

**CHEM 3315: Introduction to Biophysical Chemistry**  
**Fall 2015**

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**Instructor:** Brad S. Pierce

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**Office Hours:** MW 10 -11:45 pm, or by appointment

**Time and Place of Class Meetings:** MWF Science Hall, Rm 205

**Description of Course Content.** This course is an introduction to the physical principles that govern biological systems, molecular structure, life processes, and the methods used for their investigation. Topics include solution thermodynamics, inter-and intramolecular interactions, chemical and enzyme kinetics, and the application of quantum mechanics to modern spectroscopic techniques (absorption, emission, scattering, and magnetic resonance).

**Student Learning Outcomes.** Upon successful completion of this course students should be able to effectively apply physical, theoretical, and mathematical concepts to further their understanding of biological chemistry. It is expected that students apply these theoretical concepts to solve '*real-world*' problems relevant to biophysics. Since course examinations are designed to strengthen comprehension by independent thinking and problem solving, it is encouraged that students seek outside reference materials from the library and scientific literature.

**Required Textbook:** Lectures topics are designed to complement (*not replace*) the textbook.

Ignacio Tinoco, Jr.; Kenneth Sauer; James Wang; "*Physical Chemistry: Principles and applications in Biological Sciences*"; (5th); Prentice-Hall, NJ

**Supplemental Texts:**

Thomas Engel; Gary Drobny; Philip Reid; "Physical Chemistry for the Life Sciences"; Pearson, NJ. **2008**

Charles R. Cantor and Paul R. Schimmel; "Biophysical Chemistry Part II: Techniques for the study of biological structure and function"; W.H. Freeman; San Francisco, **1980**

**MAJOR ASSIGNMENTS AND EXAMINATIONS**

**Homework and In-class assignments.** Throughout the semester, problem sets will be assigned to the students. The purpose of these problem sets is to prepare students for the types of questions that will be asked on quizzes and the final exam. These exercises will not be graded. Instead, they will be collected and full marks will be given for completed *attempts* at solving *all* of the problems assigned. Homework will be due in class on the assigned due date. Late homework will be deducted 10% per day that it is late. Students are encouraged to form study groups to work on problem sets together, although each student must turn in their own assignment.

**Pop quizzes.** Quizzes will be administered throughout the semester **AT RANDOM INTERVALS** at the beginning of class. Students who arrive late will not be given extra time to complete the quiz. Approximately 15-20 minutes of class time will be devoted to taking the quiz. The lowest quiz score at the end of the semester will be dropped.

**Exams.** Two take-home exams will be scheduled to evaluate student mastery of topic. A **comprehensive final examination** will be given during final exam week. Students will be responsible for ALL material covered in the course on the final examination. Any student with a >95% overall score following the second take-home exam will be excused from taking the cumulative exam.

### 2015 Course Schedule.

*As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course. –Brad S. Pierce*

Aug 27	·	First day of classes
Sept 07	·	Labor day holiday
Sept 14	·	Census date
<b>Oct 5</b>	·	<b>EXAM 1</b>
<b>Nov 4</b>	·	Last day to drop classes
<b>Nov 18</b>	·	<b>EXAM 2</b>
Nov 26-27	·	Thanksgiving holidays
Dec 09	·	Last day of classes
Dec 12-18	·	Final exams ( <b>CHEM 3315 final date TBA</b> )

### Grade Assignment.

Problem Sets (Homework)	100 pts.
Pop quizzes	100 pts.
Take-home Exams (2 x 100 pts.)	200 pts.
Final Exam (Cumulative)	200 pts.
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Total	600 pts.

*Students are expected to keep track of their performance throughout the semester and seek guidance from available sources (including the instructor) if their performance drops below satisfactory levels.*

**Attendance.** Students are responsible for all the material assigned and presented in class regardless of attendance. Quizzes and Exams will NOT be rescheduled without PRIOR approval (at least 2-days) by the instructor. ONLY in instances of a valid medical or family emergency will make-up Quiz/Exams be considered without prior approval. **Habitual tardiness will not be tolerated;** this behavior is distracting and disrespectful to everyone in the class. For the purposes of this course, tardiness is defined by being 7-minutes (or more) late to a lecture. Each student will be allowed 3-late days, past this 10-points will be deducted from the students overall grade for every late day. **No excuses will be accepted.**

## **OTHER REQUIREMENTS**

**Expectations for Out-of-Class Study.** Beyond the time required to attend each class meeting, students enrolled in this course should expect to spend at least an additional 10 hours per week of their own time in course-related activities, including reading required materials, completing assignments, preparing for exams, etc. Again, Lectures topics are designed to complement (*not replace*) the textbook.

**Drop Policy.** Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/ses/fao>).

**Americans with Disabilities Act.** The University of Texas at Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including the *Americans with Disabilities Act (ADA)*. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of that disability. Any student requiring an accommodation for this course must provide the instructor with official documentation in the form of a letter certified by the staff in the Office for Students with Disabilities, University Hall 102. Only those students who have officially documented a need for an accommodation will have their request honored. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at [www.uta.edu/disability](http://www.uta.edu/disability) or by calling the Office for Students with Disabilities at (817) 272-3364.

**Academic Integrity.** Academic dishonesty of **ANY** kind will not be tolerated. Without exception, ALL offenses will result in immediate course failure and referral to the UT Arlington Board of Student Affairs for disciplinary action. All students enrolled in this course are expected to adhere to the UT Arlington Honor Code:

*I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.*

*I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.*

**Student Support Services.** UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include tutoring, major-based learning centers, developmental education, advising and mentoring, personal counseling, and federally funded programs. For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to [resources@uta.edu](mailto:resources@uta.edu), or view the information at [www.uta.edu/resources](http://www.uta.edu/resources).

**Electronic Communication.** UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

**Student Feedback Survey.** At the end of each term, students enrolled in classes categorized as lecture, seminar, or laboratory shall be directed to complete a Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback enters the SFS database anonymously and is aggregated with that of other students enrolled in the course. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law; students are strongly urged to participate. For more information, visit <http://www.uta.edu/sfs>.

**Final Review Week.** A period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

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