

Time: Tues/Thurs 11:00 - 12:20 /Spring 2006
Location: Rm 115 BURSON
Instructor: W. N. Sisk
Office: Room 258 BURSON
Contact: Phone: 704-687-4433, email: (<mailto:wsisk@uncc.edu>)

I. Course Objective

This course seeks to provide the student with a general understanding of physical chemistry without employing calculus. Coverage will include: Quantum chemistry (unit I), spectroscopy (unit II), kinetic molecular theory of gases & kinetics (unit III) and thermodynamics (unit IV).

II. Grading

Final grades will be derived from homework and best 3 of 4 midterms + 1 Final Exam. The final exam will count as one test and will not be dropped under any circumstances. Exams will account for 80% of the grade and homework will account for 20% of the grade. All tests will be weighted equally: 20% for each exam including the final exam. Under no circumstance will the final exam be dropped! **Total score \geq 90%, 80%, 70%, and 60% (of total possible points) guarantees a grade of A, B, C, and D respectively.** If your score (TWP) is within 1% of the grade cutoffs, your performance on the daily quizzes will be utilized to determine eligibility for an additional 1%, thus possibly 78.5% could be the minimum cutoff for a B (see "quizzes" below).

III. Homework

Homework will be constructed by the instructor and handed out. Solutions will be attached to your corrected homework assignments. There will be a total of 8 homework assignments accounting for 20% of the grade (each assignment 2.5%). Each assignment is due by the 5:00 P.M. on the specified date. You may submit homework assignments earlier under my office door or to me directly. ***Late homework will not be accepted under any circumstances!***

IV. Tests

There will be 4 midterm exams (100 points/80 minutes) given throughout the semester and a final exam at the end. Unexcused absences will result in a 0 for that exam which will not be dropped in the computation of the final grade. An excused absence will result in that score being excluded, but all other exams will be included in the computation of the final grade. No make-up exams will be given, except in the case of 2 or more excused absences. Only 1 exam absence allotted. The 4 midterms will be given on the following dates: Feb. 7, March 2, April 4, and May 2. You are required to be present for every exam. **FINAL EXAM: Tuesday May 9th, 12:00 - 3:00 P.M. Room 115 BURSON (PHYSC)**

V. Quizzes

Daily quizzes consisting of 1 question covering qualitative information from the previous lecture will be given within the first 5 minutes of each class period. These quizzes are worth 2 points each, thus a total for 28 class periods (excludes 1st day & exams) there is a total of 56 points. If you obtain 50% or more of the possible points (> 28 pts) 1% will be awarded to your total score (TWP) if you are within 1% of a grade cutoff (88.5%, 78.5%, 68.5%, 58.5%). A totally correct answer is worth 2 points, partially correct 1 point, and 0 points will be awarded for a totally incorrect answer, or failure to take the quiz due to absence or tardiness.

VI. Text

The Elements of Physical Chemistry 3rd Edition Peter Atkins

VII. Lecture website: <http://www.chem.uncc.edu/faculty/sisk/CHEM2141/p2141.htm>. You should print these lectures in advance and annotate the hardcopies during lecture.

VIII. Office Hours

Tuesdays 2:30 - 3:20 and by appointment. Appointments more than 10 minutes late will be automatically cancelled! To maximize the benefit of your office visit, please bring specific questions to office visits.

Month	Date	Day	11:00 Class	Comment
Jan	10	Tue.	Chapter 12 Lecture # 1: Course Concerns Outline	
	12	Thurs.	Chapter 12 Lecture # 2 : Schrodinger Eqn/QM Models	
	17	Tue.	Chapter 13 Lecture # 3: Hydrogenic Atoms	
	19	Thurs.	Chapter 13 Lecture # 4: Electron Spin, Selection Rules and Polyelectronic Atoms	Last day to register or add a course or change grade type (p-fail/audit)
	20	Friday	Homework 1 due 5:00 P.M.	
	24	Tue.	Chapter 14 Lecture # 5: Valence Bond Theory	
	26	Thurs.	Chapter 14 Lecture # 6: VB & MO Theory	
	31	Tue.	Chapter 14 Lecture # 7: M.O. Theory	
Feb.	2	Thurs.	Chapter 14 Lecture # 8: M.O. Theory	
	3	Friday	Homework 2 due 5:00 P.M.	
	7	Tue.	EXAM 1 (Chapters 12, 13, 14)	Bring paper, Pencil/pen & calculator
	9	Thurs.	Chapter 17 Lecture # 9: Mol. Vibrations/Rotations	
	14	Tue.	Chapter 17 Lecture # 10: Rotational Spectroscopy	
	16	Thurs.	Chapter 17 Lecture # 11: Vibrational Spectroscopy	
	17	Fri.	Homework #3 due 5:00 P.M.	Last day to withdraw from a course with "W" grade (and retain other courses) ☹
	21	Tue.	Chapter 18 Lecture # 12: Electronic Transitions	
	23	Thurs.	Chapter 18 Lecture # 13: Electronic Spectroscopy	
	28	Tue.	Chapter 18 Lecture # 14: Radiative Processes Homework 4 due 5:00 P.M	
March	2	Thurs.	EXAM 2 (Chapter 17,18)	Bring Pencil or pen and calculator
	7	Tue.	No Class: Spring Break	☺
	9	Thurs.	No Class: Spring Break	☺
	14	Tue.	Chapter 1 Lecture # 15: States of Matter & Gas Laws	
	16	Thurs.	Chapter 1 Lecture # 16: Kinetic Theory of Gases	
	21	Tue.	Chapter 1/10 Lecture # 17: Empirical Chem Kinetics	
	23	Thurs.	Chapter 10 Lecture # 18: Chem Kinetics- Rate Laws Homework 5 due 5:00 P.M.	
	28	Tue.	Chapter 11 Lecture # 19: Reaction Mechanism	
	30	Thurs.	Chapter 11 Lecture # 20: Reaction Mechanism Homework 6 due 5:00 P.M.	
April	4	Tue.	EXAM 3 (Chapters 1, 10, 11)	Bring Pencil or pen and calculator
	6	Thurs.	Chapter 2 Lecture # 21: State Functions & First Law	
	11	Tue.	Chapter 2/3 Lecture # 22: Thermochemistry	
	13	Thurs.	POWER OUTAGE – no class	Spring Weekend April 14-15 th
	18	Tue.	Lecture # 23: ΔH for chem., phase changes	
	19	Wed	Homework 7 due 5:00 P.M.	
	20	Thurs.	Chapter 4 Lecture # 24: Entropy & Spontaneity	
	25	Tue.	Chapter 4/7 Lecture # 25: Gibbs Free Energy Chapter 7	(skip 7.5-7.6)
	27	Thurs.	Lecture # 26: Equilibrium Constant Course Evaluation	
	28	Fri.	Homework 8 due 5:00 P.M.	
May	2	Tue.	EXAM 4 (Chapters 2-4,7 (skip 7.5-7.6)) Distribute Take Home exam	Bring Pencil or pen and calculator
	9	Tue.	Take Home Exam Due 3:00 PM in office Burson 258	