BIOL 101 Biochemistry - Fall 2014

MW 11:35-12:50, location for first day of class – SLB (Law school) Auditorium

PROFESSORS:

MICHAEL R. KOELLE (professor, in charge, gives lectures), michael.koelle@yale.edu

KATE GARDNER (course coordinator for BIOL 101-104), kathryn.gardner@yale.edu

TEACHING FELLOWS/POSTDOCTORAL TEACHING SCHOLARS: Priya Date (lead teaching scholar), Dan Bondeson, Jessica Brown, Patrick Ellis, Katie Fink, Kathleen Frey, William Gray, SoRi Jang, Mirko Messa, & Karina Vargas

TEXT: "Life: The Science of Biology" 10th edition, by Sadava et al. All other assigned readings can be downloaded via the classes*v2 web site.

LECTURES, READINGS, STUDY GUIDES: Lectures will usually be held Mondays and Wednesdays, 11:35-12:50. Prior to each lecture, a reading assignment, study guide, and PDF of the slides to be used in lecture will be posted on the course web site on classes*v2. It is recommended that you print out the lecture slides, bring them to lecture, and take notes on this paper printout.

WEB SITES: The Yale classes*v2 site for the course will post problem sets, answer keys, announcements, etc. The Piazza web site for the class allows you to post questions and have the instructors and other students post responses.

WEEKLY QUIZZES: Five Wednesday lecture periods will start with a 15-minute quiz focused on material presented during the preceding two lectures. No information in the assigned readings that is not discussed in lectures will be on the quizzes or exam. You are responsible for information in lectures that is not covered in the textbook. We will drop your lowest quiz score in calculating your final grade. If you miss more than one quiz, you must have a Dean's excuse for all quiz absences to avoid getting a score of zero for the second missed quiz. Your four top scores from the five quizzes will make up 35% of your final grade.

HOMEWORK: Posted on the classes*v2 website during the week, and submit your work via the site under "Assignments" by 11:30 AM the next Monday. The best four scores from your five homework assignments make up 25% of your final grade. You may discuss the assigned exercises with classmates but must compose and write the answers independently. If you miss more than one homework, you must have a Dean's excuse for each instance to avoid getting a score of zero for the second missed homework.

FINAL EXAM: Held during normal class hours on **October 8**, and will count for 30% of your grade.

DISCUSSION SECTIONS: Five discussion sections will be held over the course of the module. Sections will be held on Wednesday, Thursday, or Friday and information regarding section registration will be posted soon. You must attend the section for which you are registered unless a special circumstance arises. In that case, you may go to another section with advance permission of its leader. Sections will begin **September 3-5**. You will receive a score worth 10% of your grade for participation in exercises and discussions in section, so come prepared and participate.

GRADING: Your quizzes, homework, discussion section performance, and final exam generate a combined score for the course that will determine your grade. We will post on the course web site the distribution of scores for each graded exercise as the scores become available so you can see how you are doing relative to your classmates throughout the semester.

ENRICHMENT:

Students who feel underprepared: may request to attend an optional one hour weekly enrichment section, led by Professor Kate Gardner. Space is limited and preference will be given to students who would benefit most. Signing up commits you to attend all the sessions. If you are interested, please fill out this form. This meeting will catch you up on basic material that some of your classmates learned in advanced placement courses. Optional "Enrichment I" readings are included in the reading assignments posted on classes*v2. These provide an alternative presentation of the same material in the required readings from the Sadava textbook, and may clarify concepts students are having a hard time understanding.

Students who are interested in biomedical research: Optional "Enrichment II" readings are included in the reading assignments posted on classes*v2. These cover advanced topics related to the material we discuss in

Biology 101 Biochemistry and Biophysics, Fall '14

Lectures by Michael Koelle

August 27 – Lecture 1: What is Biochemistry? (Note: this lecture only held in the Law School auditorium)

August 29 (FRIDAY)– Lecture 2: Protein structure, primary through quaternary
Assignment: watch "Natural Obsessions" video by Sept 3.

September 1 – no class – Labor Day

September 3 – Quiz #1 (on lectures 1, 2).
Lecture 3: Protein function, purification, folding.

September 3-5 - First discussion section (on lectures 1-3).

September 8 – Homework #1 due 11:30 AM (on lectures 1-3).
Lecture 4: Membranes, carbohydrates. Thermodynamics of life.

September 10 – Quiz #2 (on lectures 1-3).
Lecture 5: Enzymes.

September 10-12 –Second discussion section (on lectures 4, 5).

September 15 – Homework #2 due 11:30 AM (on lectures 4, 5).
Lecture 6: Metabolism, photosynthesis

September 17 – Quiz #3 (on lectures 4-5).
Lecture 7: DNA structure and DNA replication

September 17-19 – Third discussion section (on lectures 6, 7).

September 22 – Homework #3 due 11:30 AM (on lectures 6, 7).
Lecture 8: Transcription, the genetic code, translation

September 24 – Quiz #4 (on lectures 6, 7).
Lecture 9: Regulation of gene expression, recombinant DNA, genetic engineering.

September 24-26 – Fourth discussion section (on lectures 8, 9).

September 29 – Homework #4 due 11:30 AM (on lectures 8, 9).
Lecture 10: Genomics

October 1 – Quiz #5 (on lectures 8, 9).
Lecture 11: AIDs and the HIV virus life cycle.

October 1-3 – Fifth discussion section (on lectures 10, 11).
Homework #5 (on HIV lectures) is due by the beginning of your discussion section this week.

October 6 – Lecture 12: HIV vaccines and anti-HIV drugs. Summary.
(No homework due today)

October 8 – Biology 101 **FINAL EXAM**