

## General Chemistry II (CHM 112) Summer II 2007

Dr. Michael J. Prushan  
Holroyd 305  
215-951-1281  
e-mail: [prushan@lasalle.edu](mailto:prushan@lasalle.edu)

webpage: [www.lasalle.edu/~prushan](http://www.lasalle.edu/~prushan)

### Introduction

Chemistry and the other sciences are processes of inquiry, not static collections of facts. While I certainly want to facilitate your understanding of chemical concepts and the "language" chemists speak, I also want you to come to see chemistry as a *way of learning*. A significant portion of this class will be aimed at helping you to apply chemical logic to the investigation and analysis in the world.

It is extremely important that you understand the foundations of chemistry and not simply memorize specific problems or topics. You will be able to solve a variety of problems if you THINK and APPLY the principles you have learned. You will also advance your level of problem solving skills that will be applicable to many other aspects of life.

### Required Materials

*Chemistry*, 4<sup>th</sup> Ed. McMurray and Fay, Prentice Hall, 2004.

Scientific Calculator (it must have a key for  $y^x$  and  $\log x$ ). Learn how to use it. (ask if you are unsure).

Chemistry 112 Laboratory Manual, Goggles or Safety Glasses, Apron and Breakage Card [May be purchased from the stockroom]

**Bring your text and calculator to each lecture period.**

## Homework

I expect you to read the assigned sections and homework problems from the textbook. Homework is *not* collected; it is your responsibility to complete your work. It is important that you do your homework. The more you do, the more you will learn. Chemistry cannot be efficiently learned without working problems, and you will not realize what you do not know until you try to do a problem. *Most students do poorly in this course because they neglect to do homework!* Answers to selected problems will be posted outside room 305 or on my web page. I am happy to help you outside of class. You may consult with me as often as you wish; I encourage it. Please consult early rather than waiting just before a test; it will be better for your learning.

**Grading:** Although homework problems will help you prepare from the exam, it will generally be the case that the exam questions will test what you have LEARNED, by asking you to apply your knowledge. It is therefore important that you UNDERSTAND what you are doing and that you do not just memorize various problem types. All exams are cumulative!

**Lecture:** The lecture portion of the course comprises 75% of the total grade and will be determined as follows: Your overall grade will be determined by computing your numerical grade according to the following:

2 Exams (12 % each)	24%
Final Comprehensive Exam	15%
Biweekly Quizzes	20%
Assignments	16%
Laboratory	25%

---

TOTAL

100 %

**Chemistry in the World:** There is far more to chemistry than what you will encounter in Chem 111-112. In order to encourage you to experience some of the greater world of chemistry, I will give **extra credit** for up to 3 examples you submit of "Chemistry in the World". These examples may result from some phenomenon you observed, something you read, or even something you watched on TV. You should clearly describe the chemical principle involved and how it is made manifest itself in your example. Your description should be well written, in a logical sequence, including relevant equations and or diagrams. The essay should also include citations of reputable sources of information. The "Chemistry in the World" **essays** will be graded on a ten-point scale. They should not be

longer than two double spaced pages.

In this class, you are not competing with your neighbor for a grade since grades are based on the total points you achieve and are not curved. In fact, it might be to your advantage to help other students since explaining a concept to somebody else reinforces the ideas in your own mind. **You will determine your grade** by studying, attending lecture and lab and asking good questions.

The final course grade will be based on the grading scale given below:

**A 90% B 80% C 70% D 60%**

**Note: a failing grade in either the lecture or lab portions of the course will lead to a failing grade in the course.**

**Laboratory:** The laboratory portion of the course counts is 25 % of the total course grade. Your grade is based on your written lab reports as well as your performance in the laboratory (techniques).

**Attendance Policy:** Attendance in lecture and laboratory are mandatory. The volume of material covered in each lecture is large and cumulative in nature, therefore attend every lecture and laboratory period. If for any reason you must miss class, please notify me before hand.

**Makeup Policy:** An absence from an exam for other than verifiable reasons will count as a zero. If you missed an exam for a medical/family situation, see me ASAP. **Note that makeup exams will generally be more difficult than regularly scheduled exams.**

**Office Hours:** Monday and Wednesday 1:15-2:30 pm. I am generally available most of the day (except when I am teaching). If you need to discuss things in detail it is a good idea to make an appointment (e-mail or call).

**Academic Honesty: Cheating or dishonesty in any form will not be tolerated and will result in failure in this course.**

### Course Outline

Week	Chapter	Sections
1	10 Liquids, Solids and Phase Change	10.1 to 10.10
	11 Solutions and Their Properties	11.1, 11.3-11.9
2	12 Chemical Kinetics	12.1 – 12.12
	13 Chemical Equilibrium	13.1-13.11
3	14 Hydrogen, Oxygen and Water	13.1-14.15
	15 Aqueous Equilibria: Acids and Bases	15-1-15.16
4	16 Applications of Aqueous Equilibria	16.1-16.8, 16.10-16.13
	17 Thermodynamics: Entropy, Free Energy and Equilibrium	17.1-17.7, 17.11
5	18 Electrochemistry	18.1-18.5, 18.9, 18.11-18.13

Periodic Table of the Elements																			
Department of Chemistry & Biochemistry																			
LASALLE UNIVERSITY																			
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18		
H 1.008	He 4.003											Li 6.941	Be 9.012	B 10.81	C 12.01	N 14.01	O 16.00	F 18.998	Ne 20.18
Na 22.99	Mg 24.31											Al 26.98	Si 28.09	P 30.97	S 32.07	Cl 35.45	Ar 39.95		
K 39.10	Ca 40.08	Sc 44.96	Ti 47.87	V 50.94	Cr 52.00	Mn 54.94	Fe 55.85	Co 58.93	Ni 58.69	Cu 63.55	Zn 65.41	Ga 69.72	Ge 72.64	As 74.92	Se 78.96	Br 79.90	Kr 83.80		
Rb 85.47	Sr 87.62	Y 88.91	Zr 91.22	Nb 92.91	Mo 95.94	Tc 98.91	Ru 101.07	Rh 102.91	Pd 106.42	Ag 107.87	Cd 112.41	In 114.82	Sn 118.71	Sb 121.76	Te 127.60	I 126.91	Xe 131.30		
Cs 132.91	Ba 137.33	La 138.91	Hf 178.49	Ta 180.95	W 183.85	Re 186.21	Os 190.23	Ir 192.22	Pt 195.08	Au 196.97	Hg 200.59	Tl 204.38	Pb 207.2	Bi 208.98	Po 209	At 210	Rn 222		
Fr 223	Ra 226	Ac 227	Rf 261	Db 262	Sg 266	Bh 264	Hs 277	Mt 268	Ds 271	Uub 285	Uuq 289								
* Lanthanide Series																			
La 138.91	Ce 140.12	Pr 140.91	Nd 144.24	Pm 144.91	Sm 150.36	Eu 151.96	Gd 157.25	Tm 168.93	Yb 173.05	Lu 174.97									
# Actinide Series																			
Ac 227	Th 232.04	Pa 231.04	U 238.03	Np 237.05	Pu 244.06	Am 243.06	Cm 247.07	Bk 247.07	Cf 251.08	Es 252.08	Fm 257.10	Mt 258	Nu 260	Lr 260					