slides will be posted on the class website (Ted). These slides are **not** intended to replace lecture; you will be responsible for the information provided in lectures and from the assigned readings in *Molecular Cell Biology*. In addition, the indicated schedule may change slightly, along with modification of the readings. These changes will be announced in lecture. Finally, 10% of your final grade will be determined by class participation in these lectures.

Discussion sections

An important component of the course is attendance and participation in your weekly discussion sections. Your teaching assistants that will be leading these discussions are smart, dedicated, and accomplished scientists-in-training that want to help you learn the important concepts of molecular biology. These discussion sections are designed to clarify and emphasize points that have been introduced in lecture, and your section leaders will craft each meeting to include problem solving and discussion of particularly timely topics. Note that attendance at sections is ***strongly recommended*** for optimal performance in the course.

Due to the fast-paced nature of summer classes, sections will begin immediately. Sign up for your section by August 3rd at https://sections.ucsd.edu/default.aspx

Readings and problem solving

Reading assignments are noted on the schedule. Any additional reading will be announced during 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. This will prepare you for the types of questions that will be encountered on your

exams!

The learning environment

Participation in class (e.g. questions or responses to questions by the instructor) is strongly encouraged and contributes to a rich, interactive learning environment. To encourage (and quantitate) class participation, we will be utilizing i>clicker technology during lectures. To register your i>clicker, you will need to first login to Ted (https://ted.ucsd.edu). On the left side of the screen, you will see a link that says "Register your i>clicker Remote ID." Click on this button, and follow the instructions. Be aware that the registration process will take a minute or so. Please perform this action by August 3rd, so I can download the class roster and begin collecting your responses for your class participation grades. If you do not register by this time, there is a very real possibility that your responses will not be input into the system, and the scores will not be counted towards your grade!

In lectures and sections, refrain from eating, reading non-class related materials, texting, surfing the web, updating your Facebook page, Tweeting, playing video games, and conversing with others. Turn off (or silence) cellphones and messaging devices. If you must leave class early, please sit in the back (in an aisle seat) so that you minimize your disturbance of others. Following these guidelines will help you, your classmates, and your instructors stay focused.

Student preparation and prerequisites

A key factor to succeeding in BIMM100 is being prepared. That means that you should have already completed BIBC 100 or BIBC 102 (Biochemistry) and BICD 100 (Genetics) and their pre-requisites (including BILD1 and organic chemistry). Students may also find it useful to review chapters 1-3 in *Molecular Cell Biology*.

<u>Exams and the evaluation of performance (grading):</u>

Final Course Grade = 10% class participation
30% midterm examination
60% final examination (**cumulative**)

Your performance in the course will be evaluated by class participation, one midterm exam, and the final exam. Class participation will be worth 10% of the final grade, and will be recorded by i>clicker technology. The midterm will be worth 30% of the final course grade, and a cumulative final exam will comprise the remaining 60% of your course grade.

Grading policies are as follows:

1. Exams will consist of multiple choice, short answer, and essay questions.
2. Exams must be completed **in ink**. Exams taken in pencil **will not** be reconsidered for re-grading.
3. Pens and a form of picture ID (a student ID or driver's license) will be required for each exam.

4. Requests for any grading reconsideration must be submitted in writing within one week of the date the exams are returned. Requests must be hand-delivered to me either after lecture or during my office hours. Only exams written in ink can be considered for re-grading. **Note:** submission of exams for re-grades will be thoroughly re-graded (i.e. I will re-grade the **whole** exam).
5. A random sampling of the midterm and final exams **will be photocopied**. If you submit an altered exam for re-grading, it will be considered a breach of academic integrity, resulting in you failing the course and being subjected to additional disciplinary actions (see below for more information on academic integrity).
6. There will be no scheduled make-up exams for the midterm or the final. 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 Dr. Stachura and the Student Affairs Office, which will both have to approve the reason. If exceptions are made for these extraordinary circumstances, a make-up exam will be an oral exam given by Dr. Stachura.
7. Grades are established only at the end of the course and are based on the exam scores and class participation. In true borderline cases, input from section leaders regarding student performance may be taken into consideration (attend your discussion sessions!) as well as correct answers on in-class i>clicker questions (prepare for the questions and try to answer them correctly- don't just hit buttons randomly!). Grades are given based on the distribution of total points, where total points = 0.1(class participation) + 0.3(midterm) + 0.6(final). Plus and minus grades will be given, and natural breakpoints in the score distribution will be used in the final grade assignment as much as possible.

Students with disabilities:

Students requesting accommodations and services due to a disability for this course need to provide a current Authorization for Accommodation (AFA) letter issued by the Office for Students with Disabilities (OSD) prior to eligibility for requests. Receipt of AFAs in advance is necessary for appropriate planning for the provision of reasonable accommodations. OSD Academic Liaisons also need to receive current AFAs. For more information, contact the OSD at http://osd.ucsd.edu.

Academic integrity:

"Integrity of scholarship is essential for an academic community. The University expects that both faculty and students will honor this principle and in so doing protect the validity of University intellectual work. For students, this means that all academic work will be done by the individual to whom it is assigned, without unauthorized aid of any kind. Instructors, for their part, will exercise care in

planning and supervising academic work, so that honest effort will be upheld."

Cheating in any form will not be tolerated and will result in an F in the course, as well as any disciplinary actions as indicated by the policy to maintain academic honesty. Please review UCSD's Policy on Academic Integrity at http://www-senate.ucsd.edu/manual/appendices/app2.htm

You are encouraged to study with other students and especially to use your discussion sections as a collaborative learning environment. However, work on exams must be solely your own. Additionally, as we will be utilizing i>clicker technology to record class participation, **fraudulently utilizing an i>clicker to register another student's participation will be considered a lapse in academic integrity** (i.e. only use **your** i>clicker to register **your** responses to in-class questions). Students observed in class with multiple i>clickers will be considered to have breached UCSD's Policy on Academic Integrity.

BIMM100 schedule, Summer II 2011

Week	Date	Lecture	Topic	Reading (chapter:pages)
1	8/1	1	Nucleic Acid Structure and Key Processes	4:111-125
	8/2	2	Key Molecular Processes in Biology II- Transcription and Decoding	4:125-131
	8/3	3	KMPB III- Translation and DNA Replication	4:132-145
	8/4	4	KMPB IV- Replication, Repair, and Viral Invaders	4:145-160
2	8/8	5	Using Molecular Biology- Recombinant DNA (review 5:166-176 before lecture!)	5:176-186
	8/9	6	UMB II- Characterizing and Using Clones	5:186-198
	8/10	7	UMB III- Finding	5:198-204

			Genes & Using Clones	
	8/11	8	UMB IV- Tricks for Inactivating Genes	5:204-212
3	8/15	9	UMB V- Wrap up before midterm!	
	8/16	MIDTERM- in class		
	8/17	10	Gene Structure & Organization in Chromosomes	6:217-226
	8/18	11	Chromosomes & Invaders	6:226-236
4	8/22	12	Looking Deeper: Chromatin & Chromosomes	6:247-257
	8/23	13	Looking Deeper: Centromeres & Telomeres	6:257-266
	8/24	14	Regulating Gene Expression: Basics & Polymerases	7:269-281
	8/25	15	RGE II: Sites & Binders	7:281-296
5	8/29	16	RGE III: Getting Started & Fine Tuning	7:296-319
	8/30	17	After the Message: Processing in the Nucleus	8:323-341
	8/31	18	AtM: More Processing & Regulation in the Cytoplasm	8:347-367
	9/1	19	Genomics, New Horizons, & Wrap up	
	9/2	FINAL- location TBA		