

Lecture: Tues. & Thurs. 8:30 – 10:00 AM, 162 Beury Hall,
 Dr. Nicholas V. Coppola, 200 Beury Hall, 215 204 1637, ncoppa@temple.edu
 Office Hours: Tues. & Thurs. 11 AM and by appointment

Recitation: Tues. & Wed. 10:00 – 11:00 AM, 413 Beury Hall,
 Dr. A. Thomas, 102 Beury Hall, 215 204 5899 allan.thomas@temple.edu,
 Office Hours: Wed 12:30 PM or by appointment
 Thurs. 2:40 – 3:30 PM, 413 Beury Hall,
 Mr. O. Isaienko 116/118 Beury Hall, 215 204 2368 isaienko@temple.edu,
 Office Hours: Thurs. 3:30 PM & by appointment

Course Textbook: Atkins & DePaul, Physical Chemistry, Also recommended text: McQuarrie, Physical Chemistry

Prerequisites: general or honors chemistry, calculus and elementary mathematical analysis

Date	Chapter, Subject(*)	Sections	Exercises/Problems**	Due Date
AUG 30	1. Properties of gases (16)	1, 2, 3	E1:4b,8b,10b,19b;P1:9,13,23,27	SEP 6
SEP 1		4, 5		
6	2. First law of thermodynamics (19)	1,2,3,4,5	E2:2,5,12,25,P2:7,25,27	SEP 13
8		6,7,8,9		
13	3. First law of thermodynamics, continued	1,2	E3:4,8,11,12a;P3:1,8,12,21,27	SEP 20
15		3,4,5		
20	4. Second law of thermodynamics (20, 21)	1,2,3	E4:5b,7b,9b,16b,22b;P4:1,5,10,22	SEP 29
22	EXAM #1	Thru Ch. 3		
27		4,5,6		
29	5. Second law of thermodynamics, continued (22)	1,2	E5:5b,6b,8b;P5:13,17,31	OCT 6
OCT 4		3,4,5		
6	6. Phase transformations (23)	1,2,3	E6:4b,5b,6b,11b,13b;P:6,5,15	OCT 13
11		4,5,6		
13	7. Simple solutions (24)	1,2,3,4	E7:4b,7b,12b,13b,21b;P7:3,5,7	OCT 21
18		5,6,7,8		
21	8. Phase diagrams (25)	1,2,3,4,5,6	E8:3a,4b;P8:10	OCT 27
25	EXAM #2	Thru Ch. 7		
27	9. Chemical equilibrium (26)	1,2	E9:5b,8,9b,18b,20a;P9:3,7,9	NOV 3
NOV 1		3,4,5		
3	10. Electrochemistry	1,2,3,4,5	E10:4a,11a,15a,24b;P10:4	NOV 10
8		6,7,8		
10	24. Elementary kinetic theory of gases (27)	1,2	E24:5a,11a,6b,15a,23a,23b;P24:4,10	NOV 17
15		3,4		
17	25. Chemical reaction kinetics (28)	1,2,3,	E25:5b,11b,12b,20b;P25:7,11	DEC 1
22	EXAM #3	Thru Ch. 10&24		
24	<i>THANKSGIVING HOLLIDAY</i>			
29		4,5,6		
DEC 1	26. Kinetics of complex reactions (29)	1,2	E26:5a,8b;P26:2 & TBD	DEC 6
6	28. Processes at solid surfaces (31)	1,2,3	E28:1b,10b;P28:1,2 TBD	At Final
TBD	FINAL EXAM	All material		

* For those interested in following the discussions in McQuarrie, chapter nos. are provided in parenthesis.

** Notation: Ex:y,z refers to Exercises y & z in the Atkins chapter x; Px:y,z - for Problems.

There are four cumulative exams, (only the scores from your highest three (3) exams will be counted towards your final grade), two unannounced math quizzes (lowest of either grade), and weekly problem sets. There are no make-up exams. Problems are to be handed in at the beginning of lecture on the due date. Twenty problems will be graded at random. Late problem sets will not be graded.

Exams 3 @ 25 pts	=	75 pts
Problem sets (recitation)	=	20 pts
<u>Math quiz, 1 @ 5 pts.</u>	=	<u>5 pts</u>
TOTAL	=	100 pts (60 pts are required to pass the course)

Students with special accommodation needs: Any student who has a need for accommodation based on the impact of a disability should contact me privately to discuss the specific situation as soon as possible. Contact Disability Resources and Services at 215 204 1280 in 100 Ritter Annex to coordinate reasonable accommodations for students with documented disabilities.

Calculator Policy: Students may use calculators, including scientific graphing calculators, on tests and exams. Students are encouraged to use computers to perform calculations required by the assigned homework problems and are encouraged to develop competence with technical computing software such as MathCAD, Mathematica, MatLAB, and Excel (with the add-ins: analysis toolpak and solver) amongst others. Computers, including hand held organizers, PDA/submicro computers are not allowed to be used during exams nor are calculators running Mathematica, MathCAD, MatLAB, and Excel or other software packages which augment your knowledge. The proctor and or grader will exercise discretionary judgment to assess the appropriateness of any software running on a calculator during an exam.

Credit for work on exams or tests: During exams or tests, the use of a calculator, and the results generated thereof, can NOT be substituted for the demonstration of your detailed knowledge of the subject material. A correct numerical answer will receive no credit if it is not backed up with a logical analysis and progression from the given facts to the final answer. Incorrect logic or analysis that leads somehow to the correct numerical answer will not be given credit.

To the FALL 2005 CHEM 231 Class:

On the Method of Study

Prior to class read the sections or chapter on the topic material in the text. At that time, do not read the text with the intention to learn or absorb every detail; rather, use the time to become familiar with the subject. Make notes either in your notebook or in the margins of the text on the topics that are completely unintelligible. This is a good time to look at your general chemistry text to rejuvenate your memory of the elementary basis of the topic. By doing this you will know what is coming in the lecture and you will also know to what particular attention should be given. During the lecture, do not be afraid to ask questions or be afraid to answer mine.

After class, work the assigned problems. It is during this time when most of the learning will occur. I do not recommend highlighting, outlining or any other “organizational” activities that will dilute your grappling with the subject matter. Competence in the assigned problems will help you achieve the average grade. Executing more problems will increase your performance on the exams significantly. Doing less than the assigned problems is the best way to assure poor performance on the exams.

When you work the problems, work between the problem and the text. Use the question posed in the exercise or problem as the motive for learning. Go the points in the text that address the problem, now read it with the problem in mind. In this way, the subject material should have more meaning. When you arrive at the correct answer it will be sensible and a clearer picture of the physical chemistry will emerge. If you cannot get an answer after working between the

text and the problem or the problem and the text, bring it to recitation. There, your instructor will show you how to get through the crux of the problem. Use recitation to get over the learning barriers; do not use it as a pseudo solutions manual.

I do NOT recommend working between the problems and the answers in the solutions manual or at the back of the book. Doing so will give you a false sense of accomplishment and you will be deprived of the opportunity to learn. Remember, the solutions will not be available to you on the exams. During the exams, you will have to work between the problem and what ever it is that is in your head. If you have become dependent on the solutions manual; simply put, your dead. Work many problems. The more problems you work the faster you will become at solving them. The difference between the "A" student and the "C" student is that the A student gets through the easy problems faster and has more time to work on the more difficult ones.

Physical chemistry is an enlightening subject. The concepts are applicable to all aspects of natural and physical science, medicine, engineering, business, philosophy and elsewhere. While studying it, look for it in action around you. Test yourself by working out possibilities in your head and on paper. With increasing thought and exposure, it will make sense and the subject will be yours.

Good luck, work hard and have a great semester.

Sincerely,

Nicholas V. Coppa
August 26, 2005