CHM 4411 – Physical Chemistry, Thermodynamics and Kinetics (F15)

Instructor: Daniel Savin, 318 Leigh Hall (LEI), savin@chem.ufl.edu, 352-392-9150

Office Hours: T R 10:30 – 11:30 or by appointment
I am generally available to answer questions via email

Lecture: T R Periods 2 – 3 (8:30 – 10:20 AM), FLI 50

TAs: Greg Strange, gastrange@chem.ufl.edu
Craig Machado, cmachado@chem.ufl.edu
Office Hours: M W 4:00 – 5:00 PM, T R 5:00 – 6:00 PM, 314 LEI

Course Website: This course has a Canvas page for notes, answer keys and announcements

Textbook: Recommended: "Physical Chemistry, 10th Ed." By: Atkins and de Paula
There are a number of Physical Chemistry books on the market. This book is a suggestion, but any book should be sufficient. Please let me know if you have any questions about possible textbooks.

Midterm Exams: There will be 3 midterm exams. The tentative dates for the midterms are September 24th, October 27th and December 3rd. There are no makeup exams, so please let me know if you have a **scheduled** conflict so we can make alternate arrangements. Doing well on midterm exams requires mastery of qualitative, conceptual material.

Final Exam: The final exam is scheduled for Tuesday December 15th from 7:30 – 9:30AM. The final exam is cumulative.

Homework: There will be ~ 8-9 homework assignments throughout the semester. Homework assignments will be worth 10 points each. The assignments should be presented in a **professional** manner, with the work, any assumptions and explanations presented **clearly**. Most of the homework assignments involve interpretation of experimental data. When preparing graphs, you ***must*** use Excel or a comparable program. If you are doing a curve-fit, you must justify the choice of fitting function. While you are strongly advised to work in groups, **you must turn in your own work to receive any credit!** You must also reference the other members of your study group. Failure to adhere to these requirements will result in zero credit for the assignment.

Grading: Your final grade will be determined from the following

Homework = 25%
Exam 1 = 15%
Exam 2 = 15%
Exam 3 = 15%
Final Exam = 30%

Approximate Grade Ranges:			
> 90	A	69 - 72.99	C+
86 - 89.9	A-	64 - 68.9	C
82 - 85.9	B+	60 - 63.9	C-
77 - 81.9	B	56 - 59.9	D+
73 - 76.9	B-	50 - 55.9	D
		< 50	E

Makeups: There will be no makeup exams unless prior arrangements are made. Homework assignments that are turned in late will not be accepted unless prior arrangements have been made.

Philosophy: Physical chemistry is concerned with the **quantitative** description of natural phenomena. The homework is designed to have you interpret experimental data – if you were going to go into the laboratory, what would you measure and how would you treat the data? The midterm exams are intended to gauge mastery of basic concepts and elementary calculations or derivations. It is not a good idea to leave studying until the night before the exam. It takes time to grasp some of the concepts of physical chemistry and to work through the problems. 'Cramming' is not the way to be successful in this course. Working in groups is strongly encouraged, but copying another student's work will not be tolerated.

Attendance: Lecture attendance is essential for your success in this class. However, we will not take roll. Repeated absence in class will make it very difficult to earn full participation points.

Disabilities: Students requiring special accommodations should register with the Dean of Students Office and present documentation from that office to the instructor.

Counseling: The University of Florida provides counseling services for students, staff, and faculty. See http://www.counsel.ufl.edu/ or call (352) 392-1575 during regular service hours (8am – 5pm). For other hours or on weekends call the Alachua County Crisis Center (264-6789). Students may also call the clinician on-call at Student Mental Health for phone callback and consultation at (352) 392-1171.

Cell Phones: Please put all cell phones and other digital devices on "silent mode" during all class periods. Thank you.

Honor Code: This class will operate under the policies of the student honor code, which can be found at: http://www.registrar.ufl.edu/catalog/policies/students.html. The students, instructor, and TAs are honor-bound to comply with the

Honors Pledge: **We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honesty and integrity.**

Objectives: By the end of this course you should be able to:

- Analyze, graph, fit and interpret experimental data
- Perform elementary derivations and manipulations on equations of state
- Understand the relationships between different thermodynamic functions
- Understand the criteria for equilibrium or spontaneity for chemical processes under different sets of conditions
- Calculate thermodynamic and equilibrium quantities for a variety of chemical processes and reactions
- Analyze and interpret phase diagrams for 2 and 3 component mixtures
- Derive rate laws for complex reaction mechanisms
- Understand how microscopic properties of matter translate to macroscopic thermodynamic properties

Tentative Lecture Schedule:

	Week	Tues	Thurs
Aug	24	Ch. 1/19	
	31	Ch. 2	
Sept	7	Ch. 3	
	14		Ch. 15
	21	Review	**Exam 1**
	28	Ch. 4	
Oct	5	Ch. 5	
	12		Ch. 6
	19	Ch. 6	Review
	26	**Exam 2**	Ch. 20
Nov	2		
	9		Ch. 21
	16		Ch. 22
	23		Thanksgiving
	30	Review	**Exam 3**
Dec	7	Ch 17	Reading Day
		Final Exam	**Dec 15 7:30-9:30 AM**