

LAGUARDIA COMMUNITY COLLEGE
CITY UNIVERSITY OF NEW YORK
NATURAL SCIENCES DEPARTMENT

SCC201: General Chemistry I

Course Description:

This course is part I of two-semester sequence covering the basic concepts of chemistry and their historical development. The experimental nature of chemistry is stressed. Among the topics studied are atomic structure, chemical bonding and reactivity, quantitative relationships in chemical reactions, thermochemistry and gases. The pre-requisites are: CSE 099, ENA/ENG 099, MAT 115/117.

Instructor: _____

Contact Information: _____

Course Materials:

- 1. Textbook (required):** **CHEMISTRY: THE CENTRAL SCIENCE, 14th Edition**, by Theodore L. Brown, H. Eugene LeMay, Jr., Bruce E. Bursten, Catherine J. Murphy, Patrick M. Woodward (Prentice-Hall, 2014)
Several formats are available: go to www.mypearsonstore.com for more information
- 2. Textbook (optional):** Free OpenStax College chemistry textbook: <https://www.openstaxcollege.org/textbooks/chemistry>
- 3. SCC 201 Tutorial Package** General Chemistry I, SCC 201 Tutorial Package. Purchase from the LaGCC Bookstore or online: <https://he.kendallhunt.com/scc201>
- 4. Laboratory Manual:** General Chemistry I, SCC201 Laboratory Manual, *Revised Edition* by Dionne Miller (Kendall Hunt Publishing Company 2014)
Order directly from the publisher at <https://he.kendallhunt.com/product/general-chemistry-i-scc201-lab-manual-ebook>
- 5. Software** Subscription to Sapling Learning (\$ 42): www.saplinglearning.com
This program will be used for homework assignments and tutoring.
- 6. Safety Goggles:** All students are required to bring safety glasses (available in the Bookstore) to every laboratory session. *You will not be permitted to remain in the lab and perform experiments without them.*
- 7. Scientific Calculator:** All students are required to have their own scientific calculator. *Borrowing calculators or using cellphones/IPads etc., will NOT be allowed during quizzes and exams and using them will be treated as intent to cheat.*

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 or online at <http://library.laguardia.edu/files/pdf/academicintegritypolicy.pdf>.

Attendance Policy: Attendance at all class sessions, lecture and laboratory, is essential for proper understanding and mastery of the course material. Attendance in class is a requirement and will be considered in the evaluation of student performance. Instructors are required to keep an official record of student attendance. The *maximum number of unexcused absences is limited to 15% of the number of class hours*. **Note:** Absences are counted from the first day of class even if they are a result of late registration or change of program.

Students with Disabilities: Every attempt will be made to accommodate any student with disabilities. If you have a documented or undocumented disability please see the instructor after class as soon as possible to discuss necessary accommodations and/or contact the Office for Students with Disabilities at (718) 482-5279 or go to room M-102

Cell Phone Policy: The use of cell phones, smart phones, or other mobile communication devices is disruptive, and is therefore prohibited during class. Except in emergencies, those using such devices must leave the classroom for the remainder of the class period.

Learning Objectives:

On completion of the course, students should be able to:

Describe and explain the fundamental chemical concepts of matter and energy, behavior of gases, atomic structure, stoichiometry, chemical nomenclature, periodicity of elements, chemical bonding, solution concentrations, energy relationships in chemical reactions, oxidation and reduction;

Demonstrate an understanding of the quantitative nature of chemistry and the mathematical methods involved by being able to use the SI measurement system, carry out unit conversions, apply the gas laws, employ the mole concept in chemical calculations, determine solution concentrations, solve problems based on balanced chemical equations and determine heats of reaction;

Explain the historical development of atomic theory and of the major laws encountered in introductory chemistry;

Perform basic laboratory skills such as the proper handling of chemicals, identification and use of standard laboratory equipment such as balances, thermometers and glassware for quantitative measurement, titration techniques and qualitative identification by physical and chemical properties.

Analyze and represent experimental data in tables and graphs, interpret experimental results and write laboratory reports.

Demonstrate an understanding of safety procedures in the laboratory;

Demonstrate an appreciation of the role of chemistry in various aspects of life;

Use computer applications in the study of chemistry including internet-based chemistry research, data analysis and graphing using Microsoft Excel, and computer-based self-study.

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

Exams (3) @ 100 points each	300 points
Homework Assignments (10) @ 10 pts each	100 points
Laboratory Reports (10)	250 points
Pre-lab Quizzes (10) @ 5pts each	50 points
Research Paper	50 points
Final Lab Exam	50 points
Departmental Final Exam (cumulative)	200 points

Total: **1000 points**

Grading and Standards: As per college standards, grades will be awarded based on the following criteria:

A = 93-100 %	C+ = 77-79.9 %	
A- = 90-92.9 %	C = 73-76.9 %	
	C- = 70-72.9 %	F = less than 60%
B+ = 87-89.9 %	D+ = 67-69.9 %	
B = 84-86.9 %	D = 63-66.9 %	
B- = 80-83.9 %	D- = 60-62.9 %	

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

Make-up Policy: There are **no scheduled make-up exams**. *All make-ups are solely at the discretion of the instructor.* A student who has missed an exam should consult the instructor on the matter. Arrangements to take a missed exam must be made **before** the exam papers have been returned to the class.

Homework Assignments

ALL homework assignments will be done online through saplinglearning.com. ***NO WRITTEN HOMEWORK ASSIGNMENTS WILL BE ACCEPTED.*** Each student is therefore required to purchase a subscription at a cost of \$42.

To register for the site follow the instructions below:

1. Go to <http://saplinglearning.com>

2a. If you already have a Sapling Learning account, log in then skip to step 3.

2b. If you have Facebook account, you can use it to quickly create a Sapling Learning account. Click the blue button with the Facebook symbol on it (just to the left of the username field). The form will auto-fill with information from your Facebook account (you may need to log into Facebook in the popup window first). Choose a password and time zone, accept the site policy agreement, and click "Create my new account". You can then skip to step 3.

2c. Otherwise, click "create account". Supply the requested information and click "Create my new account". Check your email (and spam filter) for a message from Sapling Learning and click on the link provided in that email.

3. Find your course in the list (you may need to expand the subject and term categories) and click the link.

4. Select a payment option and follow the remaining instructions.

Once you have registered and enrolled, you can log in at any time to complete or review your homework assignments. During sign up – and throughout the term - **if you have any technical problems or grading issues, send an email to support@saplinglearning.com explaining the issue.** The Sapling support team is almost always more able (and faster) to resolve issues than your instructor.

Please refer to the LaGCC academic calendar for start/end dates and schedule changes

SCC 201	Tentative Lecture Outline
	Course orientation
Week 1:	Chapter 1 (Matter and Measurement)
Week 2:	Chapter 2.1 – 2.6 (Atoms, Molecules, and Ions)
Week 3:	Chapter 2.7 – 2.9 (Atoms, Molecules, and Ions) Chapter 3.1 – 3.4 (Stoichiometry: Calculations with Chemical Formulas)
Week 4:	Chapter 3.5 - 3.7 (Stoichiometry: Calculations with Chemical Formulas) Chapter 4.1 – 4.2 (Aqueous Reactions and Solution Stoichiometry)
Week 5 :	Chapter 4.3 – 4.6 (Aqueous Reactions and Solution Stoichiometry)
	EXAM #1 (Chapters 1, 2, 3)
Week 6:	Chapter 5 (Thermochemistry)
Week 7:	Chapter 6 (Electronic Structure of Atoms)
	EXAM #2 (Chapters 4, 5)
Week 8:	Chapter 7.1 - 7.5 (Periodic Properties of the Elements), Chapter 8.1 – 8.3 (Basic Concepts of Chemical Bonding)
Week 9:	Chapter 8.4 - 8.7 (Basic Concepts of Chemical Bonding)
Week 10:	Chapter 9.1 – 9.3 (Molecular Geometry and Bonding Theories) Chapter 9.4 – 9.7 (Molecular Geometry and Bonding Theories)
Week 11:	Chapter 10.1 – 10.2 (Gases)
	EXAM #3 (Chapters 6, 7, 8, 9)
Week 12:	Chapter 10.3 – 10.7 (Gases)
Week 13:	FINAL EXAM (CUMULATIVE)

Note: Homework assignments will be due after the completion of each chapter: individual instructors will set the due dates in Sapling.

SAFETY INFORMATION

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.**

LECTURE/LAB POLICIES

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. The maximum number of unexcused absences is limited to 15% of the number of class hours, about 4 lectures.

5. **Students will not be permitted to do the lab if they arrive more than 30 minutes late.** At the instructor's discretion, they may be permitted to do a makeup (see #8).
6. The student's data sheet should be signed by the instructor before leaving the lab. All entries into data sheets must be in **INK with NO WHITE-OUTS (liquid paper)**. The **original** signed data sheet **must** be submitted with the lab report.
7. Formal, written lab reports are required for 5 labs and are worth 35 points each. There are 5 informal labs worth 15 points each. Please the Laboratory Manual for guidelines for preparing the reports
8. Students are permitted to make up missed labs with another class at the instructor's discretion. **A maximum of two experiments may be made up. Permission is only granted if the missed lab was as a result of circumstances beyond the student's control.** Proof, such as a doctor's note, will be required. 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.***
9. A **pre-lab quiz** 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.

Week #	LABORATORY EXPERIMENTS	Exp. #
1	Orientation: Safety Procedures; Guidelines for Laboratory Reports; Introduction to Basic Laboratory Techniques (Bring a calculator!)	pp vii – xi, 9-14
2	Measurements and Significant Figures (Intro+Data+Calculations) 15pts	p 15
3	Qualitative Analysis of Ions (Procedure + Data) 15pts	p 23
4	Classification of Chemical Reactions (Data + Discussion) 15pts	p 29
5	Classification of the Bonding in Solids (Data + Discussion) 15pts	p 67
6	Determining the Empirical Formula of a Hydrate (Formal) 35pts	P 35
7	NEW- SCC 201 Experiment 5- Titration of a Newtown Creek Environmental Water Sample to Determine the Amount of Chloride Ions (Formal) 35 pts	Print from Blackboard
8	New Calorimetry- Heat of Neutralization and Hess's Law (Formal 35 pts)	Print from Blackboard
9	Colorimetric Determination of a Food Dye (Formal) 35pts	p 59
10	Molecular Models: Lewis Structures and Molecular Geometry No formal Lab Report is required: submit cover page and data sheets only. (15 pts)	p 73
11	Determination of the Gas Law Constant (Formal) 35 pts	p 83
12	Lab Final Exam	

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