

**LAGUARDIA COMMUNITY COLLEGE
CITY UNIVERSITY OF NEW YORK
NATURAL SCIENCES DEPARTMENT**

SCC105: Introduction to Chemistry

Fall I 2014

Your Instructor's name _____

Your Instructor's contact information _____

Course Description:

4 credits: 6 hours (3 lecture, 3 lab)

This course serves as an introduction to chemistry. Topics include measurements, atoms, the Periodic Table, ionic and molecular compounds, stoichiometry, energy, equilibrium, gases, liquids, solids, solutions, acids, and bases. The laboratory component is designed to illustrate the fundamental laws and techniques of general chemistry. The course addresses the needs of students who require an introductory chemistry course that contains a laboratory component.

Prerequisites: CSE099, ENA/ENG/ESA099/ECC101, MAT096

Course Materials:

- 1. Textbook:** FUNDAMENTALS OF GENERAL, ORGANIC AND BIOLOGICAL CHEMISTRY, 7th Edition, by John McMurry, Mary Castellion, David S. Ballantine, Carl A. Hoeger and Virginia E. Peterson (Prentice-Hall, 2012), ISBN 9780321767257 (loose-leaf).

- 2. Laboratory Manual:** Catalyst Lab Manual - Biological Chemistry, SCC205 & 210 Revised by Nalband S. Hussain (Pearson Custom Publishing, 2014), ISBN 9781256245087.

- 3. Safety Goggles:** All students are required to bring safety goggles (available in the Bookstore) to **every** laboratory session. *You will not be permitted to remain in the lab and perform experiments without them.*

- 4. Scientific Calculator:** All students are required to have their own scientific calculator. *Borrowing calculators or using cellphones/IPODs as calculators will NOT be allowed during quizzes and exams.*

Academic Integrity Policy: Instructors of this course are required to implement the College Policy regarding cheating on examinations and quizzes. A complete statement of the policy is available at the student counseling services.

Attendance Policy: Attendance at all class sessions, lecture and laboratory, is essential for proper understanding and mastery of the course material. A student who is absent from more than one laboratory session seriously jeopardizes his/her grade for the course.

Instructional Objectives:

1. Introduce students to measurements of length, mass, volume, and temperature of a substance with the correct number of significant figures and illustrate the importance of measurements in daily life.
2. Introduce students to the principles of atomic structure, physical and chemical properties of matter, isotopes, the Periodic Table, and the electron configuration of elements.
3. Familiarize the students with the types of chemical bond, the Octet rule, and Lewis structures.
4. Explain the rules of writing chemical formulas and naming of compounds.
5. Reinforce the students' knowledge of energy and energy transfer accompanying changes of state.
6. Introduce students to types of chemical reactions, and writing and balancing chemical equations.
7. Introduce students to the energy changes that accompany physical and chemical changes.
8. Introduce chemical quantities: Avogadro's number, formula mass, mole, molar mass and illustrate how to do the calculations involving these quantities.
9. Explain the kinetic molecular theory of gases, Boyle's Law, Charles' Law, Avogadro's Law, Gay-Lussac's Law, Ideal Gas Law and Dalton's, and how these laws are used in solving problems.
10. Introduce the students to the principles of solution formation, electrolytes, and nonelectrolytes and to the different ways of expressing concentration of solutions.
11. Introduce the students to the concepts of acid, bases and pH.
12. Familiarize the students with laboratory techniques that integrate computer technologies.

GRADING SCHEME - Student performance will be evaluated in the following ways:

Exams (4) @ 100 points each	400 points
Quizzes (4) @ 30 points each	120 points
Homework Assignments (8) @ 10 pts each	80 points
Laboratory Reports (10) @ 25 pts each	250 points
Pre-lab Quizzes (10) @ 5pts each	50 points
Laboratory Exam	100 points

Total : **1000 points**

A minimum of 600 points (60% of 1000) is required in order to receive a passing grade for the course.

Grading Scheme - Student performance will be evaluated in the following way:

A = 93-100 %
A- = 90-92.9 %

C+ = 77-79.9 %
C = 73-76.9 %
C- = 70-72.9 %

F = less than 60%

B+ = 87-89.9 %
B = 84-86.9 %
B- = 80-83.9 %

D+ = 67-69.9 %
D = 63-66.9 %
D- = 60-62.9 %

Grading and Standards: A minimum of 60% of the possible points (that is, at least 600 points) must be earned in order to receive a passing grade for the course.

Make-up Policy: There will be **no scheduled make-up exams or quizzes**. A student who has missed a test or quiz should consult the instructor on the matter.

Quizzes: There will be four brief quizzes, each quiz of about twenty minutes duration throughout the semester.

Written Homework Assignments

The dates when assignments are due are listed on the lecture outline. Assignments handed in on or before the due date will be returned before the exam covering that chapter. Assignments handed in late will be returned at the instructor's convenience. **No late assignments will be accepted for grading after the "on time" assignments have been returned to the class.**

The following standards apply to all written assignments:

- (1) Assignments are to be submitted on paper with "clean" edges. Pages torn from notebooks are not acceptable.
- (2) Write the course and section numbers below your name on the paper.
- (3) Write the chapter and/or page numbers of the assignment on the paper.
- (4) The mathematical set-up used to obtain answers to problems must be shown. (Actual computation may be done on calculator and need not be written out.) If answers only are submitted, no credit will be awarded. (**Note: This policy also applies to answers to problems on exams.**)
- (5) Assigned questions which require a verbal answer are to be answered in complete sentences which are grammatically correct.

SCC105 Class Schedule and Instructors for Fall I 2014

Course Number	Days	Time	Room	Instructor
151 A	W (Lec)	1.00 – 3.15 PM	E-150	S. Adl
	F (Lec)	1.00 – 2.00 PM	E-150	S. Adl
151 B	M (Lab)	8.00 – 11.30 AM	E-346	K. Mark

NOTES:

2014 FALL SEMESTER - SESSION I		
Thursday	Sep 4	First Day of Weekday Classes - Fall Session I
Saturday	Sep 6	First Day of Saturday Classes - Fall Session I
Wed - Fri.	Sep 24 - 26	No Classes Scheduled
Fri - Sat.	Oct 3 - 4	No Classes Scheduled
Sunday	Oct 12	No Classes Scheduled
Monday	Oct 13	College Closed
Tuesday	Oct 14	Irregular Day- Classes Follow Friday Schedule
Tuesday	Nov 4	Last Day of Last Day to Officially Withdraw from a Course - A Grade of "W" will be issued
Thurs - Sun.	Nov 27 - 30	College Closed
Friday	Dec 5	Last Day of Weekday Classes - Fall Session I
Saturday	Dec 6	Last Day of Saturday Classes - Fall Session I
Monday	Dec 8	Reading Day
Tues - Mon.	Dec 9 - 15	Final Examinations
Thursday	Dec 18	Grades and Attendance Due by 4 pm

- Week 1: Chapter 1: Matter and Measurements *1.1 – 1.9*
- Week 2: Chapter 1: Matter and Measurements *1.10 – 1.14*
Chapter 2: Atoms and the Periodic Table *2.1 – 2.3*
- Week 3: Chapter 2: Atoms and the Periodic Table *2.4 – 2.9*
Chapter 3: Ionic Compounds *3.1 – 3.3*
Homework #1(chap 1), QUIZ #1
- Week 4: Chapter 3: Ionic Compounds *3.4 – 3.11*
Homework #2(chap 2), EXAM #1 (Chapters 1, 2)
- Week 5 : Chapter 4: Molecular Compounds *4.1 – 4.7, 4.9 - 4.11*
Homework #3(chap 3),
- Week 6: Chapter 5: Classification and Balancing of Chemical Reactions *5.1 – 5.6*
Homework #4 (chap 4) QUIZ #2
- Week 7: Chapter 6: Chemical Reactions: Mole and Mass Relationships *6.1 – 6.4*
Homework #5 (chap 5, 6), EXAM #2 (Chapters 3, 4, 5)
- Week 8: Chapter 7: Chemical Reactions: Energy, Rates and Equilibrium *7.1 – 7.3, 7.7 – 7.8*
Chapter 8: Gases, Liquids and Solids *8.1 – 8.9*
Homework #6 (chap 7, 8.1-8.9), Quiz #3
- Week 9: Chapter 8: Gases, Liquids and Solids *8.10 – 8.15*
Chapter 9: Solutions *9.1 – 9.3*
EXAM #3 (Chapters 6, 7, 8.1 – 8.9)
- Week 10: Chapter 9: Solutions *9.4 – 9.8*
Homework #7 (chap 9)
- Week 11: Chapter 10: Acids and Bases *10.1 – 10.5*
Quiz #4
- Week 12: Chapter 10: Acids and Bases: *10.6 – 10.10*
Homework #8 (chap 10),
- Week 13: EXAM #4 (Chapters 8.10 – 8.15, 9, 10)**

1. Please be aware where safety equipment is located (Safety Shower, Eye Wash Station, Fire Extinguishers, Fire Blankets, First Aid Kits and Emergency Exits). In case of emergency, instructors should direct students to the proper safety equipment and then call the laboratory technician.
2. **Students are required to wear safety glasses at all times** for laboratory work and to observe all safety rules.
3. **NO FOOD OR DRINK** (including bottled water) is allowed in the lab at any time.
4. **Students are required to wear closed, non-fabric shoes to adequately protect their feet – NO SANDALS, SLIPPERS, OPEN-TOED OR OPEN-HEELED SHOES ARE ALLOWED.**
5. Students are permitted to make up missed labs with another class at the instructor's discretion. A student wishing to make up a missed lab must obtain a signed permission form from his or her original instructor to take to the class where the lab will be made up. The form is available from the lab technician. At the end of the makeup lab, this form must be signed by the instructor and returned by the student to the original instructor as proof that the lab was completed. *Please note that the lab can only be made up if there is another class doing the same lab and there is space available for the student in that class.*
6. Lab reports are worth 25 points each. All entries into Report Sheets must be in **INK with NO WHITE-OUTS (liquid paper)**. Please submit the completed Report Sheet to your instructor **before** you leave the lab.
7. A **pre-lab quiz** worth 5 points will be given at the beginning of each lab session – you should read through the experiment and do the pre-lab exercises in preparation for the quiz. Please see the next page for the schedule of laboratory experiments.

In the laboratory during the first week of classes, each student must:

- (i) View the Safety Film;
- (ii) Complete and hand in the Safety Commitment;
- (iii) Bring a pair of Safety Goggles.

If a student is not present for the initial laboratory session, it is the student's responsibility to obtain an authorization form from the Laboratory Instructor or from the Laboratory Technician for viewing of the Safety Film in the Library. The student must then present the form with the proper verification that he or she has seen the film at the next laboratory session.

The experiments below are either in the Lab Manual (page number given) or in a Handout at:
<http://www.lagcc.cuny.edu/naturalsciences/Chemistry-Lab-Handouts/>

Week #	LABORATORY EXPERIMENTS	Exp. #
1	Orientation: Lab Check-in, Safety Procedures, Guidelines for Laboratory Reports	
2	Basic Laboratory Techniques	p. 1-9 & Handout
3	Density and Specific Gravity of a Solid and Liquid	p. 13
4	Periodic Table: Reactions of Elements	Handout
5	Classification of Solid Substances	Handout
6	The Formula of a Hydrate	p. 55
7	Chemical Reactions and Equations	p. 43
8	Heat of Solution of a Salt	Handout
9	Solubility Curve of a Salt	Handout
10	Acids, Bases, pH and Buffers	p. 71
11	Acid-Base Titration Using Indicator	p. 79
12	LABORATORY EXAM	

Course Coordinator: Dr. Ian Alberts
 Email: ialberts@lagcc.cuny.edu

Office: M 212
 Phone: (718) 482-6183