Course Description: In this course we will explore through lecture and peer-led discussions the fundamental ideas of chemistry (periodic table, atomic structure, chemical bonding and shape, electrons and protons in reactions) and the application of chemistry energy and environmental issues - climate change, ocean acidification, and nuclear energy.

Course Textbook: Chemistry: Exploring the Molecular Vision (Gosser & Sohel) Linus Publications. Order directly from the publisher $48 + shipping. The first two chapters are on the course web site. Book should be ordered before September 5, 2013.

Course Web Site: [https://sites.google.com/site/explorchemccny/](https://sites.google.com/site/explorchemccny/). See course website for detailed syllabus, class schedule, topics, reading assignments, and other information. We will use blackboard site for grading.

Lectures: Friday 9:30 - 10:45 am. Each friday we will discuss key topic in the course, and prepare for the workshop. It is essential to attend lecture. There will be a 10 minute mini-quiz at the beginning of each lecture which will count as part of the grade.

Peer-led Workshops: These are scheduled throughout the week. An undergraduate peer-leader will guide you through the workshops that are essential to understanding the course materials. Attendance (on time!) is essential and will be recorded and be part of the grade.

Workshops:

Homework: On-line Problems will be assigned.

Grading
Lecture Quizzes/Attendance: 15%
Workshop Participation: 15%
Semester Exams (2): 40%
Final Exam: 30%

First Assignments: 1. Order the textbook from Linus Publications. 2. Download and Read the first Chapter of the textbook. 3. Attend your workshops. 4. Be ready for quiz on Chapter One next class.
Specific Learning & Performance Goals

1. Knowledge of and application of measurement, significant figures, basic statistics to experimental data.
2. Conduct experiments, collect and analyze data, and write reports for laboratories involving measurement, visible spectroscopy, concentration of solutions, and pH.
3. Work collaboratively in small groups and discuss, debate, and negotiate meaning of chemistry.
4. Explain Dalton’s atomic theory and apply to chemical reactions.
5. Be able to determine the atomic structure (protons, neutrons, and electrons) from the periodic table.
6. Be able to represent chemical reactions using formula’s and interpret in terms of mass.
7. Be able to calculate concentrations in part per units.
8. Be able to describe the interaction of light and matter and the use of Beer’s Law in visible spectroscopy.
9. Understand the concept of pH and apply to issue of ocean acidification.
10. Use models to describe and interpret shapes of molecules.
11. Be able to describe nuclear reactions involved in carbon dating and nuclear energy.
12. Understand the science behind the environmental concerns of ozone layer, climate change and nuclear energy.

Statement on Academic Integrity

The CCNY policy on academic integrity will be followed in this course. The document can be found through the CCNY website by clicking on Current Students (Academic Services) (Policy on Academic Integrity). All students must read the details regarding plagiarism and cheating in order to be familiar with the rules of the college. Cases where academic integrity is compromised will be prosecuted according to these rules. In addition, the Policy of Academic Integrity can be found in the Undergraduate Bulletin 2007-2009 in Appendix B.3 on page 312.

Disability

In compliance with CCNY policy and equal access laws, appropriate academic accommodations are offered for students with disabilities. Students must first register with The AccessAbility Center for reasonable academic accommodations. The AccessAbility Center is located in the North Academic Center, Rm. 1/218. Tel: (212) 650-5913. Under The Americans with Disability Act, an individual with a disability is a person who has a physical or mental impairment that substantially limits one or more major life activities. If you have any such issues, I encourage you to visit the AccessAbility Center to determine which services may be appropriate for you.

General Education Information

As part of the College’s General Education Curriculum, this course is designed to enhance your
understanding of science. Students successfully completing this course will be able to:

- Identify and apply the fundamental concepts and methods of a life or physical science.
- Apply the scientific method to explore natural phenomena, including hypothesis development, observation, experimentation, measurement, data analysis, and data presentation.
- Use the tools of a scientific discipline to carry out collaborative laboratory investigations.
- Gather, analyze, and interpret data and present it in an effective written laboratory or fieldwork report.
- Identify and apply research ethics and unbiased assessment in gathering and reporting scientific data.