LAGUARDIA COMMUNITY COLLEGE
CITY UNIVERSITY OF NEW YORK
NATURAL SCIENCES DEPARTMENT

SCC-101: Topics in Chemistry (Online) **Fall I 2021**

Instructor's Name: _____ **Office Room**: _____

E-mail: _____ **Office Hours**: _____

Course Description: *3 credits / 3 contact hours*

This course serves as an introduction to chemistry. The complex connections between chemistry and society are explored through applying chemical principles to real world issues such as air quality, energy and water use through interactive online lectures, discussions and laboratory exercises. Topics include measurements, atoms, the Periodic Table, ionic and molecular compounds, stoichiometry, energy, acids and bases in the context of social issues. *Pre-requisites: CSE099, ENA/ENG/ESA099/ENC101, MAT096*

Online Requirements

To successfully pass this online course, you will need:

- A computer (desktop/laptop) or mobile device (smartphone, tablet, iPad)
- Microphone, speakers, headset, or earbuds
- Stable high-speed internet connection
- Built in camera in computer or mobile device (or webcam)
- Microsoft Office (Word, Excel, PowerPoint) or a suitable replacement like OpenOffice
- LaGCC student email

In order to be marked as present, all students are required to have their microphones and/or videos on and actively contribute and participate during lectures, labs, 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 online at http://library.laguardia.edu/files/pdf/academicintegritypolicy.pdf.

Attendance Policy: Attendance at all online class sessions, lecture, and laboratory, is essential for proper understanding and mastery of the course material. Attendance in online classes 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.

Course Materials:

Textbook, Lab Manual and Connect for Homework:	The course textbook is called **Chemistry in Context: Applying Chemistry to Society, 10th Edition** published by McGraw-Hill Education, 2020. The textbook also includes the Connect access code for the Homework, and so represents **Excellent Value.** The Lab Manual is free! **Where to Get It** • **Online - All Digital:** Go to https://connect.mheducation.com/class/XXXXX [consult your instructor for correct URL] to register. This gives you the complete digital e-book of the 10th edition of Chemistry in Context and access to Connect for the online Homework at a cost of $66. The Lab Manual is free. **This is the preferred option.** • **Online - Loose Leaf version:** After you have registered for your Connect account via the link above, you will have the option to purchase a loose-leaf paper version of the textbook for an extra $25 (i.e., $91 in total). • **LaGuardia Bookstore**: You can purchase the digital e-book with the Connect access code for the homework through the LaGuardia bookstore. The cost is $88. **Please note**: This option is usually only for students in specific academic programs who get a waiver that must be used through the campus bookstore. For everyone else it is cheaper to go with the first option. The ISBN for this package is: **9781266223761**.
Homework	All homework assignments must be completed through the McGraw-Hill Connect website. Follow the link above to register for the correct section and gain access to Connect and the digital e-book. Detailed instructions can be found on **page 5**.
Labs:	All material for the Labs and write-ups will be provided on Blackboard. The labs will be explored and discussed during the online class sessions. Videos will be utilized to illustrate important laboratory techniques and concepts.
Software for Exams:	Exams will be conducted on Blackboard. Make sure you can access the Blackboard site for you course and do so frequently.
Scientific Calculator:	All students are required to have their own scientific calculator. *Borrowing calculators or using cellphones/IPODs, etc. as calculators will NOT be allowed during exams.*
Disabilities:	In coordination with the Office for Students with Disabilities (OSD), reasonable accommodations will be provided for qualified students with disabilities. Please discuss with your instructor during 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.

LEARNING OUTCOMES:

At the end of this course, students will be able to:

1. Identify and apply the fundamental concepts and methods of a life or physical science.

   - **Be introduced to the principles of atomic structure, physical and chemical properties of matter, isotopes, and the Periodic Table of elements.**
   - **Be introduced to types of chemical reactions, writing and balancing chemical equations.**
   - **Be introduced to chemical quantities: Avogadro's number, formula mass, mole, molar mass and illustrate how to do the calculations involving these quantities.**
   - **Be introduced to the concepts of acids, bases and pH.**
   - **Apply these fundamental principles to understanding important social, environmental, economic and ethical issues facing modern societies such as recycling electronic devices, climate change, water pollution, energy use, nutrition and sustainability.**

2. Apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation.

   - **Explore and analyze laboratory experimental data and apply mathematical analysis to the data including presentation of the data in graphs and tables. Students will use the results of their data collection to develop a hypothesis about the chemical concept studied.**

3. Use the tools of a scientific discipline to explore laboratory experiments.

   - **In laboratory experiment videos, students will learn the basic laboratory techniques of chemistry. Students will learn how equipment such as balances, burettes, pipettes, chemical glassware are used, and they will also learn about chemical safety. Students will explore how to design and conduct laboratory experiments.**

4. Gather, analyze, and interpret data and present it in an effective written lab or fieldwork report.

   - **Write lab reports to communicate the significance of the data provided during lab experiments.**

5. Identify and apply research ethics and unbiased assessment in gathering and reporting scientific data.

   - **Carry out a research project and present the results to an audience composed of peers and the instructor.**

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

2 Exams (120 points each)	240 points
5 Laboratory Reports (30 points each)	150 points
8 Homeworks (20 points each)	160 points
Research Project/Oral Presentation	90 points
Departmental Final Exam (cumulative)	**160 points**
TOTAL	**800 POINTS**

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 %	

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.

Make-up Policy: There will be **no scheduled make-up exams**. A student who has missed an online exam should consult the instructor on the matter. Arrangements to take a missed exam must be made **before** online exam feedback is given to the class.

Exams: Two (2) hour-long online exams will be administered during the semester. **They will be conducted online using Blackboard.** Make sure you can assess the Blackboard site for you course and do so frequently**.**

Final Exam: There will be a comprehensive online Departmental Final Exam that will cover the material from **ALL** the assigned chapters and labs. **This will also be conducted online using Blackboard.**

Homework: There will be eight homework assignments assigned by the instructor throughout the semester. **They will be conducted online using Connect**.

Research Project: The purpose of the research project assignment is to allow you to explore some area of interest within chemistry, particularly related to environmental issues. The research project will allow you to expand your understanding of the topic, and improve your research, writing, and presentation skills. The final research paper is in the form of a report and an oral presentation. **See the Research Paper Guidelines on Blackboard for further details.**

Homework Assignments

ALL homework assignments are done online via:

https://connect.mheducation.com/class/XXXX [consult your instructor for correct URL]

NO WRITTEN HOMEWORK ASSIGNMENTS WILL BE ACCEPTED.
Each student is therefore required to purchase a subscription to Connect. This includes the course e-book as well, so represents excellent value. The Lab Manual is free!

How to Register for Connect

1. Go to the section web address given above.
2. a. If you are Already in this class, click 'Sign in' at the bottom of the page.
   b. If not, enter your email to join this class, then click the "**Begin**" Button.
3. a. If you already have a McGraw-Hill account, you will be prompted for your password.
   b. If you do not have a McGraw-Hill account, you will be asked to create one.
4. To access Connect:
   a. If you already have a Connect Code (for example, included in the print package from the bookstore), enter it in the **"Use Connect Code"** section.
   b. If you do not have an access code, select "**Buy It**" in the Connect section (valid credit card or PayPal required).
   c. If you wish to purchase at a later time, you may begin a two-week **Temporary Access** period at this time. You will be prompted to upgrade to full Connect access before your temporary access period expires. **You must purchase full Connect access in order to maintain access to your course assignments and materials.**
5. Complete the appropriate forms to complete your access to Connect.

For more details, visit https://createwp.customer.mheducation.com/wordpress-mu/success-academy-student/registering-for-connect/

Once you have registered and enrolled, you can log in at any time to complete or review your homework assignments.

Technical Support: If you have any technical problems or other issues, contact the **McGraw-Hill Support Center** via **https://mhedu.force.com/CXG/s/ContactUs** or call **1 (800) 331-5094** and explain the issue. The McGraw-Hill support team responds quickly and is usually able to resolve your issues.

The due date for each homework assignment is listed on Connect.

Exams will be conducted online using Blackboard.

SCC-101 Class Schedule and Instructors for Fall I 2021

All Classes are Online

Section Number	Days	Time	Instructor	Location
182 A&B	W	11:45 – 3:15 PM	I. Alberts	Online
230 A&B	Tu	8:00 – 11:30 AM	T. Ara	Online
264 A&B	F	11:45 – 3:15 PM	I. Alberts	Online
265 A&B	M	3:25 – 6:45 PM	A. Kodjo	Online
681 A&B	M	6:55 – 10:15 PM	L. Tshering	Online

Academic Calendar

2021 FALL SEMESTER - SESSION I		
Thursday	September 9	**First Day of Weekday Classes – Fall Session I**
Wednesday – Thursday	September 15 – 16	**No Classes Scheduled**
Wednesday	September 29	Withdrawal period begins
Monday	October 11	**College Closed**
Tuesday	November 23	**Irregular Day – Classes follow Thursday schedule**
Thursday – Sunday	November 25 – 28	**College Closed**
Wednesday	December 8	**Last Day of Weekday Classes – Fall Session I** Withdrawal period ends
Thursday	December 9	Reading Day
Friday - Thursday	December 10 - 16	**Final Examinations** / Fall Session I Ends
Monday	December 20	Grades and Attendance Due by 4 PM

Note: Instructors please conduct your Dept Final Exam during the final examination week (December 10 - 16) only.

Tentative Lecture/Lab Topic Outline

WEEK 1	**Course Introduction, Online Requirements** **Chapter 1: Portable Electronics: The Periodic Table in the Palm of Your Hand**: How do Touchscreens Work? What's the Matter with Materials? A Survey of the Periodic Table; Compounding the Complexity: From Elements to Compounds; Measuring the Invisible-How Small are Atoms? What Makes Atoms Tick? Atomic Structure; A Look at the Elements in Their Natural States; From Sand to Silicon; From Sand to Glass; From Cradle to Grave: The Life Cycle of a Cell Phone; The Importance of Recycling. (3 hrs)
WEEK 2	**Chapter 2: The Air We Breathe**: Why Do We Breathe? Defining the Invisible: What is Air? You Are What You Breathe; What Else is in the Air? The Troposphere; Naming Molecular Compounds; A Look at Air Pollutants; Assessing the Risk of Air Pollutants; Air Quality Monitoring and Reporting; The Origin of Pollutants; The Effect of Combustion on Air Quality; Air Pollutants: Direct Sources; Ozone: A Secondary Pollutant; Are We Safe from Polluted Air by Staying Indoors? Is There a Sustainable Way Forward? (3 hrs) **Homework #1 due**
WEEK 3	**Chapter 3: Radiation from the Sun**: The Electromagnetic Spectrum; The Personalities of Radiation; The ABCs of Ultraviolet Radiation; The Biological Effects of Ultraviolet Radiation. (1 hr) **Homework #2 due, Research Project Topic due** **Lab 1**: The Air That I Breathe: Generation and Chemical Properties of Oxygen and Carbon Dioxide (2 hrs)
WEEK 4	**Chapter 3: Radiation from the Sun (continued)**: The Atmosphere as Natural Protection; How Can We Measure the Ozone Concentration? How Does Ozone Decompose in UV Light? How Safe is Our Protective Ozone Layer? Human Roles in the Destruction of the Ozone Layer; Where Do We Go from Here? How Do Sunscreens Work? (2 hrs) **Chapter 4: Climate Change**: Carbon, Carbon Everywhere; Where Did All the Carbon Go? Quantifying Carbon-First Stop: Mass, Quantifying Carbon-Next Stop: Molecules and Moles. (1 hr)
WEEK 5	***EXAM #1 (Chapters 1, 2 and 3)*** *(1 hr)* **Homework #3 due** **Lab 2**: Chemical Equations and Moles: Making Table Salt from Baking Soda (2 hrs)
WEEK 6	**Chapter 4: Climate Change (continued)**: Why Does It Matter Where Carbon Atoms End Up? Warming by Greenhouse Gases; How Do You Recognize a Greenhouse Gas? How Do Greenhouse Gases Work? How Can We Learn from Our Past? A Look at Our Future World; Action Plans to Prevent Future Global Catastrophes. (3 hrs) **Homework #4 due**

WEEK 7	**Chapter 5: Water Everywhere: A Most Precious Resource**: The Unique Composition of Water; The Key Role of Hydrogen Bonding; Where, Oh Where is All the Water? There is Something in My Water; Quantifying Water Quality. (1 hr) **Research Project Outline due** **Lab 3**: What Is in My Water? (2 hrs)
WEEK 8	**Chapter 5: Water Everywhere: A Most Precious Resource (continued), *Appendix 3***: A Deeper Look at Solutes; The Properties and Impacts of Acids and Bases; Acid-Base Neutralization; The pH Scale; **Appendix 3: Logs**; The Chemistry of Acid Rain; Ocean Acidification; Acid's Effect on Water; Treating Our Water; Water Solutions for Global Challenges. (3 hrs) **Homework #5 due**
WEEK 9	***EXAM #2 (Chapters 4, 5)*** *(1 hr)* **Lab 4**: Which Everyday Substances are Acids or Bases? (2 hrs)
WEEK 10	**Chapter 6: Energy from Combustion**: Fossil Fuels; The Process of Combustion; What is Energy? Measuring Energy Changes; How is Energy Released During Combustion; Fossil Fuels and Electricity; How Efficient is a Power Plant? Coal; Crude Oil; Natural Gas; Petroleum; What's in Gasoline? New Uses for an Old Fuel; Ethanol; Biofuels; Sustainability. (2 hrs) **Chapter 11: Nutrition**: You Are What You Eat; From Buttery Popcorn to Cheesecake: Lipids; Fats and Oils; Carbohydrates: Sweet and Starchy; How Sweet it Is: Sugars and Sugar Substitutes. (1 hr) **Homework #6 due**
WEEK 11	**Chapter 11: Nutrition (continued); Brief Review**: Proteins: First Among Equals; Vitamins and Minerals: The Other Essentials; Food for Energy; The Carbon Footprint of Foods; The Nitrogen Footprint of Foods, Feeding a Hungry World. (1hr) **Homework #7 due** **Lab 5**: How Much Fat is in Your Potato Chips? (2 hrs)
WEEK 12	**Oral Project Presentations** **Homework #8 due**
WEEK 13	**FINAL EXAM (LAB AND LECTURE CUMULATIVE)**

Course Coordinator: Dr. Christopher Farley (cfarley@lagcc.cuny.edu) Office: online