Iona College
Department of Chemistry
CHM 109-110: General Chemistry
Fall 2006 Syllabus

Instructor:L.S.Campisi,Ph.D
Class Location:
Office: CORNELIA 105
Phone: 914 633-2290
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Class Meeting Times:MWTh(8:00am)
Rm C110
Office Hours:MW(1:00pm)Th(10:00am)
Or any other time by mutual agreement
E-Mail :LCAMPISI@iona.edu

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COURSE DESCRIPTION:

Chm 109, 110. General Chemistry
The fundamental principles of chemistry in the lecture and laboratory: the mole concept, stoichiometry, solutions, gas laws, thermodynamics, periodic law, electronic structure of the atom, molecular structure, chemical bonding,molecular forces, colligative properties, kinetics ,
acid and base theories, equilibria involving acid, bases and salts electrochemistry, nuclear and coordination chemistry and chemical principles applied to the study of the descriptive chemistry of elements.
The laboratory work involves experimental application and practice of principles learned in class. Three lectures,one recitation hour and three hours of laboratory a week for two semesters. Special fee required.
5 credits each semester. CHM 109 - Scheduled every Fall semester
CHM 110 - Scheduled every Spring semester

COURSE OBJECTIVES:

The object of this course is to convey to students in any of the major fields of science, a sound and clear concept of the fundamentals of chemistry at the introductory level. For the non-chemistry major, this objective is attained in such a manner as to fully equip the student with the basic knowledge of chemistry in so far as it forms the necessary background for other fields of science. At the same time the student of chemistry would be fully prepared to take up more advanced topics in this field. Because of the general approach to the subject matter which must of necessity be maintained, stress will be laid on fundamental laws and theories with emphasis on those phases of the subject matter which involve deductive reasoning and application.

In conjunction with class instruction, the laboratory course work is designed to acquaint the beginning science student with the techniques and discipline that are necessary for the performance of scientific work.

PROCEDURES:

A. Class meetings: Regular lectures are held as scheduled, three hours per week. The student will be assigned readings and problems concerning the lecture material; as the subject matter is presented, the student will be encouraged to ask questions so that a more thorough appreciation of this material may be achieved. Problem sessions are given periodically upon completion of general topics in the lecture as needed.

Three one hour exams 35% of Final Grade
Two hour final 35% of Final Grade

Lecture constitutes 70% of Final grade

B. Recitation: One hour per week.
An examination of the lecture material from the perspective of a problems approach. Chapter problems will be assigned to the students who will be required to present solutions. Periodic quizzes will be administered to assure and monitor student progress. The modality of learning will include and involve cooperative participation of students working together in groups on solutions of assigned problems; that is there will be a focus on peer learning under faculty supervision and guidance.
Periodic Quizzes 5 % of Final Grade

C. Laboratory: Regular meetings are held as scheduled for three consecutive hours per week. The student will perform the assigned laboratory experiments in an acceptable fashion under the supervision of the instructor. In general, a brief laboratory lecture describing the theory and technique of the particular laboratory problem will precede the experiment. Finally, the student will be required to have become familiarized with the experiment, through home assignments, prior to the start of the laboratory work.
Laboratory work 25% of Final Grade

ATTENDANCE AT ASSIGNED LECTURE,RECITATION AND LABORATORY SESSIONS IS MANDATORY.
UNEXCUSED ABSENCES WILL NEGATIVELY IMPACT GRADE FOR THAT SESSION .IN GENERAL MISSED MEETINGS CAN NOT BE MADE UP

REQUIRED TEXT:
Chemistry: Raymond Chang, 9th Edition McGraw Hill, Inc. 2006
Laboratory Manual: Modular Laboratory Experiments for General Chemistry;Published by Thomson Learning
(Chemical Education Resources)

GRADING CRITERIA:

RECITATION QUIZZES		5%
Three	1 HOUR EXAMS	35%
One	2 HOUR FINAL	35%
	LABORATORY WORK	25%

POLICY ON PLAGIARISM AND ACADEMIC DISHONESTY

Plagiarism and/or Academic Dishonesty on exams, laboratory reports etc. will result in a grade of zero assigned to the work with no opportunity for a make-up.

CHEMISTRY 109
TENTATIVE LABORATORY SCHEDULE FALL

WEEK	ACTIVITY
1	Check In, Graphing,, Safety (Separate 380)
2	Density (Separate 383)
3	Empirical Formula Determination (Separate 423)
4	Analysis of Vinegar (Separate 395)
5	Standardization of a Sodium Hydroxide Solution with Oxalic Acid (Separate 424)
6	Determination of the percentage purity of a KHP unknown (handout)
7	Chemical Reactions (Separate 422)
8	Determination of Gas law Constant R (handout)
9	Estimating the Caloric Content of Nuts: Heat of Combustion (Separate 428)
10	Heat of Neutralization (Separate 609). or water hardness (Separate 436)
11	Determination of Avogardo's number (Separate 496)
12 & 13	Gravimetric Analysis of Barium (Separate 356)
14	Analysis by Light (Spectrophotometry) Visible Spectrum of $[Cu(NH_3)_4]^{+2}$ Beers Law Separate 358)
15	Complete All Work; Check Out

Laboratory Manual: Modular Laboratory Experiments for General Chemistry
Laboratory Notebook: Purchase of a Laboratory Notebook to Record Data is required
Safety Glasses **Safety Glasses must Be Purchased and worn in the Lab**
NO lab work may be performed unless safety glasses are worn
A Laboratory Apron is Strongly Advised
All of the above items are available in Bookstore

CHM 109
TENTATIVE LECTURE SCHEDULE

WEEK		LECTURE TOPIC	PROBLEMS
Aug, Sept	30 , 31	Chapter 1: Chemistry The Study of Change	5,6,12,17,18,21-23,29-34,37-43,47-50
4(holiday)	6.7	Chapter 1 (continued) (Sept 4 Labor Day)	
11	13, 14	Chapter 2 :Atoms molecules Ions	1,3,10,12,15,18,20,22,26,31,34-37 40,43,47-49,55-57
18	20, 21,	Chapter 3: Chemical Reactions; Mass Relationships	1,2,5,9,11,13-21,23,25,30,32,33,35,39 41,43-49,59,63,65-68,78,81-86,89,90
25	27, 28	Chapter 3 (continued)	
Oct 2	4, 5	Chapter 4: Reactions in Solution EXAM I	1-4,7,9,10,15,17,21,23,25,26,28,31-33 35,43,47,50,59-63,69-71,77-79,82,84 85,87,91,92,96
9(holiday)	10, 11,12,	Chapter 4 (continued) (Oct 9 Columbus Day) (Tues Oct 10 follows Monday Schedule)	
16	18,19,	Chapter 5 Gases (Oct 21 Last Day for Withdrawal with W)	2,3,5,13,15,20-26(even),27,29,32-40(even) 48,50.52-58(even),64,66,68,71,77,81.82.90
23	25,26	Chapter 5 (continued)	
30	Nov 1,2	Chapter 6: Thermochemistry EXAM II	5,6,7,21,23-26,29,32-38,45,47,51,53,55,59 62,63,67,70
6	8, 9,	Chapter 7: Quantum Theory	1,2,7,8,13,15-21,23,25,30,31,36,38,41,43,44,47 48,50,52-60,69,71,73,79,82,83,89,91,93,115
13	15. 16	Chapter 7 (continued) (Nov. 15 Last Day or Withrawal with WP/WF) Chapter 8 Periodic Law	1,3,5,8,12,21,24,25,27,28,32,33,34,37,38,42 43,51,59.61,66,72-74
20	22,23	Chapter 9 Chemical Bonding I (Nov22-24 Thanksgiving Recess)	1,3,5,6,15,16,18,20,21,23,30,31,33,34,36,37 39.43-48,51,52,62,63-66,69-74,78,91,102

27	29,30	Chapter 9: (continued) EXAM III	
4	6,7	Chapter 10 Chemical Bonding II	Spartan Exercises and 1-12 (even)16,18,20-26 (even)28,38,43,44,45-49
11		Chapter 10 (continued)	

Dec 12 Reading Day
Dec 13 –18 Final Exam Period

GRADING:

3 Exams:	35%
Quizzes:	5%
Final:	35%
Lab:	25%

LECTURE TEXT: Chemistry
By Raymond Chang, 8th Edition
McGraw Hill Publishers

COURSE OUTLINE Chemistry 110

LECTURE

1	Chapter 9 (Cont'd) Chapter 10 Chemical Bonding II
2	Chapter 10 (Cont'd)
3	Chapter 11 States of Matter
4	Chapter 12 Solutions Exam I
5	Chapter 12 (Cont'd) Chapter 13 Chemical Kinetics
6	Chapter 13 (Cont'd) Chapter 14 Equilibrium
7	Chapter 14 (Cont'd)
8	Chapter 15 Acids and Bases Exam II
9	Chapter 16 Acid Base Equilibrium
10	Chapter 16 (Cont'd) pH,buffers ,common ion effect
11	Chapter 16 (Cont'd) Solubility Equilibrium
12	Chapter 17 (Self Study) Chemistry in the Atmosphere Chapter 18 Entropy, Free Energy Exam III
13	Chapter 18 (Cont'd) Chapter 19 Electrochemistry
14	Chapter 22 Coordination Compounds
15	Complete All Work

FINAL EXAM as scheduled by Registrar

LABORATORY

1 Check in; Internet Assignment (Handout)

2 Heat of Sublimation (Handout)

3 Molecular Modeling Computer Lab
Using Spartan software (Handout)

4 Ion Exchange Chromatography (Handout)

5 Paper Chromatography: Separation of Cations ;Separate Anal 498*

6 Colligative Properties: Freezing Point Depression; Separate Prop 344

7 Kinetics: Determination of Rate Law ; Separate Kine 504

8 Evaluating an Equilibrium Constant; Separate Equl441

9 Preparation of Aspirin ;Separate Synt 628

10 Qualitative Analysis (Group I); Separates Tech 363 and Anal 364

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11 Qualitative Analysis (Group II); Separate 365

12 Qualitative Analysis (Group III 7 IV); Separate 366

13 pH Experiment Acids, Bases Salts Buffers, Titration Curves; Separate Equl 499

14 pH Experiment continued

15 Check Out; ACS Exam

Separates are located in laboratory manual
Modular Laboratory Experiments for General Chemistry
Published by Thomson Learning(Chemical Education Resources)
On sale in College Bookstore
Approved Safety glasses required in all labs
Lab note book required to record data
lab apron recommended