

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

**CHEMISTRY OF PHOTOGRAPHY
SCC102.5APR/5BPR**

Course Instructor: **Dr. Sunaina Singh**
Email: ssingh@lagcc.cuny.edu
Office Hours: **Mon 2:00 PM-3:00 PM**
Tues 12:45 PM-2:45 PM

Office: M214
Phone: (718) 482-5310

Course Description:

3 credits/4 contact hours

This course serves as an introduction to chemistry through an exploration of the underlying chemical principles of black and white photography. The course material will be delivered through interactive classroom lectures, discussions and laboratory exercises. Topics include the definition and classification of matter, atomic theory, bonding, acids and bases, crystal structure and oxidation-reduction reactions. This course fulfills Pathways Required Core: Life and Physical Sciences.

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

For SCC 102 Distant Learning the Minimum Requirements are:

High Speed Internet (eg. No Dial up internet)
Laptop or Desktop computer with audio capabilities to communicate
Access to BlackBoard
LaGCC email

Testing:

FOR THIS SPECIFIC SCC 102 DISTANT LEARNING SECTION ONLY

Quizzes, midterm exam and final cumulative exam will be conducted in class_(in person)_____

Synchronous lecture time communication will be conducted via ___Blackboard Collaborate and in person_____

Synchronous lab time communication will be conducted via ___Blackboard Collaborate_____

Course Materials:

- 1. Textbook:** **Introductory Chemistry- 1st Canadian Edition by Jessie A. Key and David W. Ball**, ISBN 1938168151. **Free**, open-access textbook available as PDF on Blackboard or read online at https://saylordotorg.github.io/text_introduutory-chemistry/
- 2. Laboratory Manual:** The lab manual for the course is posted on Blackboard **free** of cost – you must print out and bring at least the data sheets to each lab session.
- 3. Software for Homework** Subscription to Achieve : <https://achieve.macmillanlearning.com> (\$42)
- 4. Scientific Calculator:** All students are required to have their own scientific calculator. *Borrowing calculators or using cellphones or other electronic devices 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 or click on the link below to read the policy:

<https://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. A student who is absent from more than one laboratory session seriously jeopardizes his/her grade for the course.

Students with Disabilities: In coordination with the Office for Students with Disabilities (OSD), reasonable accommodations will be provided for qualified students with disabilities. Please meet with the instructor the first week of class to make arrangements. Jhony Nelson, Director of the Office for Students with Disabilities can be contacted at jhonyn@lagcc.cuny.edu, or in person at Room M-102.

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

Midterm Exam (1hr)	100 points
2 Quizzes (40 points each)	80 points
9 Laboratory Reports (20 points each)	180 points
9 Homework Assignments (20 points each)	180 points
Project	60 points
<u>Final Exam (2 hr. cumulative)</u>	<u>200 points</u>
TOTAL	800 POINTS

Grading and Standards: A minimum of 60% of the possible points (that is, at least 480 points) must be earned in order to receive a passing grade for the course.

Letter Grades – these will be awarded based on the following:

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 %	

Exams: A midterm exam will be administered during the semester. There will be a cumulative final exam that will cover the material from all the assigned chapters and labs.

Homework: There will be nine homework assignments assigned by the instructor throughout the semester. **They will be conducted online using Achieve.** The cost to register for Achieve is \$42. Please go this link:

<https://achieve.macmillanlearning.com/courses/rbew8a/mycourse> [achieve.macmillanlearning.com] to log in or create an account.

Here is your course ID that you need for registration: **rbew8a**

- *If you have any issues during sign up or throughout the term our technical support team is here to help*
- **Student Enrollment and Technical Support Information**

Student enrollment details:

<https://macmillan.force.com/macmillanlearning/s/article/Achieve-Join-a-course> [macmillan.force.com]

Student Support:

<https://macmillan.force.com/macmillanlearning/s/chat-with-us> [macmillan.force.com]

Make-up Policy: there will be **NO make-up quizzes or labs**. If you miss a quiz or lab and you have a valid excuse (as determined by me), your other grades will be more heavily weighted to account for the missed score. If you do not have a valid excuse, you will receive a grade of zero for the missed work. Make up exams are solely at the instructor's discretion.

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LABORATORY POLICIES AND INFORMATION-only applicable for in person classes

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 goggles 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. Sneakers and boots are highly recommended.**
5. **Proper clothing is required** – no spandex leggings/tights, shorts, sleeveless shirts/blouses. Jeans and natural fabrics such as cotton and linen are recommended, as synthetic fabrics might melt and stick to skin if they come in contact with certain chemicals or with a flame.
6. The lab manual is posted on Blackboard. **Each student must print out a copy of the handout (or have a tablet or laptop computer available to read from) and data sheet and bring to each lab.**
7. Students are not permitted to do the lab if they arrive more than thirty (30) minutes late.
8. Please familiarize yourself with the symbols below which will inform you of the potential hazards of chemicals you will be using.



Hazard Communication Standard Pictogram

The Hazard Communication Standard (HCS) requires pictograms on labels to alert users of the chemical hazards to which they may be exposed. Each pictogram consists of a symbol on a white background framed within a red border and represents a distinct hazard(s). The pictogram on the label is determined by the chemical hazard classification.

HCS Pictograms and Hazards

Health Hazard	Flame	Exclamation Mark
<ul style="list-style-type: none">• Carcinogen• Mutagenicity• Reproductive Toxicity• Respiratory Sensitizer• Target Organ Toxicity• Aspiration Toxicity	<ul style="list-style-type: none">• Flammables• Pyrophorics• Self-Heating• Emits Flammable Gas• Self-Reactives• Organic Peroxides	<ul style="list-style-type: none">• Irritant (skin and eye)• Skin Sensitizer• Acute Toxicity (harmful)• Narcotic Effects• Respiratory Tract Irritant• Hazardous to Ozone Layer (Non-Mandatory)
<ul style="list-style-type: none">• Gases Under Pressure	<ul style="list-style-type: none">• Skin Corrosion/ Burns• Eye Damage• Corrosive to Metals	<ul style="list-style-type: none">• Explosives• Self-Reactives• Organic Peroxides
<ul style="list-style-type: none">• Oxidizers	<ul style="list-style-type: none">• Aquatic Toxicity	<ul style="list-style-type: none">• Acute Toxicity (fatal or toxic)

For more information:



OSHA 3491-01R 2016

NOTES FROM THE ACADEMIC CALENDAR:

Sept 8th	Last day to drop for 100% refund
Sept 9 th	First Day of Weekday Classes --- Fall Session I
Sept 11 th	First Day of Saturday Classes- Fall Session I
Sept 15 th	No scheduled classes
Sept 16th	No scheduled classes. Course withdrawal drop WD period begins
Sept 28th	Course withdrawal drop with “WD” ends
Oct 11th	College Closed
Nov 23	Irregular day- Classes follow Thursday schedule
Nov 25-28	College Closed
Dec 4th	Last day of Saturday classes
Dec 8th	Last day of Weekday classes
Dec 9th	Reading Day
Dec 10 th -16th	Final Exam Week
Dec 20th	Grades Due 4pm

Good news: your textbook for this class is available free online! Your book is available in web view and PDF free of cost.

Wk.	Date	Lecture/Lab Topics
1	Mon Sept 13	Course and Lab Orientation
	Wed Sept 15	No classes scheduled
2	Mon Sept 20	Lab 1: Basic laboratory techniques: Separation of A Mixture
	Wed Sept 22	Definition of chemistry; the Scientific Method; phases and classification of matter – pure substances (elements and compounds) and mixtures (homogeneous and heterogeneous); Physical and chemical properties; states of matter, physical and chemical changes; fundamental laws of chemistry; early ideas in Atomic Theory Read pp
3	Mon Sept 27	Lab 2: Classification of Solid Substances
	Wed Sept 29	Atomic structure, chemical symbols, chemical formulas, isotopes, the Periodic Table, the electron configuration of elements, ions Read pp
4	Mon Oct 4	Lab 3: Chemical Reactions and Equations
	Wed Oct 6	Types of chemical bonds, the Octet rule, writing chemical formulas of ionic compounds; Lewis structures of binary ionic and covalent molecules and compounds; bond polarity Read pp
5	Mon Oct 11	<i>Columbus Day – no classes</i>
	Wed Oct 13	Classification of chemical compounds; formulas of compounds; naming binary molecular and ionic compounds; types of chemical reactions, balancing chemical equations Read <i>QUIZ 1 (Wk. 1 – 3)</i>
6	Mon Oct 18	Lab 4: Percentage of Water In Popcorn

	Wed Oct 20	Avogadro's number, formula mass, mole, molar mass, calculations involving these quantities Read pp 93--100
7	Mon Oct 25	Lab 5: Observe the Rainbow: Paper chromatography
	Wed Oct 27	MIDTERM (Wk 1 – 5) Mole concept (continued) Read pp
8	Mon Nov 1	Lab 6: Chemiluminescence: Glow Stick in a Beaker
	Wed Nov 3	Wave theory of light, the electromagnetic spectrum; light reflection; light absorption and excitation of electrons; energy levels and color Read pp, lecture handout
9	Mon Nov 8	Lab 7: Molecular Modelling Lab
	Wed Nov 10	Color sensitizing: spectral sensitivity of silver halides vs human eye, sensitizing dyes and the mechanism of sensitization. Read Lecture Handout and Myers pages 8-9
10	Mon Nov 15	Lab 8: The Components of a Developer, The Stop Bath and Fixer ***Photography Darkroom Lab
	Wed Nov 17	Structure of simple crystals, colored compounds and photosensitive materials. Properties and reactions of silver halides Read pp and Myers pages 2-4
11	Mon Nov 22	Lab 9: Acids, Bases and pH
	Wed Nov 24	Oxidation – reduction reactions, oxidizing and reducing agents and its application to the photographic development process
12	Mon Nov 29	Structure and properties of common developers Lecture Handout <i>Quiz 2 (Wk.6 – 9)</i>
	Wed Dec 1	Acids, bases, pH, and buffers, chemical process of halting development Read pp and Lecture Handout
13	Mon Dec 6	Types of mixtures: solutions, suspensions, colloids, dispersions, emulsions. Solubility and solubility product and their application to fixing reactions Read text pp and Myers review

	Wed Dec 8	Reading Day
	Wed Dec 15	Final Exam