



SYLLABUS for CHEMISTRY 105
FUNDAMENTAL CHEMISTRY
Fall 2005

INSTRUCTOR
Dr. Thomas M. Zamis

University of Wisconsin-Stevens Point
College of Letters & Science
Department of Chemistry

I. Course Description

A. Fundamental Chemistry

This course is the first semester of a two semester sequence intended for students who desire one year of college chemistry. The emphasis of the course will be on the fundamental principles of general chemistry, which include terminology, qualitative concepts, quantitative skills and laboratory skills. The general topics included in the first semester are: Chemistry and Measurement; Atoms, Molecules and Ions; Calculations with Formulas and Equations; Chemical Reactions; Thermochemistry; Quantum Theory of the Atom; Electrons and Periodicity; Bonding; and Molecular Geometry.

B. Information for Fall Semester

INSTRUCTOR: Dr. Tom Zamis
Office Science B135 Phone 346-3258
Office Hours: M 9-10 T 12-1 W 2-3 F 9-11
or other times by appointment.

TIMES:	Lecture 2	M,W,F	12:00 - 12:50	Room Science A121
Discussion 200	Tuesday	8:00 - 8:50	Science A109	
Discussion 210	Tuesday	9:00 - 9:50	Science A109	
Discussion 220	Tuesday	10:00 - 10:50	Science A111	
Lab 5	Wednesday	08:00 - 10:50	Science C124	
Lab 6	Monday	14:00 - 16:50	Science C124	
Lab 7	Tuesday	14:00 - 16:50	Science C124	
Lab 8	Thursday	14:00 - 16:50	Science C124	

REQUIRED MATERIALS

TEXTBOOK: Ebbing; Gammon; Ragsdale *Essentials of General Chemistry*; Houghton Mifflin: Boston, 2003.

LABORATORY EXPERIMENTS: At the bookstore, purchase a Chemistry 105 Laboratory Packet before your first laboratory class and bring it with you to each laboratory session.

SCIENTIFIC CALCULATOR: You should have on hand for lectures, discussions and laboratories a calculator capable of performing the basic mathematical functions (+, -, x, ÷), and those involving natural logarithms and exponentials ($\ln x$, e^x), and base 10 logarithms and exponentials ($\log x$, 10^x). You should be familiar with entering numbers in scientific notation on your calculator and performing calculations with numbers in this form.

II. Course Objectives

It is your responsibility to learn the material listed as **objectives** in the Appendix of this syllabus. I will help you to develop an interest in chemistry and motivate you to work hard to learn the fundamentals of this interesting and important subject. I will do this by presenting stimulating lectures, discussions and labs that include demonstrations, graphics, videos, web resources, current articles, real-world applications, handouts and study sheets - and your participation! I will give you individual help and guidance when you ask me to - and I hope you will feel free to ask me when you need it. Your learning will be evaluated with the use of exams and quizzes that cover only the material listed in the objectives.

For a student beginning the study of chemistry, understanding must begin with a fundamental knowledge of the precise *chemical* meanings of the **terminology** you will encounter. In other words, you must be able to understand the words that you read and hear. Chemical terms that you must understand are listed for each chapter in your text. Your textbook contains a *Glossary*.

Interpretation involves taking the basic information you read and hear in **Lecture**, making sense of it, and being able to explain it (to yourself, to me, and to other students). The major concepts you should be able to interpret are listed for each chapter. Also, many of the Practice Problems listed for each chapter will check your interpretive skill. Your opportunity to practice interpreting is during the weekly **Discussion**.

Application is when you can put your knowledge to some specific or practical use or solve a problem. Many of the Practice Problems listed below for each chapter, and all of your work in **Laboratory**, will allow you to experience and practice the application of chemistry.

III. Grading Policy

Your final grade for Chemistry 105 will be based on the total number of points earned out of 1000. The distribution of points is as follows:

Hour Exams (3 @ 150 pts)	450 points	(Fridays 9/30; 10/28; 11/23(Wed))
Final Exam	200 points	
Quizzes (3 @ 50 pts)	150 points	(Tuesdays 9/20; 10/18; 11/8)
Labs	150 points	
Department*	50 points	*attendance, attitude, lab work

The tentative levels of achievement required for letter grades are:
"A" 930 points "B" 830 points "C" 720 points "D" 650 points
These levels will not be raised, however, they may be lowered.

IV. Course Outline (Schedule of Topics)

<u>Week</u>	<u>Dates</u>	<u>Exam Quiz</u>	<u>Topics</u>
1	9/6 - 9/9		Introduction; Physical Measurements
2	9/12 - 9/16		Units, Factor-Label Calculations, Atoms
3	9/19 - 9/23	Q1	Chemical Formulas and Names
4	9/26 - 9/30	E1	Reaction Equations, Balancing
5	10/3 - 10/7		Formula and Equation Calculations
6	10/10 - 10/14		Types of Chemical Reactions
7	10/17 - 10/21	Q2	Solutions and Concentration
8	10/24 - 10/28	E2	Thermochemistry
9	10/31 - 11/4		Atoms- Light, Atomic Orbitals
10	11/7 - 11/11		Electron Configurations, Atomic Properties
11	11/14 - 11/18	Q3	Chemical Bonds- Ionic, Covalent
12	11/21 - 11/23	E3	
13	11/28 - 12/2		Lewis Structures, Structural Formulas
14	12/5 - 12/9		Molecules- Shape, VSEPR Model, Polarity
15	12/12 - 12/16		States of Matter; Intermolecular Forces

Final Exam Saturday December 17, 2005 10:15 - 12:15 AM

V. Principal Assignments

A. Supplementary Material

Summary sheets will be provided periodically by me to assist you in studying for quizzes and exams. Additional exercises involving application type problems will also be provided periodically in discussion. Materials from lecture, practice problems, answers, etc. will always be available on the course web page. The link to the page is found on my web page: www.uwsp.edu/chemistry/tzamis

LECTURE TOPIC	CHAPTER SECTIONS
Introduction; Physical Measurements	1.1-1.5
Units, Factor-Label Calculations, Atoms	1.6-1.8, 2.1-2.5
Chemical Formulas and Names	2.6-2.8
Reaction Equations, Balancing	2.9-2.10
Formula and Equation Calculations	3.1-3.8
Types of Chemical Reactions	4.3-4.6
Solutions and Concentration	4.1, 4.2, 4.7-4.10
Thermochemistry	6.1-6.9
Atoms- Light, Atomic Orbitals	7.1-7.5
Electron Configurations, Atomic Properties	8.1-8.7
Chemical Bonds- Ionic, Covalent	9.1-9.5
Lewis Structures, Structural Formulas	9.6-9.9
Molecules- Shape, VSEPR Model, Polarity	10.1-10.2
States of Matter, Intermolecular Forces	11.1, 11.2, 11.4

VI. Conduct

A. Attendance

Attendance is not required for lecture, however the majority of the material that you will be responsible for is presented in lecture. Be sure to obtain notes from your peers on those rare occasions that you miss lecture.

Attendance is expected for discussion. These small group sessions are your opportunity to question and interact closely with your instructor. Quizzes will be given during discussions, and any unexcused absences cannot be made up. An *excused absence* requires that **verifiable** arrangements be made with your instructor **in advance** for things like off-campus trips or personal appointments; **or** following an emergency or illness, a written note from a physician or university administrator is presented upon returning. Attendance is required for examinations and laboratory. Unexcused absences cannot be made up.

B. Student Conduct

The following are from the University publication "Community Rights and Responsibilities". The full document is available from the UWSP Web Page under Student Life.

Nearly 10,000 students, staff, faculty and visitors descend on our one square mile campus each day of the academic year. It is apparent that as a learning community, we need standards or codes of conduct which clarify the behavioral expectations for our academic and nonacademic environments. The policies and procedures spelled out in our Community Rights and Responsibilities publication provide for a sense of order for all while respecting the dignity and rights of individuals. Through these policies, civility within our learning community is affirmed, diversity is pursued, the importance of each person is honored and well defined procedures guide behavior for the common good.

The University of Wisconsin system believes that academic honesty and integrity are fundamental to the mission of higher education and of the University of Wisconsin system. The university has a responsibility to promote academic honesty and integrity and to develop procedures to deal effectively with instances of academic dishonesty. Students are responsible for the honest completion and representation of their work, for the appropriate citation of sources, and for respect of others' academic endeavors. Students who violate these standards must be confronted and must accept the consequences of their actions.

UWSP 14.03 ACADEMIC MISCONDUCT SUBJECT TO DISCIPLINARY ACTION. (1)
Academic misconduct is an act in which a student:

- (a) Seeks to claim credit for the work or efforts of another without authorization or citation;
- (b) Uses unauthorized materials or fabricated data in any academic exercise;
- (c) Forges or falsifies academic documents or records;
- (d) Intentionally impedes or damages the academic work of others;
- (e) Engages in conduct aimed at making false representation of a student's academic performance; or
- (f) Assists other students in any of these acts.

(2) Examples of academic misconduct include, but are not limited to: cheating on an examination; collaborating with others in work to be presented, contrary to the stated rules of the course; submitting a paper or assignment as one's own work when a part or all of the paper or assignment is the work of another; submitting a paper or assignment that contains ideas or research of others without appropriately identifying the sources of those ideas; stealing examinations or course materials; submitting, if contrary to the rules of a course, work previously presented in another course; tampering with the laboratory experiment or computer program of another student; knowingly and intentionally assisting another student in any of the above, including assistance in an arrangement whereby any work, classroom performance, examination or other activity is submitted or performed by a person other than the student under whose name the work is submitted or performed.