Revised 1/10/13

INSTRUCTOR: Dr. Kevin Riley, Chemistry, NCF Science 301B, 520-5075, kriley3@xula.edu

OFFICE HOURS: M 11-12, W 11-12, Th 9-10, F 1-2, or by appointment.
RESEARCH: T 1-5:30, W 1-5:30

COURSE DESCRIPTION: Principles of physical chemistry as applied to biological systems. Topics include the physical properties of gases, solid, and liquids, the laws of thermodynamics, the properties of solutions, the principles of chemical equilibrium, chemical kinetics, quantum mechanics of atoms and molecules, and theory and applications of spectroscopy. Prerequisites: MATH 1070, PHYS 2020/2020L, and CHEM 3210/3210L.


COURSE REQUIREMENTS: Students are required to attend all lectures and are responsible for any material or announcements given in class. Students will be evaluated on homework, attendance, three hour exams and a comprehensive final exam, except that graduating seniors and students with a prefinal average $\geq 95.0\%$ will be exempt from the Final Exam.

COURSE EVALUATION: The final course grade will be based on:

- Lecture exams: 50%
  - best two exams worth 20% and worst exam worth 10%
- Homework (worst homework is dropped): 25%
- Final Exam (Comprehensive): 25%

Final grades will be assigned based on the following:

- $A = 90-100\%$, $B = 80-89\%$, $C = 70-79\%$, $D = 60-69\%$, $F = \leq 59$

ACADEMIC INTEGRITY: Honesty in coursework is essential to the university mission as described in the university Academic Integrity Policy. Academic dishonesty (copying, cheating, sharing work) will be dealt with under the provisions of the Student Code of Conduct, which will be a minimum of a zero on that assignment and a maximum of a failing grade for the course. All cases which affect a student’s grade must be reported to the CAS Dean.

ACCOMODATIONS: If you are a qualified student seeking accommodation under the Americans with Disabilities Act, you are required to register with the Disability Support Services Coordinator in the Office of Disability Service and provide the ODS-issued form to your instructor. No accommodation will be granted without documentation from the Office of Disability Services.

UNIVERSITY EMERGENCY: If the university is officially closed (more than one day) by the administration or if city or state officials order an evacuation of the city, this course will be taught in a distance-learning mode through the university Blackboard system. You should check your email and Blackboard as soon as possible after relocation.
We will be covering the following chapters:

- 0. Introduction
- 1. The Properties of Gases
- 2. Thermodynamics: The First Law
- 3. Thermodynamics: Applications of the First Law
- 4. Thermodynamics: The Second Law
- 5. Physical Equilibria: Pure Substances
- 6. The Properties of Mixtures
- 7. Chemical Equilibrium: The Principles
- 8. Chemical Equilibrium: Equilibria in Solution
- 10. Chemical Kinetics: The Rates of Reactions
- 12. Quantum Theory
- 14. Quantum Chemistry: The Chemical Bond
- 19. Spectroscopy: Molecular Rotations and Vibrations