BIOL 4520: Molecular Biophysics (Fall 2021, CRN: 85019)

Class time and place: 3:30 pm - 4:45 pm, Tue and Thu, Bailey Science Center Room 2202

Instructor: Dr. Jonghoon Kang (Office 2217; Phone 2293337140; E-mail jkang@valdosta.edu)

Office hours: Tuesday and Thursday 2:00 PM – 3:30 PM (or by appointment)

Communication: You may see me during my office hours or send me emails from your Valdosta email account. We may discuss course-related issues and you may ask questions on course material during my office hours. So take advantage of my office hours.

Course description: Introduction to thermodynamics, kinetics and their applications to biological systems. 3 Hours. Additional description for BIOL 6520: Students are expected to enhance their understanding of current biological literature that contains biophysical concepts covered in this course.

Prerequisite: For BIOL 4520: MATH 2261, BIOL 1107, 1107L, BIOL 1108, 1108L, BIOL 3200, BIOL 3250, CHEM 1211, CHEM 1211L, CHEM 1212, CHEM 1212L, and either PHYS 1111K or PHYS 2211K or consent of the instructor. For BIOL 6520: Admission into the graduate program or permission of the instructor.

Required materials: *Physical Chemistry for the Biosciences,* by Raymond Chang from University Science Books (ISBN-13: 978-1891389337)

Course objectives: We will learn how biological phenomena can be understood, interpreted, and analyzed using mathematics, physics, and chemistry. The knowledge and techniques that students learn from this course will prepare them in their advanced research in biomedical science or related fields. This course should be *directly* useful for students who will take standard tests such as MCAT and DAT, as the topics of this course are the major components in those tests. (You can check the validity of this statement by going to their homepage and verifying their exam contents.) You don't remember the url of their homepage? Not a problem. Just Google it and you will see it. Often time I see students worry about their math skills for those tests. Math skills that you learn from this course should resolve your concerns if you enjoy the course and work hard.

Course assignments

Attending class and taking notes
Read the textbook and work on the problems discussed in class
Work on extra problem sets for each chapter that will be distributed. The problem sets will give you a good idea on the format of the exams. Your work won't be graded, but the assignments may be reviewed in class (see the schedule).
Three in-class exams and one open-notebook final exam

Grading criteria

BIOL 4520 grade = Three in-class exams (100 pts each) + One Final (200 pts) = 500

BIOL 6520 grade = BIOL 4520 grade + Term paper (200 pts) = 700

A >= 90%; B >= 80%; C >= 60%; D >=40%; F < 40%

Course policies: If you miss any assignment due to medical or family-related emergency you can have make-up assignments as long as you prove the valid reason of your absence (doctor's notes). Otherwise no make-up tests! And you will get a zero point for the missing part.

Accommodations Statement: Students with documented disabilities who are experiencing barriers in this course may contact the Access Office for assistance in determining and implementing reasonable accommodations. The access Office is located in Farbar Hall. The phone numbers are 229-245-2498 (V), 229-375-5871. For more information, please visit VSU's Access Office or email: access@valdosta.edu.

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- Expectations for competencies such as writing, technology skills, or performance: Students should be able to describe biological phenomena at the molecular and cellular level in terms of physics and chemistry.
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