CHEM 4335
BIOPHYSICAL CHEMISTRY
SPRING 2016
CRN 28484
SYLLABUS

Scope:
Application of physical chemistry to the study of biological systems and the major classes of macromolecular biological structures; emphasis on the relation of structure to biological function. *Prerequisites:* CHEM 3330.

COURSE Information
Location: (Physical Science Room 401)
Time: T/R 1-350pm

Textbook
Suggested: Biophysical Chemistry, Second Edition, Alan Cooper, RSC Publishing, ISBN 978-1-84973-081-5, © 2011. Used copies are available from Amazon.

Instructor Information
Instructor: Dr. Mahesh Narayan (747-6614)
Instructor's Office: CCSB 2.0202
Office Hrs: MW 9:30 – 10:30 or by appt.
E-mail: mnarayan@utep.edu

Instructor: Dr. James E. Becvar (747-7563)
Instructor's Office: PSCI 409
Office Hours: TR 9:10 - 11:00 or by appt.
E-mail: jbecvar@utep.edu

Biochemistry is a diverse discipline; yet it is becoming increasingly more quantitative. CHEM 4335 is designed to facilitate a quantitative understanding of biochemistry. It is a senior level chemistry course and should not be attempted without strong commitment to study and adequate preparation in the fundamental principles of chemistry. Especially important are concepts from general, organic, and Biochemistry I, CHEM 3330; these include gram/mole conversions, solution chemistry, chemical bonding, Lewis structures, acid-base chemistry, equilibrium, thermodynamics, and redox chemistry. This course will take a deeper look into equilibrium and thermodynamics as applied to biological macromolecules such as amino acids, proteins, carbohydrates, lipids, and nucleic acids. Several techniques of the physical biochemist will be examined in some detail such as spectroscopy, mass spectrometry, kinetics, chromatography and electrophoresis. Other topics may be considered as time permits.

The strategy for learning is not to memorize a great deal of information for momentary or temporary recall. Stress how to develop the ability to ask yourselves the "important" questions of the "Why….?" and "How…?" nature and then to be able to use this information to solve relevant problems (e.g. How does the environment of an amino acid side chain influence its acid/base properties?). This philosophy will be stressed throughout the course. We strongly encourage active, collaborative learning. In-class

participation is expected, is an essential component of the course, and will often be integrated with cooperative learning activities. In-class participation will count significantly in the final grade earned.

Class Attendance:

Class attendance is required. Role will be routinely taken; attendance in class is very important. Students are responsible for attending lecture regularly and knowing what takes place during classes. This includes not only the material covered in the class, but also all announcements, handouts, changes in the syllabus, etc. If you must miss a class, you need to make a special effort to learn what occurred during your absence. It is expected that the material be read over before the topic is presented in class. With this background, the lectures will prove to be more meaningful.

Unexcused Absence Policy

An unexcused absence means an absence of an enrolled student from class without **PRIOR** arrangement with the course professor. Any unexcused absence from an Hour Exam is grounds for being administratively dropped from the course. A cumulative total of more than three unexcused class absences during the Spring 2014 semester is grounds for being dropped from the course.

Disability:

If you have or suspect a disability and need accommodations you should contact Center Accommodating Student Services Office (CASS) at 747-5148 or at dss@utep.edu or come by Room 106 Union East Building.

Grades (subject to revision):

Subject to revision, at this time we plan at least two one-hour examinations (representing approximately 50% of the grade) as well as a final examination (representing approximately 30% of the final grade). The final be a comprehensive examination covering the entire course. Class participation, Quizzes, and Homework will represent 20% of the final grade.

CHEM 4335 questions are designed to test: **i)** understanding of basic concepts and **ii)** familiarity with chemical nomenclature, usage and calculations. You are well advised to learn the **process** involved in problem solving rather than memorization of specific facts. Valid absences for University related activities (e.g. out-of-town research presentations, sporting events) must be arranged **prior** to the date of the respective class to be missed. No provision exists for make-up of Examinations or assessments missed as a result of unexcused absences or tardiness; students will receive a grade of zero for such missed activities. Assessments will cover material from previous lectures (may be lectures other than the most recent one) and will include questions on material assigned. Be ready every class.

Course Withdrawal Policy. Make sure you understand and have read the UTEP "Course Drop Policy". "Classes dropped **prior** to the official **census date** of any term (this term: February 5, 2014) will be deleted from the student's semester record." After this date, the University permits any student to drop with an automatic "W" until Friday, April 4, 2014. **After April 4, 2014,** students who withdraw must receive **grades of F.**