Chemistry 1/112.1 First Semester 2007-08 General Inorganic Chemistry (Lecture)

General Information				
Textbook:	<u>Chemistry, 9th ed.</u> , Raymond Chang (McGraw-Hill, 2007)			
	Webpage: http://www.mhhe.com/chang			
References:	Chemistry: Molecules, Matter and Change, 4th ed., Loretta Jones & Peter Atkins,			
	(W.H. Freeman and Company, 2000); <u>Chemistry in Focus, 2nd ed.</u> , Nivaldo J. Tro;			
	Chemistry. 4th ed., Petrucci.			
Workbook:	Chemistry Workbook, Version 2007 (available at XU Bookcenter)			
Instructor:	Faustino M. Tarongoy, Jr., M.S. Chemistry (candidate)			
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Consultation hours:	MWF, 9:30 – 10:30 am; Wed, 1:30 - 4:30pm			
	Class-related concerns may be consulted via email (see address above)			

Course Outline:

Торіс		Week/Date	Activity
Chemistry: the	Introduction to Chemistry:	June 13	
Study of Change	scientific method; branches of chemistry		
	Classification of Matter: Elements, Compounds,	18	ChemAd
	and Mixtures		
	Properties and Changes: Physical, Chemical,	20	Video-viewing
	Energy		
	Measurements, Accuracy and Precision	22	
	The SI System of Units		
	Handling Numbers: Significant Figures and Doing	25	
	Dimonsional Analysis in Solving Problems: unit	27 20	"Dinaka "
	conversions	27, 29	FIIIdKa-
-	Chapter Exam	July 02	
Atoms,	The Atomic Theory, The Structure of the Atom	04	
Molecules and	Atomic Number, Mass Number, and Isotopes	06	Chemspell
lons	The Periodic Table		
	Molecules and Ions, Chemical Formulas	09	Boardwork
	Nomenclature of Compounds, Introduction to	11	Flashcards
	Organic Compounds		
	Prelim Examination	July 13	
Mass	Atomic Mass, The Mole Concept: Avogadro's	16	Group Work
Relationships in	Number, Molar Mass (Element and Molecular)		Exercise
Chemical	Percent Composition of Compounds	18, 23	Seatwork
Reactions	Determination of Empirical and Molecular Formula	23, 25	Quiz
	Chemical Reactions and Chemical Equations:	27	Video-viewing
	Types of Chemical Reactions		
	Balancing Simple Chemical Equations	30	Quiz
	Reaction Stoichiometry: Amount of reactants and	Aug 01	Simulation/
	products		Visualization
	Mole-to-mole and Mass-to-mass Calculations		
	Limiting Reactant, Reaction/Percentage yield	03	Quiz
	Midterm Examination	Aug 6 – 10	
	Webquest Project Orientation	13	Video-viewing
	Theme: Waste and Resources Management	. –	
Reactions in	General Properties of Aqueous Solutions	15	Video-viewing
Aqueous	Precipitation Reactions: Ionic equations		
Solutions	Acid-Base Reactions: Neutralization	17	Quiz
	Redox Reactions & Balancing Redox Reactions	20	Seatwork
	Concentrations of Solutions	22	Boardwork
	Gravimetric Analysis, Acid-Base Titration	24	Quiz
	Redox Titration	27	Seatwork
	Chapter Exam	31	
Quantum	From Classical Physics to Quantum Theory;	29	Video-viewina

Theory and the	The Photoelectric Effect, Bohr's Theory		
Electronic	The Dual Nature of the Electron; Quantum	Sept 03, 05	
Structure of the	Mechanical Model of the Atom – Quantum	•	
Atom	numbers, atomic orbitals		
	Electronic Configuration; the Building-up Principle	07 , 10	Video-viewing
	Semifinal Examination	Sept 12	
Periodic	Electronic Configuration and the Periodic Table:	14	Quiz
Relationships	Development of the Periodic Table, Periodic		
Among the	Classification of Elements, Periodicity of Physical		
Elements	Properties		
	Periodic Properties of the Elements: Ionization	17 , 19	Video-viewing
	Energy, Electron Affinity, Electronegativity		_
	Variation in Chemical Properties of Representative	19	
	Elements		
	Chapter Exam	21	
Chemical	Lewis Dot Symbols; The Ionic Bond: Lattice	24	Video-viewing
Bonding I: Basic	Energies; Metallic Bonding		-
Concepts	The Covalent Bond: Electronegativity	26	
	Writing Lewis Structures and Formal Charge		
	Concept of Resonance; Exceptions to the Octet	28	
	Rule		
	Molecular Geometry; Dipole Moment	Oct 01	Model building
	Reporting of Project/Quizbowl		
	Final Exam	Oct 3 – 9	

N.B. Activities in bold fonts are indicated as non-regular activities to be done in AV rooms as reserved. Specific venue will be announced later.

- *Examinations:* There are four major exams (Prelim, Midterm, Semifinal, and Final). An exam may take an hour or an hour-and-a-half depending on the coverage and need. Students must make sure to bring valid requirements for them to be allowed to take the Midterm and Final Exams during the designated date/s. If not, they have to apply for a delayed exam permit once these requirements are met.
- *Quizzes and Assignments:* Quizzes will be given depending on the need and will be usually announced. Questions for quizzes are usually exercise questions to practice the concepts learned and will not be "objective" type. They may be held before or after the lecture or activity, so students are held responsible to study in advance and be prepared. Surprise quizzes may be given to check whether students are prepared in coming to class.

Assignments or homework/problem sets are usually non-credit and <u>are given with</u> <u>the intention of encouraging independent study among students</u>, not just to review their lecture notes but also to pursue some skills development not readily acquired during class hours, e.g. doing stoichiometric calculations or balancing chemical equations. Assignments will have to be collected to drive students to do personal self-study. Assignments are usually taken from the textbook or from the workbook, so students are obliged to have their own copy by purchase or rental. Some assignments will be discussed during review or problem-solving sessions. Copying of assignments is <u>strongly</u> <u>discouraged</u> as this defeats the learning purpose. There is no substitute to learning than by experiencing and doing it in practice.

Seatwork/Boardwork/Class Participation:

Students are greatly encouraged to participate actively in any class activity, be it seatwork, boardwork, group activity or game, or out-of-classroom activity. Learning becomes enjoyable when done with others, either by sharing of insights and taking note of the techniques or pointers acquired by classmates especially during exercises involving calculations or analysis, or simply by realizing one's or other's mistakes. Committing mistakes during exercises or class participation is to be taken as an opportunity for learning and so students need not be embarrassed when committing them. They must not, however, be repeated during examinations. In any way, academic honesty must always be upheld when doing them.

Web-based Materials: In addition to lecture notes and textbook, the following are available via the web: problem sets, basic skill tutorials, sample exams, simulations. These can be found in the

website specified by the textbook author/s (see above) and other webpage addresses that will be given by the instructor. Students are well-advised to make use of these materials as they are most beneficial. Clarifications and short tutorial-consultations may be called to the instructor's attention thru email (address given above) provided that the student will give his/her complete identification.

- Other Activities Depending on the availability of facilities, some class periods may be spent in the AVR for other instructional modes like video-showing or PowerPoint presentations or multi-media activities.
- Class Decorum Students are expected to be present in all class periods. Allowed number of absences will be accounted according to school policy for the current semester. If an absence is committed, the student is strongly advised to keep up with the missed content or lecture material. Tardiness is also not tolerated. Habitual tardiness or non-attendance is a strong sign of disinterest or loss of motivation. Students are strongly encouraged to take academic or psychological counseling in the most immediate time. Individual consultations with the instructor or with a University-designated counselor are meant for such need. Taking of lecture notes is an integrated function of every student as well as studying and participating in class. Most importantly, chemistry is a subject best enjoyed when students do also their independent study by reading the required text and doing exercises on their own.
- Grading: Homework/Quizzes/Class Participation Major Exams (Prelim, Midterm, Semifinal, Final) Final Mark: 1/3 from Midterm Grade, 2/3 Finals Grade

20% 20% each = 80% total