Chem 4120/6120
Fall Semester 2017
Physical Chemistry II
3 Semester Credits (4120/6120)

Instructor: Ivaylo Ivanov (4120/6120 lecture)

Office: 515 Science Annex

Phone: 404-413-5529

Office Hours: Thursday 10:30-12:00 or by appointment

Lecture Time and Location: TR 4:00 - 5:15 pm, Langdale Hall 525

Tutorial Special course Chem 4121 is a "problem-solving" class for assistance with homework problems and with the required mathematics. Any student who would like to see the homework problems solved should register for this course. Mr. Thomas Dodd will administer the tutorial.

Course Prerequisites: Chem 3410; Math 2212; Phys 2211K; and Phys 2212K

Texts: *Quantum Chemistry and Spectroscopy* (QCS) and *Thermodynamics, Statistical Thermodynamics and Kinetics* (TSK) by Engel and Reid, Pearson, 2010, 3rd edition.

Course Description: Physical Chemistry II is a 3 credit hour semester course that covers the subjects of atomic and molecular structure (quantum chemistry) and statistical thermodynamics.

Quizzes, Final, Grading: Homework problems will be assigned but not graded. There will be **four 45-minute quizzes** (see schedule at the end of the syllabus) and your **lowest quiz score will be dropped**. If a student misses a quiz, their score will be zero (0) for that quiz. The quizzes will count for 60% of your grade. A standardized ACS test will be given as a final exam on Dec. 7th at 16:15 pm and will account for 40% of your grade. The final will cover all of the material from quantum mechanics. The score from the final exam cannot be dropped. All quizzes and exams are closed book but one 8/12 x 11" sheet of notes can be brought to the quizzes.

Dates	Chapter	Subject
8/22, 24	1	Early Developments in Quantum Theory
8/29, 31	2	Wave Phenomena
9/5, 7	3, 4	Postulates of Quantum Mechanics
9/12,14	5, 6	Particles-In-A-Box and Applications
9/19, 21	7	Vibration/Rotation of Diatomics
9/26, 28	8, 9	Spectroscopy of Diatomics
10/3	9	Hydrogen Atom
10/5, 10	9, 10	Many Electron Atoms
10/12	11	Atomic Spectroscopy
10/17, 19	12	Introduction to Chemical Bonding

10/24, 26	13, 14	Chemical Bonding in Diatomics/Polyatomic Molecules
10/31	12*, 13*	Probability, Boltzmann Distribution
11/2, 7	15*	Statistical Thermodynamics
11/9, 16	14*, 15*	Monatomic & Diatomic Gases
11/20-24	--	Thanksgiving Break
11/28, 30	15*	Chemical Equilibirum
12/5	Review	
12/7	Final	(ACS style exam, 16:15-18:15 pm)

Chapters without an asterisk are from QCS; Chapters with asterisks are from TSK.
Quiz dates are underlined.

Quiz Schedule

9/12	(1)
10/10	(2)
10/26	(3)
11/30	(4)
12/7	(5 Final)

Statements required by University Policies and Regulations
Please note, the course syllabus provides a general plan for the course; deviations may be necessary.

It is required that we refer to the Policy on Academic Honesty (Section 409). The university's policy on academic honesty is published in the Faculty Affairs Handbook and the On Campus: The Undergraduate Co-Curricular Affairs Handbook and is available to all members of the university community. The policy represents a core value of the university and all members of the university community are responsible for abiding by its tenets. Lack of knowledge of this policy is not an acceptable defense to any charge of academic dishonesty. All members of the academic community -- students, faculty, and staff -- are expected to report violations of these standards of academic conduct to the appropriate authorities. The procedures for such reporting are on file in the offices of the deans of each college, the office of the dean of students, and the office of the provost.